

Refrigeration, Air Conditioning, and Warm Air Heating Equipment: 2005

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SUMMARY OF FINDINGS

In 2005, the value of shipments of heat transfer equipment increased by 1.8 percent to \$4,766 million, compared with the 2004 figure of \$4,681 million. The value of shipments of condensing units, refrigeration (complete), increased by 2.3 percent to \$334 million, compared to the 2004 level of \$326 million. Room air conditioners showed a

decrease of 1.9 percent in 2005 with \$516 million shipped, compared with \$526 million shipped in 2004. The value of shipments of motor vehicle mechanical air-conditioning systems increased by 4.1 percent to \$2,781 million, compared to the 2004 figure of \$2,670 million. Compressors and compressor units increased by 3.9 percent to \$2,430 million, compared with \$2,338 million in 2004. Automotive air-conditioning compressors showed a decrease of 5.5 percent in 2005 with \$1,519 million shipped, compared to the \$1,607 million shipped in 2004. Nonelectric warm air furnaces and humidifiers showed a 5.6-percent increase from \$2,083 million in 2004 to a value of \$2,200 million in 2005. Unitary air-conditioners increased by 14.9 percent to \$6,997 million, from the 2004 level \$6,089 million. The value of shipments of air source heat pumps increased by 21 percent to \$1,752 million in 2005, compared to \$1,448 million in 2004. The value of shipments of ground and ground water source heat pumps increased from \$136 million for 2004 to \$150 million in 2005, showing a 10.6-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: 2005 and 2004
 [Value in thousands of dollars]

Product code	Product description	2005	2004
3334151	Heat transfer equipment.....	4,766,490	4,680,792
3334153 pt.	Commercial refrigeration equipment.....	502,522	463,776
3334155	Condensing units, refrigeration (complete).....	333,805	326,257
3334156	Room air-conditioners and dehumidifiers.....	516,236	526,433
3363917	Motor vehicle mechanical air-conditioning systems.....	2,780,776	2,670,213
333415A	Compressors and compressor units.....	2,429,921	2,337,880
336391B	Automotive air-conditioning compressors.....	1,518,681	1,606,960
333415C	Nonelectric warm air furnaces and humidifiers.....	2,200,210	2,083,168
333415E	Unitary air conditioners.....	6,996,518	6,089,160
333415F	Air source heat pumps.....	1,751,496	1,448,096
333415G	Ground and ground water source heat pumps.....	150,021	135,666
pt. Part.			

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2005 and 2004
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005		2004	
			Quantity	Value	Quantity	Value
3334151	Heat transfer equipment (except room and unitary air-conditioners).....	126	(X)	4,766,490	(X)	4,680,792
3334151101	Packaged terminal air-conditioners 1/.....	8 a/	198,116 a/	117,143 a/r/	181,680 r/	101,067
3334151103	Package terminal heat pumps.....	6 a/	164,428 a/	84,063 a/r/	146,874 a/r/	66,819
	Evaporative condensers.....	(X)	2,113	63,351	2,052	57,636
3334151105	100 tons and under.....	11	703	7,032	641	6,094
3334151107	Over 100 tons.....	12	1,410	56,319	1,411	51,542
	Room fan-coil air conditioning units:					
3334151109	Vertical stack.....	3	(D)	(D) r/	9,323	8,238
3334151111	Vertical.....	7 c/	99,226 a/	88,057	97,166	84,712
3334151113	Horizontal.....	7 c/	82,629 c/	43,249 a/	105,787	50,189
3334151115	Room air-induction units.....	2	(D)	(D)	(D)	(D)
	Central station air-handling units (motor-driven fan-type).....	(X)	(D)	(D)	(D)	(D)
3334151117	Draw through.....	21	56,481	556,001 r/	52,621 r/	534,973
3334151119	Blow through.....	10	(D)	(D)	(D)	(D)
3334151121	Heating and ventilating.....	9 c/	11,168	36,954 c/	11,468	37,744
	Coolers (refrigeration):					
	Ceiling, wall-mounted, and floor-mounted unit coolers.....	(X)	208,737	155,247	214,598	144,968
3334151123	4,000 Btuh and below.....	7	54,455	12,341	57,969	12,387
3334151125	4,001 to 6,000 Btuh.....	7	12,154	3,924	12,571 r/	3,700
3334151127	6,001 to 8,000 Btuh.....	7	24,460	10,799	24,286	10,245
3334151129	8,001 to 12,000 Btuh.....	8	48,517	24,300	48,413	20,565
3334151131	12,001 to 18,000 Btuh.....	9	34,975	22,992	35,639 r/	21,394
3334151133	Over 18,000 Btuh.....	13	34,176	80,891	35,720	76,677
	Air cooled refrigerant condensers remote type).....	(X)	23,800	81,478	22,796	66,887
3334151135	Under 30 tons.....	13 a/	16,364	30,969	15,705	17,186
3334151137	30 to 50 tons.....	9	1,957	6,863	1,786	6,812
3334151139	Over 50 tons.....	8	5,479	43,646	5,305	42,889
	Miscellaneous heat transfer equipment:					
	Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube.....	(X)	(X)	57,245	(X)	51,535
3334151141	Condensers.....	6	(X)	27,355	(X)	24,726
3334151143	Liquid coolers.....	9	(X)	29,890	(X)	26,809
3334151145	Liquid-suction heat exchangers and refrigerant liquid receivers.....	7	(X)	5,624	(X)	5,792
	Central system finned coils (air-conditioning and refrigeration type).....	(X)	(X)	79,242	(X)	69,249
3334151147	Standard steam and steam distributing tube.....	11	(X) a/	21,422	(X)	19,217
3334151149	Standard water cooling and/or heating and cleanable tube water.....	11	(X)	52,224	(X)	44,300
3334151151	Volatile refrigerant cooling.....	9	(X)	5,596	(X)	5,732
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturer (all types).....	(X)	(X)	530,338	(X)	458,791
3334151153	Copper and aluminum.....	16	(X)	387,351	(X)	325,406
3334151155	Aluminum (only).....	7	(X)	70,805	(X)	62,297
3334151157	Other, including steel and copper.....	7	(X)	72,182	(X) r/	71,088
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)	5,770	566,326	6,241	564,066
3334151161	200 hp and under.....	11 c/	916	22,662 c/	1,260	30,960
3334151163	201 to 300 hp.....	7	748	46,592	814	49,522
3334151165	301 to 400 hp.....	7	1,112	83,184	1,094	76,702
3334151167	Over 400 hp.....	6	2,994	413,888	3,073	406,882
	Ice-making machines.....	(X)	373,451	648,143 r/	345,873	585,657
	Self-contained ice-cube makers.....	(X)	144,757	173,332 r/	144,857 r/	182,273
3334151169	Automatic, under 200 lb.....	5	99,728	81,945 r/	96,386 r/	80,150
3334151171	Automatic, 201 lb and over.....	8 a/	45,029 a/	91,387 r/	48,471 a/	102,123
	Self-contained flake or chip machines.....	(X)	16,290	41,447 r/	13,511 r/	33,201
3334151173	300 lb and under.....	4 a/	1,486	3,143 r/	1,676 r/	3,464
3334151175	Over 300 lb.....	12 b/	14,804 c/	38,304 c/r/	11,835 a/r/	29,737
3334151177	Not self-contained.....	8	127,061	239,290	115,980	207,691
3334151179	Combination ice makers and ice/drink dispensers.....	6	85,343	194,074	71,525	162,492
3334151181	Absorption refrigeration and dehydration systems.....	4	7,430	64,152 r/	6,146 r/	64,460
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)	24,072	462,088 r/	28,508	443,501

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2005 and 2004
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005		2004		
			Quantity	Value	Quantity	Value	
3334151185	20 hp and under.....	20	6,794	34,480	r/	7,319	36,113
3334151187	21 to 49 hp.....	18	4,985	38,419	r/	8,647	45,571
3334151189	50 to 75 hp.....	16	5,111	77,240	r/	5,507	76,082
3334151191	Over 75 hp.....	18	7,182	311,949		7,035	285,735
3334151193	Factory-fabricated water cooling towers.....	12 a/	9,537 a/	245,130	a/	8,999 a/	212,340
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	9	1,120,661 a/	502,522	r/	1,025,872	r/ 463,776
3334155	Condensing units, refrigeration (complete).....	25 c/	416,264 a/	333,805	a/r/	410,993	326,257
	Air-cooled hermetic-type.....	(X)	406,053	270,471	r/	400,876	264,860
3334155123	1 hp and under.....	12	307,812	134,575	r/	303,718	r/ 133,601
3334155125	1.5 hp.....	9	24,782	18,759		23,766	17,603
3334155128	2 hp and 2.5 hp.....	10	25,415	24,556		25,178	23,216
3334155130	3 hp.....	9	21,416	25,320		22,098	26,210
3334155132	Over 3 hp, but under 15 hp.....	14	26,628	67,261		26,116	64,230
3334155144	Water-cooled hermetic-type, under 15 hp.....	2	(D)	(D)		(D)	(D)
	Water or air-cooled hermetic-type.....	(X)	6,094	56,414		6,145	55,543
3334155161	15 hp.....	8	1,707	8,702		1,692	8,490
3334155163	20 hp.....	11	1,156	7,876		1,188	r/ 7,560
3334155165	25 hp.....	11	850	7,060		954	7,526
3334155167	30 hp.....	8	806	9,030		831	9,112
3334155170	40 hp.....	11	1,575	23,746		1,480	22,855
3334155180	Water or air-cooled open-type (all sizes).....	4	(D)	(D)		(D)	(D)
3334156	Room air-conditioners and dehumidifiers.....	15	(X)	516,236		(X)	r/ 526,433
3334156111	Electrically operated dehumidifiers, mechanically refrigerated, self-contained.....	6	587,106 a/	101,039		574,926	89,518
	Room air-conditioners.....	(X)	2,168,538	415,197	r/	2,524,086	r/ 436,915
3334156131	5,999 Btuh and under.....	4	(D)	(D)		(D)	(D)
3334156134	6,000 to 6,999 Btuh.....	4	(D)	(D)		(D)	(D)
3334156138	7,000 to 7,999 Btuh.....	5 a/	10,215 a/	3,365	r/	7,632	r/ 2,495
3334156142	8,000 to 8,999 Btuh.....	6	262,954	36,058		446,539	56,420
3334156146	9,000 to 9,999 Btuh.....	5	(D)	(D)		(D)	(D)
3334156152	10,000 to 10,999 Btuh.....	7 c/	269,947 c/	44,200	r/	303,342	r/ 49,515
3334156156	11,000 to 12,999 Btuh.....	9 c/	354,107 a/	78,380	r/	406,239	r/ 80,641
3334156161	13,000 to 14,999 Btuh.....	8	(D)	(D)		(D)	(D)
3334156163	15,000 to 16,999 Btuh.....	6 a/	121,290 a/	33,766	r/	108,149	r/ 29,261
3334156165	17,000 to 19,999 Btuh.....	7 a/	173,411 a/	43,964	r/	176,022	r/ 47,889
3334156167	20,000 to 22,999 Btuh.....	6	3,314	1,980		7,342	2,902
3334156171	23,000 to 25,999 Btuh.....	9 a/	174,977 a/	61,002	r/	119,806	r/ 40,574
3334156175	26,000 Btuh and over.....	8	(D)	(D)		(D)	(D)
3363917	Motor vehicle mechanical air-conditioning systems.....	(X)	(X)	2,780,776		(X)	2,670,213
3363917110	Air-conditioning units and systems for passenger automobiles 2/.....	21	16,721,706	1,886,671	r/	17,583,976	1,860,887
3363917120	Air-conditioning units and systems for buses.....	9 c/	361,701 a/	136,307	c/	329,870	a/ 116,872
3363917130	Other motor vehicle mechanical air-conditioning systems.....	14	4,403,075	757,798	r/	4,320,229	692,454
333415A	Compressors and compressor units 3/ 4/.....	25	(X)	2,429,921		(X)	2,337,880
	All refrigerants (except ammonia).....	(X)	12,762,478	2,335,820	r/	12,949,894	2,259,422
	Hermetic-type motor compressors.....	(X)	12,756,348	2,274,097	r/	12,942,817	2,194,810
333415A111	Under 3 hp.....	8	7,643,458	1,004,698	r/	7,927,963	984,839
333415A123	3 to 10 hp.....	11	(D)	(D)		(D)	(D)
333415A130	15 hp.....	10	12,172	14,020		15,135	14,589
333415A132	20 hp.....	10	6,103	10,896		7,156	11,585
333415A134	25 hp.....	10	4,623	8,955		6,371	10,741
333415A136	30 hp.....	10	2,567	7,956		2,476	7,822
333415A139	40 hp and 50 hp.....	10	13,401	36,225	r/	13,437	35,009
333415A142	60 hp.....	8	(D)	(D)		(D)	(D)
333415A146	75 hp.....	6	(D)	(D)		(D)	(D)
333415A149	100 hp and over.....	6	(D)	(D)		(D)	(D)
333415A152	Open-type compressors (with or without motor--all sizes).....	9	(D)	(D)		(D)	(D)
333415A154	Screw type.....	3	(D)	(D)		(D)	(D)
333415A158	Ammonia refrigerants (all types).....	5	1,671	94,101	a/r/	1,717	78,458
336391B100	Automotive air-conditioning compressors (open-type, with or without motor).....	13	13,852,177	1,518,681		14,407,374	1,606,960
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	(X)	(X)	2,200,210		(X)	2,083,168
	Oil, forced air:						
333415C101	150,000 Btuh bonnet output and under.....	13	77,679	62,793		91,283	68,971
333415C105	150,001 Btuh bonnet output and over.....	11 a/	3,700 a/	5,939	a/	3,823	r/ 5,267

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2005 and 2004
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005		2004		
			Quantity	Value	Quantity	Value	
Gas, forced air:							
333415C107	150,000 Btuh bonnet output and under.....	17	4,230,356	2,013,033	r/	4,191,209	r/ 1,893,494
333415C109	150,001-400,000 Btuh bonnet output.....	11	12,902	10,792		13,844	10,320
333415C111	Over 400,000 Btuh bonnet output.....	8	1,836	27,224	r/	2,576	r/ 27,028
333415C179	All other nonelectric warm air furnaces.....	5 a/	1,522 a/	2,284	a/	1,640	a/ 1,497
333415C181	Humidifiers (attachments to warm air furnaces) (all types), including central systems and self-contained (except portable humidifiers).....	13	612,001 a/	78,145		624,070	a/ 76,591
333415E	Unitary air conditioners.....	57	(X)	6,996,518		(X)	6,089,160
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)	261,674	677,747		228,650	r/ 695,497
333415E107	Under 27,000 Btuh.....	14 c/	24,372 c/	19,352	c/	19,373	c/ 14,717
333415E109	27,000 to 32,999 Btuh.....	14	31,566	30,644		27,607	25,607
333415E111	33,000 to 53,999 Btuh.....	15 a/	87,787	111,951	a/	76,162	r/ 184,458
333415E113	54,000 to 64,999 Btuh.....	15	50,882 a/	70,910		42,370	a/ 56,885
333415E115	65,000 to 96,999 Btuh.....	12	19,521	40,296		19,707	37,448
333415E117	97,000 to 134,999 Btuh.....	13	15,927	49,540		14,748	43,163
333415E119	135,000 to 184,999 Btuh.....	12	12,395	54,296		11,294	47,292
333415E121	185,000 to 249,999 Btuh.....	13	7,071	51,618		6,066	42,740
333415E123	250,000 to 319,999 Btuh.....	11	5,612	34,583		4,705	33,036
333415E135	320,000 to 379,999 Btuh.....	11	1,364	23,953		1,520	25,574
333415E141	380,000 Btuh and over.....	10	5,177 a/	190,604		5,098	a/ 184,577
Other than horizontal.....		(X)	(D)	(D)		(D)	(D)
333415E143	Under 54,000 Btuh.....	5	(D)	(D)		(D)	(D)
333415E145	54,000 to 64,999 Btuh.....	4	(D)	(D)		4,458	8,882
333415E147	65,000 to 96,999 Btuh.....	4	550	1,786		418	1,456
333415E149	97,000 to 134,999 Btuh.....	4	(D)	(D)		279	1,616
333415E151	135,000 to 184,999 Btuh.....	3	327	2,417		228	1,777
333415E153	185,000 Btuh and over.....	4	1,122	20,534		949	17,702
Year-round air-conditioners, single package and remote-condenser type (except heat pumps).....							
		(X)	630,758	1,588,689		595,835	1,483,404
333415E155	Under 33,000 Btuh.....	17	129,935	124,341		129,347	112,529
333415E157	33,000 to 38,999 Btuh.....	16	118,038	144,220		111,471	124,621
333415E159	39,000 to 43,999 Btuh.....	14	33,961	40,266		31,978	34,492
333415E161	44,000 to 53,999 Btuh.....	14	79,632	116,092		76,035	105,370
333415E163	54,000 to 64,999 Btuh.....	19	103,462	229,848		100,594	211,795
333415E165	65,000 to 134,999 Btuh.....	11	101,688	339,755	r/	85,009	317,749
333415E167	135,000 to 184,999 Btuh.....	11	34,638	206,452		32,731	189,942
333415E169	185,000 to 249,999 Btuh.....	13	17,016	153,240		15,519	137,631
333415E171	250,000 to 319,999 Btuh.....	11	6,423	64,599		6,756	67,740
333415E173	320,000 to 379,999 Btuh.....	11	1,997	31,605		1,966	31,360
333415E175	380,000 to 539,999 Btuh.....	9	1,819	35,121		1,936	37,207
333415E177	540,000 to 639,999 Btuh.....	8	951	26,702		960	24,586
333415E179	640,000 Btuh and over.....	8	1,198	76,448		1,533	88,382
333415E181	Water source heat pumps (except room air-conditioners).....	10 c/	134,585 a/	171,062	a/	135,769	a/ 159,203
Split system air-conditioning condensing units.....							
		(X)	6,012,684	3,220,258		5,047,828	2,601,345
333415E182	Under 22,000 Btuh.....	14	386,022	131,676		314,431	107,275
333415E183	22,000 to 26,999 Btuh.....	14	1,267,457	478,769		996,219	362,294
333415E185	27,000 to 32,999 Btuh.....	15	1,073,172	485,567		899,151	380,991
333415E187	33,000 to 38,999 Btuh.....	15	1,319,595	672,659		1,122,698	538,085
333415E189	39,000 to 43,999 Btuh.....	13	570,213	333,587		504,679	279,656
333415E191	44,000 to 53,999 Btuh.....	15	751,811	504,825		637,933	402,050
333415E193	54,000 to 64,999 Btuh.....	13	580,492	442,871		513,529	369,532
333415E195	65,000 to 96,999 Btuh.....	7	26,298	34,795		24,284	31,206
333415E197	97,000 to 134,999 Btuh.....	7	16,265	27,554		14,062	25,291
333415E199	135,000 to 184,999 Btuh.....	7	9,926	29,312		9,266	27,229
333415E19A	185,000 to 249,999 Btuh.....	7	5,056	20,954		4,622	18,723
333415E19C	250,000 to 319,999 Btuh.....	5	1,747	10,300	r/	1,945	r/ 10,620
333415E19E	320,000 to 379,999 Btuh.....	5	1,598	10,980		1,776	11,465
333415E19G	380,000 to 539,999 Btuh.....	5	1,303	11,765		1,362	11,815
333415E19J	540,000 to 639,999 Btuh.....	4	654	7,428		707	7,689
333415E19L	640,000 Btuh and over.....	3	1,075	17,216		1,164	17,424
Split system air-conditioning coils.....							
		(X)	4,143,471	1,068,262		3,880,124	905,440
333415E19M	With blower.....	9	2,352,599	833,222		2,134,560	r/ 683,681
333415E19P	Without blower.....	12 c/	1,790,872 a/	235,040	a/	1,745,564	221,759

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2005 and 2004
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005		2004	
			Quantity	Value	Quantity	Value
333415F	Air source heat pumps (except room air-conditioners).....	21 a/	2,113,944	1,751,496	1,876,524	1,448,096
	Single package:					
333415F123	Under 27,000 Btuh.....	14	37,179	33,832	33,412	28,893
333415F134	27,000 to 41,999 Btuh.....	16	105,946	115,351 r/	96,464 r/	99,140
333415F145	42,000 to 64,999 Btuh.....	16	93,064	124,752 r/	85,010 r/	107,574
333415F156	65,000 Btuh and over.....	9	14,914	49,731	13,294	43,826
	Split system:					
333415F167	Under 27,000 Btuh.....	11	571,746	314,311	508,225	261,249
333415F178	27,000 to 41,999 Btuh.....	11	847,593	636,403	747,739 r/	460,085
333415F189	42,000 to 64,999 Btuh.....	11	430,173	449,510	378,557	419,973
333415F195	65,000 Btuh and over.....	9	13,329	27,606	13,823	27,356
333415G	Ground and ground water source heat pumps.....	6	79,844	150,021	75,519 a/r/	135,666

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: 2005 and 2004
 [Quantity of number units]

Product description	No. of cos.	2005	2004
Compressor bodies 1/ 2/.....	(X)	15,525,312	15,925,025
All refrigerants (except ammonia).....	(X)	12,744,636	12,947,133
Under 2 hp.....	8	(D)	(D)
2 hp.....	6	(D)	(D)
3 hp.....	10	(D)	(D)
4 hp.....	4	93,310	129,697
5 hp.....	8	1,079,528	1,083,356
7 1/2 hp.....	9	106,838	94,962
10 hp.....	13	(D)	(D)
15 hp.....	12	75,945	142,019
20 hp.....	10	18,321	11,744
25 hp.....	11	9,266	10,969
30 hp.....	12	(D)	(D)
40 hp.....	11	9,365	10,518
50 hp.....	9	(D)	(D)
60 hp.....	10	4,762	4,701
75 hp.....	10	6,234	3,744
100 hp and over.....	10	15,676	25,078
 Automotive air-conditioning, including passenger automobiles, trucks, buses, agriculture, and construction equipment.....	 3	 2,586,430	 2,885,647
 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: 2005 and 2004
 [Value in thousands of dollars]

Product code 1/	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) 1/ 2/	Imports for consumption 3/ 4/
2005				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,766,490	328,959	185,759
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	502,522	19,814	113,300
3334155	Condensing units, all refrigerants.....	333,805	51,771	49,335
3334156	Room air-conditioners and dehumidifiers.....	516,236	81,631	1,011,681
3363917	Motor vehicle mechanical air-conditioning systems.....	2,780,776	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	2,429,921	1,009,706	1,524,991
336391B	Automotive air-conditioning compressors.....	1,518,681	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	2,200,210	(NA)	(NA)
333415E	Unitary air-conditioners.....	6,996,518	294,727	446,718
333415F	Air source heat pumps.....	1,751,496	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	150,021	(NA)	(NA)
2004				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,680,792	312,977	139,780
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	463,776	15,592	108,211
3334155	Condensing units, all refrigerants.....	326,257	37,479	36,454
3334156	Room air-conditioners and dehumidifiers.....	526,433	51,307	1,025,066
3363917	Motor vehicle mechanical air-conditioning systems.....	2,670,213	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	2,337,880	1,079,623	1,343,961
336391B	Automotive air-conditioning compressors.....	1,606,960	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	2,083,168	(NA)	(NA)
333415E	Unitary air-conditioners.....	6,089,160	259,614	314,530
333415F	Air source heat pumps.....	1,448,096	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	135,666	(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: 2005

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
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		
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		
333415F	Air source heat pumps 3/.....	(X)	(X)
333415G	Ground and ground water source heat pumps 3/.....	(X)	(X)

X Not applicable

1/Source: 2005 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 (2005).

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.