

Refrigeration, Air Conditioning, and Warm Air Heating Equipment: 2001

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SUMMARY OF FINDINGS

In 2001, the value of shipments of heat transfer equipment decreased by 9 percent to \$4,528 million, compared with the 2000 figure of \$4,994 million. The value of shipments of condensing units, refrigeration (complete), decreased by 20 percent to \$252 million, from the 2000 level of \$315 million.

Room air-conditioners showed a decrease of 30 percent in 2001 with \$796 million shipped, compared with the \$1,145 million shipped in 2000. The value of shipments of motor vehicle mechanical air-conditioning systems decreased by 12 percent to \$1,865 million, compared with the 2000 figure of \$2,125. Compressors and compressor units decreased by 14 percent to \$2,540 million, compared with \$2,967 million in 2000. Automotive air-conditioning compressors showed a decrease of 15 percent in 2001 with \$1,675 million shipped, compared with the \$1,966 million shipped in 2000. Nonelectric warm air furnaces and humidifiers showed little change from \$1,517 million in 2000 to a value of \$1,519 million in 2001. Unitary air-conditioners decreased by 6 percent to \$5,235 million, from the 2000 level \$5,571 million. The value of shipments of air source heat pumps increased by 10 percent to \$1,133 million, compared to the 2000 figure of \$1,025 million.

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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Table 1. Summary of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2001 and 2000

[Value in thousands of dollars]

Product code	Product description	2001	2000
3334151	Heat transfer equipment.....	4,527,621	4,994,380
3334153 pt.	Commercial refrigeration equipment.....	213,035	249,215
3334155	Condensing units, refrigeration (complete).....	251,874	314,608
3334156	Room air-conditioners and dehumidifiers.....	796,353	1,144,683
3363917	Motor vehicle mechanical air-conditioning systems.....	1,864,879	2,124,828
333415A	Compressors and compressor units.....	2,540,131	2,966,694
336391B	Automotive air-conditioning compressors.....	1,675,007	1,966,339
333415C	Nonelectric warm air furnaces and humidifiers.....	1,519,393	1,516,639
333415E	Unitary air conditioners.....	5,234,971	5,570,831
333415F	Air source heat pumps.....	1,132,851	1,025,388
333415G	Ground and ground water source heat pumps.....	102,167	107,247
pt. Part.			

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2001 and 2000
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2001		2000	
			Quantity	Value	Quantity	Value
3334151	Heat transfer equipment (except room and unitary air-conditioners).....	139	(X)	4,527,621	(X)	4,994,380
3334151001	Packaged terminal air-conditioners 1/.....	6	107,572	62,284	r/ 115,615	r/ 67,322
3334151003	Packaged terminal heat pumps.....	6	(D)	(D)	97,718	50,582
	Evaporative condensers.....	(X)	1,971	51,176	2,622	66,353
3334151005	100 tons and under.....	9	372	3,917	441	5,393
3334151007	Over 100 tons.....	11	1,599	47,259	2,181	60,960
	Room fan-coil air-conditioning units.....	(X)	353,931	194,958	376,979	214,666
3334151009	Vertical stack.....	5	53,013	23,560	57,308	28,432
3334151011	Vertical.....	11	193,750	124,416	r/ 188,720	122,710
3334151013	Horizontal.....	9	107,168	46,982	130,951	63,524
3334151015	Room air induction units.....	3	(D)	(D)	(D)	(D)
	Central station air-handling units (motor-driven fan type).....	(X)	456,291	794,865	465,431	754,450
3334151017	Draw through.....	26	c/ 432,717	645,495	c/ 441,146	629,256
3334151019	Blow through.....	13	7,550	102,428	r/ 7,180	86,440
3334151021	Heating and ventilating.....	12	c/ 16,024	46,942	c/ 17,105	38,754
	Coolers (refrigeration):					
	Ceiling, wall-mounted, and floor-mounted unit coolers.....	(X)	177,277	125,077	206,840	154,330
3334151023	4,000 Btuh and below.....	9	c/ 41,079	a/ 9,439	c/ 37,659	a/ 8,478
3334151025	4,001 to 6,000 Btuh.....	9	c/ 9,832	c/ 2,981	c/ 13,733	c/ 4,221
3334151027	6,001 to 8,000 Btuh.....	9	c/ 16,439	a/ 6,444	c/ 26,276	a/ r/ 9,958
3334151029	8,001 to 12,000 Btuh.....	9	c/ 44,943	c/ 20,136	c/ 55,069	c/ 26,915
3334151031	12,001 to 18,000 Btuh.....	10	c/ 35,844	a/ 22,589	c/ 42,468	a/ 28,953
3334151033	Over 18,000 Btuh.....	14	a/ 29,140	63,488	a/ 31,635	75,805
	Air-cooled refrigerant condensers (remote type).....	(X)	27,907	80,768	42,613	94,845
3334151035	Under 30 tons.....	12	a/ 19,353	18,440	a/ 33,132	a/ 25,404
3334151037	30 to 50 tons.....	10	a/ 2,718	a/ 10,996	a/ 3,305	14,749
3334151039	Over 50 tons.....	9	a/ 5,836	a/ 51,332	a/ 6,176	a/ 54,692
	Miscellaneous heat transfer equipment:					
	Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube.....	(X)	(X)	54,215	(X)	62,762
3334151041	Condensers.....	7	(X)	26,648	(X)	32,496
3334151043	Liquid coolers.....	11	(X)	27,567	(X)	30,266
3334151045	Liquid-suction heat exchangers and refrigerant liquid receivers.....	7	(X)	7,704	(X)	16,782
	Central system finned coils (air-conditioning and refrigeration type).....	(X)	(X)	70,765	(X)	82,491
3334151047	Standard steam and steam distributing tube.....	13	(X)	15,232	(X)	16,197
3334151049	Standard water cooling and/or heating and cleanable tube water.....	15	(X)	46,226	(X)	r/ 53,973
3334151051	Volatile refrigerant cooling.....	11	(X)	9,307	(X)	12,321
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturer (all types).....	(X)	(X)	398,240	(X)	470,530
3334151053	Copper and aluminum.....	15	(X)	285,761	(X)	332,605
3334151055	Aluminum (only).....	7	(X)	54,359	(X)	69,365
3334151057	Other, including steel and copper.....	9	(X)	58,120	(X)	68,560
3334151059	Factory-assembled, refrigeration type, finned gravity coils, including wetted-surface dehumidifiers.....	4	(X)	(D)	(X)	(D)
	Centrifugal liquid chilling packages, hermetic and open types.....	(X)	8,318	705,948	r/ 8,489	722,935
3334151061	200 hp and under.....	10	c/ 1,891	53,593	r/ 1,993	53,745
3334151063	201 to 300 hp.....	8	1,220	76,373	1,238	74,110
3334151065	301 to 400 hp.....	7	1,443	104,254	r/ 1,559	r/ 111,720
3334151067	Over 400 hp.....	6	3,764	471,728	r/ 3,699	483,360
	Ice-making machines.....	(X)	294,535	446,499	388,612	560,489
	Self-contained ice-cube makers.....	(X)	188,731	213,898	272,645	316,193
3334151069	Automatic, 200 lb and under.....	5	124,326	96,533	156,299	128,159
3334151071	Automatic, 201 lb and over.....	6	64,405	a/ 117,365	c/ 116,346	c/ 188,034
	Self-contained flake or chip machines.....	(X)	12,109	27,947	16,551	37,967
3334151073	300 lb and under.....	4	a/ 3,421	5,184	c/ r/ 3,038	a/ r/ 3,872
3334151075	Over 300 lb.....	12	b/ 8,688	a/ 22,763	c/ 13,513	c/ 34,095
3334151077	Not self-contained.....	6	44,189	79,713	a/ 63,299	a/ 115,867
3334151079	Combination ice makers and ice/drink dispensers.....	6	49,506	124,941	36,117	90,462
3334151081	Absorption refrigeration and dehydration systems.....	6	5,925	66,611	c/ r/ 4,834	a/ r/ 71,687
3334151083	Mechanical refrigeration systems used on all types of vehicles.....	6	(D)	(D)	(D)	(D)
	Reciprocating air and reciprocating water cooled, air-cooled screw, air-cooled scroll, and water-cooled scroll machines.....	(X)	25,338	484,014	24,797	r/ 515,544
3334151085	20 hp and under.....	27	10,428	44,625	8,958	48,658

Continued

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2001 and 2000
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2001		2000	
			Quantity	Value	Quantity	Value
3334151087	21 to 49 hp.....	22	3,415	31,620	3,962	32,616
3334151089	50 to 75 hp.....	21	3,303	65,126	3,211	64,326
3334151091	Over 75 hp.....	18	8,192	342,643	8,666	r/ 369,944
3334151093	Factory-fabricated water cooling towers.....	14	a/ 9,464	a/ 198,483	a/ 10,178	a/ 212,429
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	4	968,444	213,035	1,150,391	249,215
3334155	Condensing units, refrigeration (complete).....	23	452,662	251,874	467,667	314,608
	Air-cooled hermetic-type.....	(X)	442,702	206,014	453,964	208,543
3334155023	1 hp and under.....	14	372,222	114,621	369,128	104,726
3334155025	1.5 hp.....	11	16,828	a/ 12,454	20,519	a/ 14,558
3334155028	2 and 2.5 hp.....	10	19,332	17,230	21,930	19,521
3334155030	3 hp.....	11	16,791	a/ 20,229	21,247	a/ 23,881
3334155032	Over 3 hp, but under 15 hp.....	14	17,529	a/ 41,480	21,140	a/ 45,857
3334155044	Water-cooled hermetic-type, under 15 hp.....	3	4,934	a/ 4,203	6,370	5,080
	Water or air-cooled hermetic-type.....	(X)	4,845	39,892	7,134	98,801
3334155061	15 hp.....	8	1,718	a/ 7,952	c/ 3,279	c/ 55,155
3334155063	20 hp.....	8	a/ 864	a/ 6,299	a/ 1,089	a/ 7,395
3334155065	25 hp.....	7	644	a/ 4,663	757	a/ 5,506
3334155067	30 hp.....	8	a/ 830	7,950	a/ 1,010	a/ 10,404
3334155070	40 hp.....	6	789	a/ 13,028	a/ 999	a/ 20,341
3334155080	Water or air-cooled open-type (all sizes).....	4	181	1,765	199	2,184
3334156	Room air-conditioners and dehumidifiers.....	16	(X)	796,353	(X)	1,144,683
3334156011	Electrically operated dehumidifiers, mechanically refrigerated, self-contained.....	9	702,623	96,304	746,682	112,129
	Room air-conditioners.....	(X)	3,124,590	700,049	4,483,343	1,032,554
3334156031	5,999 Btuh and under.....	7	857,487	105,466	1,258,920	176,906
3334156034	6,000 to 6,999 Btuh.....	6	277,763	49,232	343,511	60,373
3334156038	7,000 to 7,999 Btuh.....	7	a/ 73,227	a/ 16,238	165,233	34,403
3334156042	8,000 to 8,999 Btuh.....	6	481,093	93,908	568,588	104,940
3334156046	9,000 to 9,999 Btuh.....	6	35,558	11,958	25,372	9,644
3334156052	10,000 to 10,999 Btuh.....	8	406,989	91,993	669,857	129,114
3334156056	11,000 to 12,999 Btuh.....	9	499,284	127,135	689,152	168,574
3334156061	13,000 to 14,999 Btuh.....	7	18,156	9,776	18,877	10,914
3334156063	15,000 to 16,999 Btuh.....	7	93,367	29,512	140,362	a/ 51,095
3334156065	17,000 to 19,999 Btuh.....	9	208,567	68,917	352,580	123,267
3334156067	20,000 to 22,999 Btuh.....	6	38,744	12,412	56,584	22,199
3334156071	23,000 to 25,999 Btuh.....	10	105,460	42,535	147,751	68,099
3334156075	26,000 Btuh and over.....	10	28,895	40,967	46,556	73,026
3363917	Motor vehicle mechanical air-conditioning systems.....	(X)	(X)	1,864,879	(X)	2,124,828
3363917010	Air-conditioning units and systems for passenger automobiles 2/.....	17	a/ 7,519,623	1,208,173	8,740,427	1,428,935
3363917020	Air-conditioning units and systems for buses.....	8	a/ 242,209	130,447	r/ 256,696	r/ 126,064
3363917030	Other motor vehicle mechanical air-conditioning systems.....	9	3,155,883	526,259	r/ 3,315,715	r/ 569,829
333415A	Compressors and compressor units 3/ 4/.....	27	(X)	2,540,131	(X)	2,966,694
	All refrigerants (except ammonia).....	(X)	18,020,699	2,447,110	22,678,579	2,836,019
	Hermetic-type motor compressors.....	(X)	18,005,110	2,395,766	22,608,552	2,708,305
333415A011	Under 3 hp.....	9	13,325,305	1,089,008	17,731,298	1,357,744
333415A023	3 to 10 hp.....	10	(D)	(D)	(D)	(D)
333415A030	15 hp.....	11	22,303	25,689	27,496	28,463
333415A032	20 hp.....	12	17,955	29,781	22,238	35,055
333415A034	25 hp.....	11	15,901	27,227	17,318	29,320
333415A036	30 hp.....	12	8,842	23,723	9,762	25,895
333415A039	40 and 50 hp.....	11	13,068	66,574	(D)	(D)
333415A042	60 hp.....	9	3,095	13,036	3,394	13,768
333415A046	75 hp.....	8	(D)	(D)	(D)	(D)
333415A049	100 hp and over.....	8	(D)	(D)	(D)	(D)
333415A052	Open-type compressors (with or without motor--all sizes).....	10	10,124	25,597	r/ 63,047	r/ 64,819
333415A054	Screw type.....	5	(D)	(D)	(D)	(D)
333415A058	Ammonia refrigerants (all types).....	7	1,745	93,021	2,893	130,675
336391B000	Automotive air-conditioning compressors (open-type, with or without motor).....	8	15,902,962	1,675,007	r/ 19,206,287	r/ 1,966,339
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	(X)	(X)	1,519,393	(X)	1,516,639
	Oil, forced air:					
333415C001	150,000 Btuh bonnet output and under.....	15	93,862	66,599	110,692	76,951
333415C005	150,001 Btuh bonnet output and over.....	11	3,823	5,267	r/ 5,903	r/ 6,216
	Gas, forced air:					
333415C007	150,000 Btuh bonnet output and under.....	18	2,796,001	1,228,380	2,738,223	1,185,791
333415C009	150,001 to 400,000 Btuh bonnet output.....	14	13,249	17,088	12,958	18,232

Continued

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2001 and 2000
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2001		2000	
			Quantity	Value	Quantity	Value
333415C011	Over 400,000 Btuh bonnet output.....	9	c/ 304,804	c/ 130,666	c/ 372,364	c/ 155,732
333415C079	All other nonelectric warm air furnaces.....	4	266	789	(D)	(D)
333415C081	Humidifiers (attachments to warm air furnaces) (all types), including central systems and self-contained (except portable humidifiers).....	14	612,346	a/ 70,604	672,350	72,918
333415E	Unitary air-conditioners.....	57	(X)	5,234,971	(X)	5,570,831
333415E005	Recreational vehicle air-conditioners.....	6	(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)	245,118	694,573	265,766	r/ 749,166
333415E007	Under 27,000 Btuh.....	16	22,161	18,090	22,816	r/ 17,237
333415E009	27,000 to 32,999 Btuh.....	14	25,976	23,416	29,772	r/ 27,986
333415E011	33,000 to 53,999 Btuh.....	16	78,297	75,241	82,710	r/ 79,482
333415E013	54,000 to 64,999 Btuh.....	15	45,708	61,902	50,157	r/ 67,196
333415E015	65,000 to 96,999 Btuh.....	12	21,536	49,734	24,148	r/ 52,672
333415E017	97,000 to 134,999 Btuh.....	11	19,609	64,701	21,537	72,801
333415E019	135,000 to 184,999 Btuh.....	10	11,211	53,293	12,728	57,154
333415E021	185,000 to 249,999 Btuh.....	10	7,850	59,892	8,423	61,460
333415E023	250,000 to 319,999 Btuh.....	11	5,950	51,450	5,686	49,960
333415E035	320,000 to 379,999 Btuh.....	10	1,439	23,416	1,567	25,531
333415E041	380,000 Btuh and over.....	10	5,381	213,438	6,222	237,687
	Other than horizontal.....	(X)	(D)	(D)	(D)	(D)
333415E043	Under 54,000 Btuh.....	6	(D)	(D)	(D)	(D)
333415E045	54,000 to 64,999 Btuh.....	4	(D)	(D)	(D)	(D)
333415E047	65,000 to 96,999 Btuh.....	4	862	2,878	476	1,883
333415E049	97,000 to 134,999 Btuh.....	4	(D)	(D)	623	3,056
333415E051	135,000 to 184,999 Btuh.....	4	515	3,968	668	4,588
333415E053	185,000 Btuh and over.....	4	(D)	(D)	(D)	(D)
	Year-round air-conditioners, single package and remote-condenser type (except heat pumps).....	(X)	592,710	1,494,312	674,450	1,608,064
333415E055	Under 33,000 Btuh.....	19	138,938	129,140	157,713	139,888
333415E057	33,000 to 38,999 Btuh.....	17	113,375	133,162	124,280	137,080
333415E059	39,000 to 43,999 Btuh.....	14	27,906	31,039	35,170	38,753
333415E061	44,000 to 53,999 Btuh.....	16	69,266	97,483	75,248	99,369
333415E063	54,000 to 64,999 Btuh.....	16	90,009	183,853	108,063	215,781
333415E065	65,000 to 134,999 Btuh.....	10	95,418	294,712	109,950	325,370
333415E067	135,000 to 184,999 Btuh.....	8	26,737	154,008	30,590	163,457
333415E069	185,000 to 249,999 Btuh.....	10	14,746	128,182	16,364	132,633
333415E071	250,000 to 319,999 Btuh.....	8	7,548	76,137	8,577	82,909
333415E073	320,000 to 379,999 Btuh.....	8	2,190	34,810	2,372	37,280
333415E075	380,000 to 539,999 Btuh.....	6	1,894	39,431	2,147	43,676
333415E077	540,000 to 639,999 Btuh.....	7	1,982	39,117	1,466	48,779
333415E079	640,000 Btuh and over.....	6	2,701	153,238	2,510	143,089
333415E081	Water source heat pumps (except room air-conditioners).....	9	130,351	144,114	133,654	144,978
	Split system air-conditioning condensing units.....	(X)	3,881,534	1,987,686	4,254,515	2,115,786
333415E082	Under 22,000 Btuh.....	12	a/ 277,531	89,545	a/ 314,687	98,199
333415E083	22,000 to 26,999 Btuh.....	14	795,313	278,574	883,770	304,631
333415E085	27,000 to 32,999 Btuh.....	15	675,248	279,750	747,451	303,761
333415E087	33,000 to 38,999 Btuh.....	13	854,239	397,326	930,915	419,749
333415E089	39,000 to 43,999 Btuh.....	12	355,662	194,969	387,110	206,784
333415E091	44,000 to 53,999 Btuh.....	13	479,710	294,231	515,002	303,856
333415E093	54,000 to 64,999 Btuh.....	11	381,172	275,729	402,603	280,205
333415E095	65,000 to 96,999 Btuh.....	6	24,248	32,658	29,165	37,298
333415E097	97,000 to 134,999 Btuh.....	6	17,702	34,533	20,277	37,985
333415E099	135,000 to 184,999 Btuh.....	7	9,219	28,602	10,475	30,960
333415E09A	185,000 to 249,999 Btuh.....	7	4,819	21,047	5,797	24,130
333415E09C	250,000 to 319,999 Btuh.....	3	1,719	9,940	1,760	10,068
333415E09E	320,000 to 379,999 Btuh.....	4	1,662	11,033	1,892	12,347
333415E09G	380,000 to 539,999 Btuh.....	5	1,397	12,569	1,438	12,833
333415E09J	540,000 to 639,999 Btuh.....	4	654	7,405	r/ 777	r/ 8,905
333415E09L	640,000 Btuh and over.....	4	1,239	19,775	1,396	24,075
	Split system air-conditioning coils.....	(X)	3,265,306	689,919	3,355,126	686,162
333415E09M	With blower.....	12	a/ 1,610,034	466,509	a/ 1,586,561	454,772
333415E09P	Without blower.....	13	1,655,272	223,410	1,768,565	231,390
333415F	Air source heat pumps (except room air-conditioners).....	21	1,415,634	1,132,851	1,281,525	1,025,388
	Single package:					
333415F023	Under 27,000 Btuh.....	18	37,058	32,125	31,538	27,403
333415F034	27,000 to 41,999 Btuh.....	17	100,116	113,683	94,922	105,009
333415F045	42,000 to 64,999 Btuh.....	17	83,542	114,436	77,864	105,897
333415F056	65,000 Btuh and over.....	9	13,990	48,920	14,035	48,674

Continued

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2001 and 2000
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2001		2000	
			Quantity	Value	Quantity	Value
	Split system air-conditioning coils.....	(X)	3,265,306	689,919	3,355,126	686,162
333415E09M	With blower.....	12 a/	1,610,034	466,509	a/ 1,586,561	454,772
333415E09P	Without blower.....	13	1,655,272	223,410	1,768,565	231,390
333415F	Air source heat pumps (except room air-conditioners).....	21	1,415,634	1,132,851	1,281,525	1,025,388
	Single package:					
333415F023	Under 27,000 Btuh.....	18	37,058	32,125	31,538	27,403
333415F034	27,000 to 41,999 Btuh.....	17	100,116	113,683	94,922	105,009
333415F045	42,000 to 64,999 Btuh.....	17	83,542	114,436	77,864	105,897
333415F056	65,000 Btuh and over.....	9	13,990	48,920	14,035	48,674
	Split system:					
333415F067	Under 27,000 Btuh.....	13 a/	373,193	184,271	a/ 349,198	173,608
333415F078	27,000 to 41,999 Btuh.....	13	507,394	347,025	446,754	304,203
333415F089	42,000 to 64,999 Btuh.....	12	278,721	255,225	245,335	223,386
333415F095	65,000 Btuh and over.....	6	21,620	37,166	21,879	37,208
333415G	Ground and ground water source heat pumps.....	5	64,919 a/	102,167 r/	66,108	107,247
	Single and split systems:					
333415G010	Under 27,000 Btuh.....	3	(D)	(D)	(D)	(D)
333415G020	27,000 to 41,999 Btuh.....	2	(D)	(D)	(D)	(D)
333415G030	42,000 to 64,999 Btuh.....	3	(D)	(D)	(D)	(D)
333415G040	65,000 Btuh and over.....	3	(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: 2001 and 2000
 [Quantity of number units]

Product description	No. of cos.	2001	2000
Compressor bodies 1/ 2/.....	(X)	25,912,686	32,325,308
All refrigerants (except ammonia).....	(X)	18,841,043	22,241,769
Other than automotive air-conditioning.....	(X)	(D)	(D)
1/4 hp and under.....	5	(D)	(D)
1/3 hp and 1/2 hp.....	5	1,001,066	(D)
3/4 hp and 1 hp.....	4	(D)	(D)
1-1/2 hp.....	4	(D)	r/ 469,924
2 hp.....	6	(D)	(D)
3 hp.....	9	(D)	(D)
4 hp.....	3	372,150	r/ 359,592
5 hp.....	8	1,229,175	1,215,943
7-1/2 hp.....	10	102,356	167,192
10 hp.....	13	(D)	(D)
15 hp.....	12	126,652	147,163
20 hp.....	10	25,054	30,350
25 hp.....	11	22,470	25,390
30 hp.....	13	17,405	18,794
40 hp.....	13	17,567	21,762
50 hp.....	10	4,433	4,487
60 hp.....	11	4,903	5,809
75 hp.....	11	11,494	11,888
100 hp and over.....	10	16,004	16,534
Automotive air-conditioning, including passenger auto- mobiles, trucks, buses, agriculture, and construction equipment.....	4	(D)	(D)
Ammonia refrigerants.....	2	(D)	(D)

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data. 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: 2001 and 2000
 [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/
2001				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,527,621	294,595	111,759
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	213,035	13,401	36,859
3334155	Condensing units, all refrigerants.....	251,874	30,069	18,874
3334156	Room air-conditioners and dehumidifiers.....	796,353	89,025	643,461
3363917	Motor vehicle mechanical air-conditioning systems.....	1,864,879	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	2,540,131	1,111,778	1,007,458
336391B	Automotive air-conditioning compressors.....	1,675,007	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	1,519,393	(NA)	(NA)
333415E	Unitary air-conditioners.....	5,234,971	322,107	180,525
333415F	Air source heat pumps.....	1,132,851	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	102,167	(NA)	(NA)
2000				
3334151	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers.....	4,994,380	335,740	122,617
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	249,215	12,620	20,006
3334155	Condensing units, all refrigerants.....	314,608	21,678	17,564
3334156	Room air-conditioners and dehumidifiers.....	1,144,683	101,566	665,116
3363917	Motor vehicle mechanical air-conditioning systems.....	2,124,828	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants.....	2,966,694	1,100,249	1,002,154
336391B	Automotive air-conditioning compressors.....	1,966,339	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers.....	1,516,639	(NA)	(NA)
333415E	Unitary air-conditioners.....	5,570,831	383,034	161,847
333415F	Air source heat pumps.....	1,025,388	(NA)	(NA)
333415G	Ground and ground water source heat pumps.....	107,247	(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 c.i.f. (cost, insurance, and freight) value at port of export.

3/Source: Census Bureau report IM 145, U.S. Imports for Consumption. Figures include both import value and duty value.

4/Represents 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: 2001

Product code	Product description	Export code 1/	Import code 2/
3334151	Heat transfer equipment.....	8415.82.0030	8415.82.0030
		8415.82.0035	8415.82.0035
		8415.83.0040	8415.83.0040
		8418.69.0010	8418.69.0010
		8418.69.0015	8418.69.0015
		8418.69.0045	8418.69.0045
		8418.69.0050	8418.69.0050
		8418.69.0055	8418.69.0055
3334153146	Mechanical drinking water coolers.....	8418.69.0020	8418.69.0020
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.....	8415.10.0040	8415.10.0040
		8415.10.0060	8415.10.0060
		8415.10.0080	8415.10.0080
		8415.82.0050	8415.82.0055 8415.82.0060
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).....	8415.81.0010	8415.81.0010
		8415.81.0020	8415.81.0020
		8415.81.0030	8415.81.0030
		8415.82.0005	8415.82.0005
		8415.82.0010	8415.82.0010
		8415.82.0015	8415.82.0015
		8415.82.0020	8415.82.0020
		8415.82.0025	8415.82.0025
		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: 2001 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 (2001).

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.