

# Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006

Issued July 2007

MA333M(06)-1

## Current Industrial Reports

Current data are released electronically on Internet for all individual surveys as they become available. Use: <http://www.census.gov/mcd/>. Individual reports can be accessed by choosing "Current Industrial Reports (CIR)," clicking on "CIRs by Subsector;" then choose the survey of interest. Follow the menu to view the PDF file or to download the worksheet file (XLS format) to your personal computer.

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

### SUMMARY OF FINDINGS

In 2006, the value of shipments of heat transfer equipment increased by 3 percent to \$4,953 million, compared with the 2005 figure of \$4,805 million. The value of shipments of condensing units, refrigeration (complete), increased by 6 percent to \$357 million, compared to the 2005 level of \$335 million. Room air-conditioners and

dehumidifiers showed an increase of 2 percent in 2006 with \$530 million shipped, compared with \$521 million shipped in 2005. The value of shipments of motor vehicle mechanical air-conditioning systems decreased by 13 percent to \$2,414 million, compared to the 2005 figure of \$2,783 million. Compressors and compressor units increased by 9 percent to \$3,195 million, compared with \$2,937 million in 2005. Automotive air-conditioning compressors showed a decrease of 8 percent in 2006 with \$1,400 million shipped, compared to the \$1,522 million shipped in 2005. Nonelectric warm air furnaces and humidifiers showed a 3-percent decrease from \$2,268 million in 2005 to a value of \$2,195 million in 2006. Unitary air-conditioners increased by 5 percent to \$7,361 million, from the 2005 level \$6,979 million. The value of shipments of air source heat pumps increased by 7 percent to \$1,997 million in 2006, compared to \$1,869 million in 2005. The value of shipments of ground and ground water source heat pumps increased from \$171 million of 2005 to \$192 million in 2006, showing a 12-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.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-763-4673.

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

*Helping You Make Informed Decisions*

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU

Table 1. Summary of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006 and 2005  
 [Value in thousands of dollars]

Product code	Product description	2006		2005
3334151	Heat transfer equipment.....	4,953,018		4,805,112
3334153 pt.	Commercial refrigeration equipment.....	549,230		502,522
3334155	Condensing units, refrigeration (complete).....	356,694		334,967
3334156	Room air-conditioners and dehumidifiers.....	530,195		520,685
3363917	Motor vehicle mechanical air-conditioning systems.....	2,414,353		2,782,625
333415A	Compressors and compressor units.....	3,194,876	r/	2,936,601
336391B	Automotive air-conditioning compressors.....	1,400,497		1,521,521
333415C	Nonelectric warm air furnaces and humidifiers.....	2,195,496		2,268,118
333415E	Unitary air-conditioners.....	7,361,311		6,978,788
333415F	Air source heat pumps.....	1,996,606	r/	1,869,496
333415G	Ground and ground water source heat pumps.....	191,878	r/	171,488

pt. Part. r/Revised by 5 percent or more from previously published data.

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006 and 2005  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2006			2005		
			Quantity	Value		Quantity	Value	
3334151	Heat transfer equipment (excluding room and unitary air-conditioners).....	104	(X)	4,953,018		(X)	4,805,112	
3334151101	Packaged terminal air-conditioners 1/.....	7	a/	226,498	a/	126,621	a/	117,143
3334151103	Package terminal heat pumps.....	6	a/	184,584	a/	88,773	a/	84,063
	Evaporative condensers.....	(X)		2,314		71,940		2,282
3334151105	100 tons and under.....	7		801		6,993		840
3334151107	Over 100 tons.....	7		1,513		64,947		1,442
	Room fan-coil air conditioning units:							
3334151109	Vertical stack.....	4		35,935		34,413		(D)
3334151111	Vertical.....	7		86,314		83,448		r/
3334151113	Horizontal.....	6		54,659		30,688		a/r/
3334151115	Room air-induction units.....	0		-		-		(D)
	Central station air-handling units (motor-driven fan-type).....	(X)		71,464		727,258		65,143
3334151117	Draw through.....	14		62,369		578,368		56,486
3334151119	Blow through.....	8		6,923		113,647		6,754
3334151121	Heating and ventilating.....	7		2,172		35,243		c/r/
	Coolers (refrigeration):							
	Ceiling, wall-mounted, and floor-mounted unit coolers.....	(X)		221,339		158,461		208,737
3334151123	4,000 Btuh and below.....	7		58,960		14,341		54,455
3334151125	4,001 to 6,000 Btuh.....	6		12,608		4,213		12,154
3334151127	6,001 to 8,000 Btuh.....	5		25,739		9,277		24,460
3334151129	8,001 to 12,000 Btuh.....	7		51,663		25,798		48,517
3334151131	12,001 to 18,000 Btuh.....	7		37,988		23,940		34,975
3334151133	Over 18,000 Btuh.....	11		34,381		80,892		34,176
	Air cooled refrigerant condensers (remote type).....	(X)		21,903		76,818		23,800
3334151135	Under 30 tons.....	10		15,317		29,871		a/
3334151137	30 to 50 tons.....	8		2,008		9,326		1,957
3334151139	Over 50 tons.....	7		4,578		37,621		5,479
	Miscellaneous heat transfer equipment:							
	Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube.....	(X)		(X)		62,823		(X)
3334151141	Condensers.....	5		(X)		29,336		(X)
3334151143	Liquid coolers.....	8		(X)		33,487		(X)
3334151145	Liquid-suction heat exchangers and refrigerant liquid receivers.....	6		(X)		6,240		(X)
	Central system finned coils (air-conditioning and refrigeration type).....	(X)		(X)		80,469		(X)
3334151147	Standard steam and steam distributing tube.....	9		(X)		24,843		(X)
3334151149	Standard water cooling and/or heating and cleanable tube water.....	9		(X)		49,812		(X)
3334151151	Volatile refrigerant cooling.....	8		(X)		5,814		(X)
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturer (all types).....	(X)		(X)		536,850		(X)
3334151153	Copper and aluminum.....	16		(X)		381,394		(X)
3334151155	Aluminum (only).....	7		(X)		89,434		(X)
3334151157	Other (including steel and copper).....	7		(X)		66,022		(X)
3334151159	Factory-assembled, refrigeration type, finned gravity coils (including wetted-surface dehumidifiers).....	2		(X)		(D)		(X)
	Centrifugal liquid chilling packages, hermetic and open types.....	(X)		6,139		627,361		r/
3334151161	200 hp and under.....	8		c/		985		a/
3334151163	201 to 300 hp.....	6		(D)		(D)		c/
3334151165	301 to 400 hp.....	4		(D)		(D)		
3334151167	Over 400 hp.....	5		a/		3,363		a/
	Ice-making machines.....	(X)		386,114		677,586		373,451
	Self-contained ice-cube makers.....	(X)		163,371		197,939		144,757
3334151169	Automatic, under 200 lb.....	5		112,362		94,311		99,728
3334151171	Automatic, 201 lb and over.....	7		a/		51,009		a/
	Self-contained flake or chip machines.....	(X)		18,993		49,547		16,290
3334151173	300 lbs and under.....	4		1,424		3,142		1,486
3334151175	Over 300 lb.....	10		c/		17,569		c/
3334151177	Not self-contained.....	8		124,635		245,558		127,061
3334151179	Combination ice makers and ice/drink dispensers.....	6		79,115		184,542		85,343
3334151181	Absorption refrigeration and dehydration systems.....	4		7,423		74,126		7,430

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006 and 2005  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2006		2005	
			Quantity	Value	Quantity	Value
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)	26,138	500,829	24,072	462,088
3334151185	20 hp and under.....	19	7,092	39,995	6,794	34,480
3334151187	21 to 49 hp.....	14	5,991	41,271	4,985	38,419
3334151189	50 to 75 hp.....	13	5,824	85,069	5,111	77,240
3334151191	Over 75 hp.....	13	7,231	334,494	7,182	311,949
3334151193	Factory-fabricated water cooling towers.....	7	b/ 10,703	a/ 299,877	a/ 9,537	a/ 245,130
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	8	c/ 1,175,060	549,230	c/ 1,120,661	a/ 502,522
3334155	Condensing units, refrigeration (complete).....	22	417,146	356,684	416,527	334,967
	Air-cooled hermetic-type.....	(X)	406,217	288,853	406,053	270,471
3334155123	1 hp and under.....	12	298,881	a/ 133,161	307,812	134,575
3334155125	1.5 hp.....	8	26,345	20,768	24,782	18,759
3334155128	2 hp and 2.5 hp.....	9	27,591	28,675	25,415	24,556
3334155130	3 hp.....	9	22,413	27,890	21,416	25,320
3334155132	Over 3 hp but under 15 hp.....	13	30,987	78,359	26,628	67,261
3334155144	Water-cooled hermetic-type, under 15 hp.....	2	(D)	(D)	(D)	(D)
	Water or air-cooled hermetic-type.....	(X)	6,296	57,967	6,094	56,414
3334155161	15 hp.....	7	a/ 1,885	9,719	1,707	8,702
3334155163	20 hp.....	7	a/ 1,251	9,218	1,156	7,876
3334155165	25 hp.....	7	a/ 731	6,466	850	7,060
3334155167	30 hp.....	6	905	9,765	806	9,030
3334155170	40 hp.....	8	1,524	22,799	1,575	23,746
3334155180	Water or air-cooled open-type (all sizes).....	4	(D)	(D)	(D)	(D)
3334156	Room air-conditioners and dehumidifiers.....	14	(X) c/ 530,195		(X) a/ 520,685	
3334156111	Electrically operated dehumidifiers, mechanically refrigerated, self-contained.....	6	432,620	79,031	591,491	105,368
	Room air-conditioners.....	(X)	2,378,526	451,164	2,168,596	415,317
3334156134	6,999 Btuh and under.....	4	(D)	(D)	(D)	(D)
3334156138	7,000 to 7,999 Btuh.....	4	(D)	(D)	a/ 10,215	a/ 3,365
3334156142	8,000 to 8,999 Btuh.....	5	c/ 421,278	c/ 57,975	c/ 262,954	c/ 36,058
3334156146	9,000 to 10,999 Btuh.....	5	(D)	(D)	c/ 344,569	c/ 63,969
3334156156	11,000 to 12,999 Btuh.....	9	c/ 271,192	c/ 64,616	c/ 354,165	a/ 78,500
3334156161	13,000 to 16,999 Btuh.....	8	(D)	(D)	(D)	(D)
3334156165	17,000 to 19,999 Btuh.....	8	a/ 190,782	a/ 57,103	a/ 173,411	a/ 43,964
3334156167	20,000 to 22,999 Btuh.....	3	(D)	(D)	3,314	1,980
3334156171	23,000 Btuh and over.....	9	c/ 146,566	a/ 74,408	a/ 193,186	a/ 82,437
3363917	Motor vehicle mechanical air-conditioning systems.....	(X)	(X) a/ 2,414,353		(X)	2,782,625
3363917110	Air-conditioning units and systems for passenger automobiles 2/.....	20	13,321,265	a/ 1,531,225	16,152,842	1,889,676
3363917120	Air-conditioning units and systems for buses.....	7	c/ 518,291	c/ 162,317	c/ 361,701	a/ 136,307
3363917130	Other motor vehicle mechanical air-conditioning systems.....	12	4,470,184	720,811	4,356,208	756,642
333415A	Compressors and compressor units 3/ 4/.....	22	(X)	3,194,876	(X)	r/ 2,936,601
	All refrigerants (excluding ammonia).....	(X)	15,910,650	3,099,243	r/ 15,897,211	r/ 2,842,500
	Hermetic-type motor compressors.....	(X)	15,897,042	2,994,044	r/ 15,884,172	r/ 2,779,188
333415A123	Under 10 hp.....	11	15,829,644	2,836,857	15,840,165	2,676,781
333415A130	15 hp.....	9	(D)	(D)	(D)	(D)
333415A132	20 hp.....	9	9,209	18,479	6,103	10,896
333415A134	25 hp.....	9	7,412	15,688	4,623	8,955
333415A136	30 hp.....	8	6,298	15,661	2,567	7,956
333415A139	40 hp and 50 hp.....	8	17,221	55,024	13,401	36,225
333415A142	60 hp and over.....	7	(D)	(D)	(D)	(D)
333415A152	Open-type compressors (with or without motor, all sizes).....	9	(D)	(D)	(D)	(D)
333415A154	Screw type.....	2	(D)	(D)	(D)	(D)
333415A158	Ammonia refrigerants (all types).....	6	1,725	95,633	1,671	94,101
336391B100	Automotive air-conditioning compressors (open-type, with or without motor).....	12	12,432,301	1,400,497	13,726,931	1,521,521
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	(X)	(X)	2,195,496	(X) a/ 2,268,118	
	Oil, forced air:					
333415C101	150,000 Btuh bonnet output and under.....	13	71,069	60,428	77,679	62,793
333415C105	150,001 Btuh bonnet output and over.....	10	2,710	4,723	a/ 3,700	a/ 5,939
	Gas, forced air:					
333415C107	150,000 Btuh bonnet output and under.....	16	4,090,345	2,028,129	4,386,025	2,080,950
333415C109	150,001 - 400,000 Btuh bonnet output.....	9	7,988	7,116	12,902	10,792
333415C111	Over 400,000 Btuh bonnet output.....	7	1,817	27,062	1,841	27,224

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006 and 2005  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2006		2005	
			Quantity	Value	Quantity	Value
333415C179	All other nonelectric warm air furnaces.....	4	1,812	2,990	a/ 1,518	a/ 2,275
333415C181	Humidifiers (attachments to warm air furnaces) all types (including central systems and self-contained; excluding portable humidifiers).....	11	497,527	a/ 65,048	612,001	a/ 78,145
333415E	Unitary air-conditioners.....	45	(X)	7,361,311	(X)	a/ 6,978,788
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)	240,501	653,833	215,020	627,594
333415E107	Under 27,000 Btuh.....	12	13,281	13,565	r/ 11,733	r/ 9,707
333415E109	27,000 to 32,999 Btuh.....	12	40,891	37,199	r/ 28,642	r/ 28,018
333415E111	33,000 to 53,999 Btuh.....	13	68,118	a/ 137,650	r/ 65,615	r/ 89,352
333415E113	54,000 to 64,999 Btuh.....	13	43,851	66,314	r/ 41,963	r/ 55,627
333415E115	65,000 to 96,999 Btuh.....	10	24,700	54,426	19,521	40,296
333415E117	97,000 to 134,999 Btuh.....	10	19,196	60,539	15,927	49,540
333415E119	135,000 to 184,999 Btuh.....	11	13,912	61,694	12,395	54,296
333415E121	185,000 to 249,999 Btuh.....	11	6,665	49,359	7,071	51,618
333415E123	250,000 to 319,999 Btuh.....	11	6,637	38,806	5,612	34,583
333415E135	320,000 to 379,999 Btuh.....	11	1,260	25,321	1,364	23,953
333415E141	380,000 Btuh and over.....	9	c/ 1,990	c/ 108,960	5,177	a/ 190,604
	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)	(D)	(D)
333415E147	65,000 to 96,999 Btuh.....	3	541	1,798	550	1,786
333415E149	97,000 to 134,999 Btuh.....	4	640	4,166	(D)	(D)
333415E151	135,000 to 184,999 Btuh.....	3	343	2,719	327	2,417
333415E153	185,000 Btuh and over.....	4	1,294	20,064	1,122	20,534
	Year-round air-conditioners, single package and remote-condenser type (excluding heat pumps).....	(X)	622,109	1,697,015	625,758	1,581,689
333415E155	Under 33,000 Btuh.....	14	129,254	120,298	124,935	r/ 117,341
333415E157	33,000 to 38,999 Btuh.....	13	94,997	137,767	118,038	144,220
333415E159	39,000 to 43,999 Btuh.....	12	35,491	49,550	33,961	40,266
333415E161	44,000 to 53,999 Btuh.....	12	68,803	113,647	79,632	116,092
333415E163	54,000 to 64,999 Btuh.....	17	113,317	a/ 276,443	103,462	229,848
333415E165	65,000 to 134,999 Btuh.....	11	115,754	398,005	101,688	339,755
333415E167	135,000 to 184,999 Btuh.....	11	36,569	224,045	34,638	206,452
333415E169	185,000 to 249,999 Btuh.....	13	16,091	149,314	17,016	153,240
333415E171	250,000 to 319,999 Btuh.....	11	6,720	70,596	6,423	64,599
333415E173	320,000 to 379,999 Btuh.....	10	1,716	29,859	1,997	31,605
333415E175	380,000 to 539,999 Btuh.....	7	1,495	31,813	1,819	35,121
333415E177	540,000 to 639,999 Btuh.....	8	825	25,166	951	26,702
333415E179	640,000 Btuh and over.....	7	1,077	70,512	1,198	76,448
333415E181	Water source heat pumps (excluding room air-conditioners).....	10	202,234	259,476	141,410	r/ 185,454
	Split system air-conditioning condensing units.....	(X)	4,532,810	3,090,128	5,972,684	3,220,258
333415E182	Under 22,000 Btuh.....	11	270,792	118,755	386,022	131,676
333415E183	22,000 to 26,999 Btuh.....	12	850,957	417,880	1,267,457	478,769
333415E185	27,000 to 32,999 Btuh.....	13	766,881	435,669	1,073,172	485,567
333415E187	33,000 to 38,999 Btuh.....	13	984,756	643,574	1,319,595	672,659
333415E189	39,000 to 43,999 Btuh.....	11	441,048	320,547	570,213	333,587
333415E191	44,000 to 53,999 Btuh.....	13	583,317	492,078	751,811	504,825
333415E193	54,000 to 64,999 Btuh.....	11	559,271	452,704	r/ 540,492	442,871
333415E195	65,000 to 96,999 Btuh.....	7	32,277	44,165	26,298	34,795
333415E197	97,000 to 134,999 Btuh.....	7	18,947	35,914	16,265	27,554
333415E199	135,000 to 184,999 Btuh.....	7	11,877	36,015	9,926	29,312
333415E19A	185,000 to 249,999 Btuh.....	7	5,939	24,896	5,056	20,954
333415E19C	250,000 to 319,999 Btuh.....	5	1,721	10,848	1,747	10,300
333415E19E	320,000 to 379,999 Btuh.....	5	2,049	19,389	1,598	10,980
333415E19G	380,000 to 539,999 Btuh.....	5	1,218	11,705	1,303	11,765
333415E19J	540,000 to 639,999 Btuh.....	4	702	8,259	654	7,428
333415E19L	640,000 Btuh and over.....	3	1,058	17,730	1,075	17,216
	Split system air-conditioning coils.....	(X)	4,646,971	1,375,685	4,237,431	1,093,293
333415E19M	With blower.....	8	2,659,766	1,048,189	r/ 2,481,762	859,397
333415E19P	Without blower.....	12	1,987,205	327,496	c/ 1,755,669	a/ 233,896
333415F	Air source heat pumps (excluding room air-conditioners).....	15	2,143,812	1,996,606	2,113,944	r/ 1,869,496
	Single package:					
333415F123	Under 27,000 Btuh.....	12	32,183	38,573	37,179	33,832
333415F134	27,000 to 41,999 Btuh.....	12	106,281	133,851	105,946	118,351
333415F145	42,000 to 64,999 Btuh.....	12	94,298	130,289	93,064	124,752
333415F156	65,000 Btuh and over.....	7	19,748	69,513	14,914	49,731

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2006 and 2005  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2006		2005	
			Quantity	Value	Quantity	Value
	Split system:					
333415F167	Under 27,000 Btuh.....	10	580,223	359,791	571,746	314,311
333415F178	27,000 to 41,999 Btuh.....	10	857,502	758,604	847,593	r/ 739,403
333415F189	42,000 to 64,999 Btuh.....	9	436,255	466,664	430,173	461,510
333415F195	65,000 Btuh and over.....	7	17,322	39,321	13,329	27,606
333415G	Ground and ground water source heat pumps.....	7	91,045	a/ 191,878	80,637	r/ 171,488

- Represents zero. 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: 2006 and 2005  
 [Quantity of number units]

Product description	No. of cos.	2006	2005
Compressor bodies 1/ 2/.....	(X)	14,293,109	15,422,586
All refrigerants (excluding ammonia).....	(X)	(D)	(D)
Under 2 hp.....	7	(D)	(D)
2 hp.....	5	(D)	(D)
3 hp.....	8	(D)	(D)
4 hp.....	4	89,018	93,310
5 hp.....	6	898,674	1,079,528
7 1/2 hp.....	6	83,852	106,944
10 hp.....	11	(D)	(D)
15 hp.....	10	91,627	75,931
20 hp.....	9	25,784	18,282
25 hp.....	10	9,734	9,260
30 hp.....	9	(D)	(D)
40 hp.....	9	7,833	9,362
50 hp.....	7	(D)	(D)
60 hp.....	8	5,455	4,744
75 hp.....	8	5,876	6,197
100 hp and over.....	7	17,402	15,809
Automotive air-conditioning, including passenger automobiles, trucks, buses, agriculture, and construction equipment.....	3	2,121,911	2,586,430
Ammonia refrigerants.....	1	(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: 2006 and 2005  
 [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/
<b>2006</b>				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,953,018	422,383	219,962
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	549,230	20,360	109,884
3334155	Condensing units, all refrigerants.....	356,694	48,859	45,726
3334156	Room air-conditioners and dehumidifiers.....	530,195	66,482	1,298,371
3363917	Motor vehicle mechanical air-conditioning systems.....	2,414,353	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	3,194,876	1,010,039	1,576,433
336391B	Automotive air-conditioning compressors.....	1,400,497	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	2,195,496	(NA)	(NA)
333415E	Unitary air-conditioners.....	7,361,311	338,237	729,069
333415F	Air source heat pumps.....	1,996,606	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	191,878	(NA)	(NA)
<b>2005</b>				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,805,112	328,959	185,759
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	502,522	19,814	113,300
3334155	Condensing units, all refrigerants.....	334,967	51,771	49,335
3334156	Room air-conditioners and dehumidifiers.....	520,685	81,631	1,011,681
3363917	Motor vehicle mechanical air-conditioning systems.....	2,782,625	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	r/ 2,936,601	1,009,706	1,524,991
336391B	Automotive air-conditioning compressors.....	1,521,521	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	2,268,118	(NA)	(NA)
333415E	Unitary air-conditioners.....	6,978,788	294,727	446,718
333415F	Air source heat pumps.....	r/ 1,869,496	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	r/ 171,488	(NA)	(NA)

NA Not available. pt. Part. r/Revised by 5 percent or more from previously published data.

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 (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).

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: 2006

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
		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: 2006 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 (2006).

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.