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### SUMMARY OF FINDINGS

For 2004, the value of shipments for the types of pumps and compressors included in this report increased by 5 percent, from \$8,494.8 million to \$8,877.7 million. Value of shipments for pumps (except vacuum pumps), including parts, rose from \$5,065.6 million in 2003 to \$5,261.9 million in 2004, an increase of 4 percent. Vertical turbine

pumps (except drivers) fell in value of shipments from \$241.3 million in 2003 to \$232.2 million in 2004, a 4-percent decrease.

Domestic water systems, including drivers, decreased 3 percent in value of shipments, from \$468.7 million in 2003 to \$453.8 million in 2004. Domestic sump pumps, including drivers, increased in value of shipments by 2 percent, from \$195.9 million in 2003 to \$199.2 million in 2004.

Oil-well and oil-field pumps greatly increased in value of shipments, from \$282.0 million in 2003 to \$317.1 million in 2004, an increase of 12 percent. The value of shipments of parts for pumps made by manufacturers of complete pumps increased 5 percent, from \$1,092.9 million in 2003 to \$1,144.2 million in 2004.

Compressors, including vacuum pumps and parts, increased in value of shipments by 7 percent, from \$2,725.2 million in 2003 to \$2,913.8 million in 2004.

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 Keeley Voor, 812-218-3341.

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# 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 Pumps and Compressors: 2004 to 2003  
 [Quantity in number of units. Value in thousands of dollars]

Product description	2004		2003	
	Quantity	Value	Quantity	Value
Total.....	(X)	8,877,676	(X)	8,494,822
Pumps (except vacuum pumps), including parts.....	(X)	5,261,948	(X)	5,065,590
Industrial pumps.....	12,797,385	2,737,521	12,294,258	2,658,649
Drivers, reported.....	(X)	403,015	(X)	376,153
Centrifugal pumps (except drivers).....	8,535,920	1,572,298	8,121,699	1,616,012
Submersible, reported.....	966,656	322,094	887,652	299,020
Other, reported.....	7,165,769	1,208,170	6,831,384	1,275,151
Estimated from pre-1995-basis reports.....	403,495	42,034	402,663	41,841
Vertical turbine pumps (except drivers).....	47,707	232,195	51,178	241,313
Reported.....	47,288	228,854	50,729	237,841
Estimated from pre-1995-basis reports.....	419	3,341	449	3,472
Reciprocating pumps (except drivers), reported.....	858,560	305,876	808,926	250,426
Diaphragm pumps (except drivers), reported.....	1,783,049	237,110	1,737,239	220,809
Rotary pumps (except drivers), reported.....	987,526	323,683	877,105	269,401
Other (except drivers), reported.....	525,079	51,580	634,009	49,095
Estimated from other sources (potentially including drivers).....	64,033	24,098	77,317	22,937
Domestic water systems, including drivers.....	2,600,636	453,766	2,561,789	468,694
Reported.....	2,596,299	453,023	2,557,668	467,950
Estimated from other sources.....	4,337	743	4,121	744
Domestic sump pumps, including drivers.....	3,196,747	199,196	3,077,530	195,939
Reported.....	3,191,238	198,868	3,072,226	195,616
Estimated from other sources.....	5,509	328	5,304	323
Oil-well and oil-field pumps.....	53,808	317,073	43,119	281,952
Drivers, reported.....	(X)	(D)	(X)	(D)
Subsurface pumps for oil-well pumping.....	(D)	(D)	(D)	(D)
Mud pumps, slush pumps.....	(D)	(D)	(D)	(D)
Other oil-well and oil-field pumps.....	10,197	37,190	7,627	29,399
Estimated from other sources.....	785	5,583	629	4,965
Other pumps.....	6,821,941	410,200	6,226,804	367,476
Reported.....	6,798,307	408,856	6,205,232	366,272
Estimated from other sources.....	23,634	1,344	21,572	1,204
Parts (reported; made by manufacturers of complete pumps).....	(X)	1,144,191	(X)	1,092,880
Compressors, including vacuum pumps and parts.....	(X)	2,913,775	(X)	2,725,170
Air and gas compressors (but not vacuum pumps).....	(X)	2,411,282	(X)	2,211,700
Drivers (except for one category of gas compressor), reported.....	(X)	173,501	(X)	186,948
Air compressors (except drivers), new, stationary, reported.....	1,226,462	884,715	1,240,971	831,515
Air compressors (except drivers), new, portable, reported.....	2,644,042	559,414	2,415,706	505,816
Gas compressors (usually except drivers), new, stationary, reported.....	3,953	716,550	2,957	617,157
Other compressors (except drivers), reported.....	4,705	31,653	4,334	28,577
Estimated from other sources.....	65,703	45,449	62,058	41,687
Laboratory vacuum pumps (potentially including drivers; reported).....	10,726	1,439	14,270	1,919
Vacuum pumps (except laboratory).....	(X)	202,116	(X)	183,642
Drivers, reported.....	(X)	30,828	(X)	26,649
Except drivers, reported.....	215,010	159,394	189,494	146,186
Estimated from other sources (potentially including drivers).....	14,402	11,894	12,693	10,807
Parts (reported; made by manufacturers of complete compressors).....	(X)	298,938	(X)	327,909

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

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2004 and 2003  
 [Quantity in number of units. Value in thousands of dollars]

		2004			2003		
Product code	Product description	No. of cos.	Quantity	Value	Quantity	Value	
3339111 pt.	Pumps and compressors 1/.....	(X)	(X)	8,877,676	(X)	8,494,822	
	Industrial pumps (except hydraulic fluid power pumps).....	(X)	(X)	2,737,521	(X)	2,658,649	
3339111401	Value of drivers 2/.....	98	b/	403,015	(X) r/	376,153	
	Centrifugal pumps:						
	Sewage type (nonsubmersible), vertical or horizontal						
	with nonclog impeller.....	(X)	9,627	82,376	9,127	77,072	
3339111411	12" and under.....	25	a/ 8,091	64,336	a/ 7,688	59,513	
3339111412	Over 12".....	9	c/ 1,536	b/ 18,040	c/ 1,439	17,559	
	Submersible effluent pumps (less than 1" solids						
	handling capacity).....	(X)	349,791	70,651	r/ 318,077	64,358	
3339111424	Less than 1 hp.....	16	325,149	r/ 43,405	r/ 295,544	39,041	
3339111425	1 hp and over.....	16	24,642	c/ 27,246	r/ 22,533	c/ 25,317	
	Submersible solids handling pumps (solids 1" to 2"						
	inclusive).....	(X)	516,621	111,429	477,802	r/ 102,949	
3339111428	1/2 hp and under.....	15	467,260	82,801	429,227	72,167	
3339111429	Over 1/2 hp.....	20	49,361	28,628	b/r/ 48,575	b/r/ 30,782	
	Submersible nonclog pumps (greater than 2" solids						
	handling capacity).....	(X)	25,803	51,425	26,764	54,530	
333911142C	3" discharge and under.....	13	13,700	14,015	12,826	11,722	
333911142E	Discharge more than 3" but less than 7".....	19	11,796	33,585	13,474	37,368	
333911142G	7" and over discharge.....	11	a/ 307	a/ 3,825	a/ 464	a/r/ 5,440	
	Submersible grinder pumps (incorporating a hardened						
	stainless steel cutter mechanism to macerate the						
	solids into a fine slurry).....	(X)	74,441	88,589	65,009	77,183	
333911142K	2 hp and below.....	10	66,931	73,664	56,523	59,558	
333911142M	Over 2 hp.....	8	7,510	14,925	r/ 8,486	r/ 17,625	
3339111448	Single and two stage, single and end suction, close						
	coupled with driver.....	53	963,589	a/ 200,792	833,834	202,775	
3339111450	Single and two stage, single suction, in-line, close						
	coupled with driver.....	18	1,103,686	a/ 20,472	c/ 932,396	c/ 23,234	
333911144E	Single stage, single suction, vertical, in-line frame.....	15	c/ 459,893	c/ 40,994	469,718	66,352	
333911144H	Single stage, single suction, frame or foot mounted,						
	metallic pumps (built to National or International						
	Standards ANSI B73.1 or ISO 2858).....	27	54,520	112,603	68,159	132,487	
333911144L	Single stage, single suction, frame or foot mounted,						
	nonmetallic pumps (built to National or International						
	Standards ANSI B73.1 or ISO 2858).....	7	c/ 3,532	b/ 15,732	c/ 3,573	c/ 14,735	
	Single stage, single suction, frame or foot mounted,						
	non-ANSI, non-ISO, with or without recessed impeller.....	(X)	87,550	80,651	r/ 75,748	78,162	
333911144M	1" discharge and under.....	13	16,680	4,759	r/ 15,841	r/ 3,928	
333911144N	Discharge more than 1", up to 2".....	22	29,869	18,906	b/r/ 26,710	b/r/ 16,741	
333911144R	Over 2" discharge.....	26	41,001	56,986	a/r/ 33,197	57,493	
3339111455	Single stage, single suction, replaceable elastomer						
	lined or hard metal, frame or foot mounted.....	7	b/ 4,497	35,237	4,350	39,474	
3339111458	Single stage, single suction, centerline mounted.....	10	c/ 28,603	b/ 30,327	27,690	37,697	
	Single stage, axially split, double suction.....	(X)	10,261	75,225	10,427	r/ 80,921	
3339111459	4" discharge and under.....	15	2,901	9,999	a/ 2,834	10,277	
333911145A	Discharge more than 4", up to 8".....	16	a/ 5,477	a/ 27,541	a/ 5,711	27,989	
333911145C	Over 8" discharge.....	16	1,883	b/ 37,685	1,882	b/r/ 42,655	
333911145G	Single stage, radially split, double suction impeller						
	pumps, API-610 compliant.....	4	61	10,186	(D)	(D)	
333911145M	Single stage, radially split, double suction impeller						
	pumps, non-API compliant.....	5	9,527	b/ 5,189	(D)	(D)	
3339111468	Multistage, single or double suction, diffuser design,						
	radially split case.....	21	44,118	b/ 55,566	38,280	b/ 61,308	
333911146F	Multistage, single or double suction, volute or diffuser						
	design, axially split case.....	14	b/ 2,330	b/ 75,602	b/ 1,379	b/ 75,024	
3339111478	Sealless centrifugal pumps, magnetic drive.....	15	232,834	a/ 45,522	194,852	b/ 46,151	
333911147D	Sealless centrifugal pumps, canned motor.....	8	4,489	c/ 9,319	13,215	b/ 11,344	
	Propeller and mixed flow, horizontal and vertical						
	including vertical turbine over 36".....	(X)	1,112	33,226	r/ 2,704	r/ 39,313	
3339111481	36" and under.....	19	b/ 808	c/ 18,831	b/r/ 2,435	b/r/ 28,339	
3339111484	Over 36".....	12	a/ 304	b/ 14,395	a/r/ 269	b/r/ 10,974	
333911148N	All other centrifugal pumps.....	33	4,145,540	279,151	4,136,989	277,866	
	Centrifugal pumps, n.s.k. ....		403,495	42,034	402,663	41,841	
	Vertical turbine pumps not exceeding 36" discharge,						
	including deep-well:						
	Pump with submersible motor.....	(X)	22,935	35,845	28,221	52,646	
3339111493	Bowl diameter 6" and under.....	18	17,696	21,240	17,438	22,562	
3339111498	Bowl diameter over 6".....	14	5,239	b/ 14,605	c/ 10,783	c/ 30,084	
333911149F	Pump and bowl assemblies through 36" (all column						
	and shaft lengths, including FM or UL approved						
	vertical turbine fire pumps; deep-well and short-						
	coupled pumps, except can and pot type).....	15	a/ 22,631	b/ 160,488	20,293	a/ 144,367	
333911149N	Can and pot type (pump and bowl assemblies, suction						
	can and pot type).....	7	1,722	32,521	b/ 2,215	b/ 40,828	
	Vertical turbine pumps, n.s.k. ....		419	3,341	r/ 449	r/ 3,472	
	Reciprocating pumps:						
	Driven by electric motor, engine, or steam turbine:						
	Reciprocating piston, plunger or diaphragm (not air						
	operated) pumps.....	34	c/ 858,560	b/ 305,876	r/ 808,926	a/r/ 250,426	
33391114D5	Diaphragm pumps (air operated).....	21	c/ 1,783,049	b/ 237,110	1,737,239	220,809	
	Rotary pumps:						
	100-PSI and under designed pressure.....	(X)	720,050	188,116	618,740	r/ 162,064	
33391114R1	10 GPM and under, designed capacity.....	30	a/ 592,800	a/ 73,339	524,121	a/r/ 68,792	
33391114R3	11 to 99 GPM, designed capacity.....	23	c/ 115,459	b/ 48,753	a/ 85,836	39,895	
33391114R5	100 to 299 GPM, designed capacity.....	17	b/ 10,608	c/ 32,855	7,903	24,005	
33391114R7	300 GPM and over, designed capacity.....	10	1,183	c/ 33,169	880	29,372	

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2004 and 2003  
 [Quantity in number of units. Value in thousands of dollars]

2004

2003

Product code	Product description	No. of cos.	Quantity	Value	Quantity	Value
	101 to 249 PSI, designed pressure.....	(X)	(D)	(D)	(D)	(D)
33391114RA	10 GPM and under, designed capacity.....	12	b/ 59,249	a/ 16,502	b/r/ 69,920	r/ 15,859
33391114RC	11 to 99 GPM, designed capacity.....	11	(D)	(D)	(D)	(D)
33391114RE	100 GPM, and over, designed capacity.....	10	16,483	34,403	14,550	21,902
	250 to 500 PSI, designed pressure.....	(X)	159,065	33,825	144,745	25,509
33391114RJ	10 GPM and under, designed capacity.....	12	c/ 145,496	b/ 23,682	132,737	r/ 17,335
33391114RM	11 GPM, and over, designed capacity.....	10	b/ 13,569	b/ 10,143	a/r/ 12,008	b/r/ 8,174
33391114RR	Over 500 PSI, designed pressure.....	7	(D)	(D)	(D)	(D)
33391114T5	Other industrial pumps.....	16	525,079	b/ 51,580	634,009	r/ 49,095
	Industrial pumps, n.s.k. 3/.....		64,033	24,098	77,317	22,937
	Domestic water systems, including drivers.....	(X)	2,600,636	453,766	2,561,789	468,694
3339111167	Nonsubmersible pump systems (jet and nonjet, including drivers).....	14	1,459,127	207,537	1,386,542	207,875
	Submersible pump systems, 5 hp and under, including drivers.....	(X)	1,130,991	244,518	r/ 1,164,188	258,875
3339111172	Up to 1 hp.....	14	a/ 919,485	186,175	a/ 969,507	a/ 185,768
3339111175	Over 1 hp to 3 hp.....	10	168,339	43,547	r/ 154,688	b/ 56,329
3339111178	Over 3 hp to 5 hp.....	10	43,167	14,796	b/ 39,993	b/ 16,778
3339111190	Domestic hand and windmill pumps, pump jacks, and cylinders (sold separately, including drivers).....	3	6,181	968	6,938	1,200
	Domestic water systems and related pumps, n.s.k. ....		4,337	743	r/ 4,121	r/ 744
3339111 pt.	Domestic sump pumps, 1 hp and under, including drivers.....	(X)	3,196,747	199,196	3,077,530	195,939
3339111235	Pedestal, including drivers.....	15	295,155	14,691	288,704	15,221
	Submersible, including drivers.....	(X)	2,896,083	184,177	2,783,522	180,395
3339111238	1/3 hp and under.....	13	1,916,767	120,849	1,915,136	121,343
3339111239	Over 1/3 hp.....	10	979,316	63,328	868,386	59,052
	Domestic sump pumps, n.s.k. 3/.....		5,509	328	r/ 5,304	r/ 323
3339111330	Oil-well and oil-field pumps (except boiler feed).....	(X)	53,808	317,073	43,119	281,952
3339111335	Value of drivers 2/.....	7	(X)	(D)	(X)	(D)
3339111341	Subsurface pumps for oil-well pumping.....	7	(D)	(D)	(D)	(D)
3339111352	Mud pumps (slush pumps).....	3	(D)	(D)	(D)	(D)
3339111363	Other-oil well and oil-field pumps 4/.....	8	10,197	37,190	7,627	29,399
	Oil-well and oil-field pumps, n.s.k. 3/.....	(X)	785	5,583	r/ 629	4,965
	Other pumps, including drivers.....	(X)	6,821,941	410,200	6,226,804	367,476
	Other pumps (except vacuum pumps, automotive pumps, measuring and dispensing or service station pumps, hand pumps, and hydraulic fluid power pumps), including oil burner and appliance pumps, fire engine pumps, laboratory pumps, packaged pump units, hot water heating circulator pumps, etc.:					
3339111580	Reported (or estimated from prior year reports).....	28	c/ 6,798,307	b/ 408,856	6,205,232	366,272
	Estimated from other sources 3/.....		23,634	1,344	21,572	r/ 1,204
	Parts and attachments for pumps and pumping equipment whose product codes begin with 333911; made by manufacturers of complete units only.....	(X)	(X)	1,144,191	(X)	1,092,880
3339115144	Aftermarket (spare) parts for centrifugal pumps.....	65	(X)	552,023	(X)	520,818
3339115155	Aftermarket (spare) parts for vertical turbine pumps.....	15	(X)	64,170	(X)	73,176
3339115166	Aftermarket (spare) parts for reciprocating pumps.....	29	(X)	a/ 147,302	(X)	132,721
3339115199	Other.....	36	(X)	a/ 380,696	(X)	r/ 366,165
3339121 pt.	Air and gas compressors 1/.....	(X)	(X)	2,411,282	(X)	2,211,700
3339121115	Value of drivers 2/.....	30	(X)	b/ 173,501	(X)	b/r/ 186,948
	Air compressors, new:					
	Stationary, reciprocating, single acting.....	(X)	1,094,108	425,336	1,132,812	390,106
3339121121	1-1/2 hp and under.....	16	184,542	40,276	177,321	41,956
3339121124	Over 1-1/2 hp to 5 hp.....	22	653,049	228,957	633,446	192,274
3339121127	6 hp to 25 hp.....	26	(D)	(D)	(D)	(D)
333912112A	26 hp and over.....	10	(D)	(D)	(D)	(D)
3339121133	Stationary, reciprocating, double acting.....	6	c/ 15,540	b/ 17,102	c/ 14,852	c/ 10,597
	Stationary, rotary positive:					
3339121144	Discharge pressure 50 PSIG and under, all hp sizes.....	7	83,694	32,307	r/ 58,927	r/ 30,026
	Discharge pressure of 51 PSIG and over.....	(X)	15,368	228,971	r/ 17,274	237,792
3339121151	40 hp and under.....	12	6,947	56,142	a/r/ 9,276	a/r/ 67,762
3339121154	41 to 150 hp.....	13	b/ 6,778	b/ 103,250	c/ 6,436	c/ 102,721
3339121157	151 to 300 hp.....	8	b/ 908	b/ 31,159	c/ 873	c/ 30,523
333912115A	301 hp and over.....	6	b/ 735	a/ 38,420	689	a/ 36,786
3339121166	Stationary, centrifugal and axial.....	10	17,752	180,999	17,106	162,994
	Portable.....	(X)	2,644,042	559,414	2,415,706	r/ 505,816
3339121171	Under 11 CFM.....	7	b/ 2,512,113	c/ 358,927	2,292,818	348,469
3339121174	11 to 74 CFM.....	5	(D)	(D)	(D)	(D)
3339121177	75 to 124 CFM.....	4	b/ 380	b/ 3,559	c/ 377	c/ 1,527
333912117A	125 to 249 CFM.....	5	(D)	(D)	(D)	(D)
333912117E	250 to 599 CFM.....	5	1,065	24,692	c/ 1,866	16,124
333912117H	600 CFM and over.....	4	2,193	57,047	c/ 2,010	45,858
	Gas compressors, new:					
	Stationary, centrifugal and axial.....	(X)	1,037	279,169	709	265,770
3339121183	Natural gas.....	7	94	92,011	b/ 131	145,869
3339121188	All other gases.....	9	c/ 943	a/ 187,158	578	a/ 119,901
	Stationary reciprocating:					
3339121199	Integral engine, including drivers.....	2	(D)	(D)	(D)	(D)
	Other than integral engine:					
33391211A1	1,000 hp and under.....	13	(D)	(D)	(D)	(D)
33391211A9	1,001 hp and over.....	7	1,433	351,471	1,003	263,112
33391211CC	Stationary rotary positive.....	8	b/ 199	a/ 22,609	a/r/ 223	a/r/ 19,183

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2004 and 2003  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004			2003			
			Quantity		Value	Quantity		Value	
33391211FF	Other compressors (except for refrigeration, air-conditioning, and ice-making), including rebuilt compressors, compressor packages, and packaged compressor units assembled from purchased compressors.....	7	4,705	a/	31,653	a/r/	4,334	a/r/	28,577
	Air and gas compressors, n.s.k. 3/.....		65,703		45,449		62,058		41,687
339110123	Laboratory vacuum pumps.....	(X)	10,726		1,439		14,270		1,919
	Laboratory vacuum pumps, including drivers and replacement parts.....	4	c/ 10,726	c/	1,439	c/	14,270	b/	1,919
3339121 pt.	Vacuum pumps, excluding laboratory.....	(X)	(X)		202,116		(X)	r/	183,642
3339121225	Value of drivers 2/.....	12	(X)		30,828		(X)	r/	26,649
	Low vacuum, 29.5" mercury vacuum and lower:								
3339121261	Under 5 hp.....	17	191,154	a/	36,133		166,319		34,891
3339121265	5 hp and over.....	13	b/ 2,165	a/	16,457	a/	2,111	b/	12,838
	High vacuum, 29.6" mercury vacuum and over:								
3339121273	Under 5 hp.....	12	b/ 13,609		20,708		15,142		15,792
3339121277	5 hp and over.....	8	8,082		86,096	r/	5,922	a/r/	82,665
	Vacuum pumps, n.s.k. 3/.....		14,402		11,894		12,693	r/	10,807
	Parts and attachments for air and gas compressors and vacuum pumps whose product codes begin with 333912; made by manufacturers of complete units only.....	(X)	(X)		298,938		(X)		327,909
3339125111	Parts and attachments for air and gas compressors and vacuum pumps.....	44	(X)	b/	298,938		(X)		327,909

D Withheld to avoid disclosing data of individual companies. n.s.k. Not specified by kind. pt. Part. r/Revised by 5 percent or more from previously published data. X Not applicable.

1/For all "pump and compressor" product codes, value includes parts but quantity does not.

2/The value of drivers (electric motors, internal combustion engines, hydrostatic transmissions, steam turbines, etc.) is not included for most product categories but rather placed in one of four separate "driver" categories within the product class. Drivers may be included in values for products in product classes without separate driver categories.

3/Not specified by kind, or "n.s.k.": Values and quantities for a number of manufacturing establishments (either delinquent or too small to be included in the survey) were estimated from other surveys and records. Estimates were made only to the product class level. Drivers may be included in some cases.

4/Power pumps for water flooding are reported in product code 3339111363.

Note: Percent of estimation of each item is indicated as follows: a/16 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. Shipments, Exports, and Imports of Pumps and Compressors: 2004 and 2003  
 [Quantity in number of units. Value in thousands of dollars]

Product description	Manufacturers' shipments 1/		Export shipments 2/		Import shipments 4/	
	Quantity	Value f.o.b. plant	Quantity	Value 3/	Quantity	Value 5/
<b>2004</b>						
Pumps 6/.....	25,470,517	4,117,757	2,310,451	1,133,870	79,929,827	1,020,997
Centrifugal pumps, submersible.....	966,656	322,094	499,187	145,632	2,356,687	131,427
Centrifugal pumps, other 7/.....	7,555,248	1,235,696	161,325	365,002	15,127,924	315,181
Turbine pumps, vertical.....	47,707	232,195	94,077	46,079	33,887	3,224
Reciprocating pumps.....	858,560	305,876	75,940	84,037	830,525	111,834
Diaphragm pumps.....	1,783,049	237,110	304,767	71,676	265,978	26,899
Rotary pumps.....	987,526	323,683	71,278	114,447	3,207,208	109,813
Oil-well and oil-field pumps (except boiler feed).....	53,808	317,073	7,992	75,200	9,018	40,420
Domestic water systems, including windmill and hand pumps.....	2,600,636	453,766	473,599	35,524	40,467,409	52,550
Other pumps, including sump pumps, hot water circulator pumps, etc. ....	10,543,767	660,976	622,286	196,273	17,631,191	229,649
Compressors 6/.....	3,879,162	2,192,332	2,341,166	196,822	4,488,000	93,769
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	1,109,648	442,438	(NA)	(NA)	(NA)	(NA)
Rotary positive, centrifugal, and axial 8/.....	116,814	442,277	(NA)	(NA)	(NA)	(NA)
Portable air compressors 8/.....	2,644,042	559,414	5,372	61,889	170,007	24,170
Other air and gas compressors, including gas compressors, and compressor packages.....	8,658	748,203	2,335,794	134,933	4,317,993	69,599
Vacuum pumps.....	240,138	203,555	760,622	122,081	5,142,358	453,949
<b>2003</b>						
Pumps 6/.....	24,203,500	5,065,590	1,885,057	928,948	49,346,904	659,167
Centrifugal pumps, submersible.....	887,652	299,020	244,456	73,068	1,364,056	42,181
Centrifugal pumps, other 7/.....	7,234,047	1,316,992	140,333	285,907	12,441,688	247,028
Turbine pumps, vertical.....	51,178	241,313	8,459	31,136	132,291	5,231
Reciprocating pumps.....	(D)	(D)	89,241	83,626	666,365	82,444
Diaphragm pumps.....	1,737,239	220,809	125,599	53,646	818,844	19,774
Rotary pumps.....	(D)	(D)	53,876	115,287	586,009	46,141
Oil-well and oil-field pumps (except boiler feed).....	43,119	281,952	5,971	55,798	32,211	3,994
Domestic water systems, including windmill and hand pumps.....	2,561,789	468,694	429,413	37,874	22,157,531	38,217
Other pumps, including sump pumps, hot water circulator pumps, etc. ....	9,933,039	612,187	687,709	192,606	11,147,909	174,157
Compressors 6/.....	3,449,443	2,075,483	1,882,406	186,587	10,613,229	363,573
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	1,147,664	400,703	(NA)	(NA)	379,067	91,782
Rotary positive, centrifugal, and axial 8/.....	93,307	430,812	(NA)	(NA)	334,766	117,959
Portable air compressors 8/.....	2,201,181	598,234	4,129	56,938	6,073,371	111,245
Other air and gas compressors, including gas compressors, and compressor packages.....	7,291	645,734	1,878,277	129,649	3,826,025	42,587
Vacuum pumps.....	216,457	185,561	369,466	90,748	3,403,063	313,984

D Withheld to avoid disclosing data for individual companies. NA Not available.

1/Manufacturers' shipments generally exclude values of drivers.

2/Source: Census Bureau report EM 545, U.S. Exports.

3/Excludes the value of drivers.

4/Sources: Census Bureau report IM 145, General Imports, and IM 146, U.S. Imports for Consumption.

5/Value represents the c.i.f. (cost, insurance, and freight) value at the first port of entry in the United States plus import duties.

6/Manufacturers' shipments detail does not necessarily sum to total because of such factors as drivers, parts, and "n.s.k."; see Table 2.

7/Manufacturers' shipments include n.s.k. (see Table 1) which is believed not to include submersible pumps.

8/Import and export data for three categories of compressors are combined because one harmonized code in the third category may be used interchangeably with any of several codes in the first two categories.

Note: For comparison of North American Industry Classification System (NAICS)-based codes with Schedule B export codes, and HTSUSA import codes, see contact at the beginning of this report.

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2004

Product code	Product description	Export code 1/	Import code 2/
3339111424, 425, 428, 429, 42C, 42E, 42G, 42K, 42M	Centrifugal pumps, submersible .....	8413.70.2004	8413.70.2004
3339111411, 412, 448, 44E, 44H, 44L, 44M, 44N, 44R, 450, 454, 455, 458, 459, 45A, 45C, 45G, 45M, 468, 46F, 478, 47D, 481, 484, 48N	Centrifugal pumps, other.....	8413.70.1000 8413.70.2005 8413.70.2015 8413.70.2022 8413.70.2025 8413.70.2030 8413.70.2040 8413.70.2090	8413.70.1000 8413.70.2005 8413.70.2015 8413.70.2022 8413.70.2025 8413.70.2030 8413.70.2040 8413.70.2090
3339111493, 498, 49F, 49N	Turbine pumps, vertical.....	8413.81.0020	8413.81.0020
33391114C3, 4C7	Reciprocating pumps.....	8413.50.0090	8413.50.0090
33391114D5	Diaphragm pumps.....	8413.50.0050	8413.50.0050
33391114R1, 4R3, 4R5, 4R7, 4RA, 4RC, 4RE, 4RJ, 4RM, 4RR	Rotary pumps.....	8413.60.0070 8413.60.0090	8413.60.0070 8413.60.0090
3339111335, 341, 352, 363	Oil-well and oil-field pumps (except boiler feed).....	8413.50.0010 8413.60.0050	8413.50.0010 8413.60.0050
3339111167, 172, 175, 178, 190	Domestic water systems, including windmill and hand pumps.....	8413.20.0000 8413.81.0030	8413.20.0000 8413.81.0030
33391114T5, 235, 238, 239, 580	Other pumps.....	8413.81.0040	8413.81.0040
3339121121, 124, 127, 12A, 133	Stationary air compressors, reciprocating, single and double acting.....	8414.80.1018 8414.80.1042 8414.80.1055	8414.80.1505 8414.80.1515 8414.80.1525 8414.80.1535 8414.80.1540 8414.80.1545 8414.80.1555
3339121144, 151, 154, 157, 15A, 166	Stationary air compressors. rotary positive, centrifugal, and axial.....	8414.80.1060 8414.80.1067 8414.80.1075 8414.80.1080	8414.80.1560 8414.80.1565 8414.80.1570 8414.80.1575 8414.80.1580
3339121171, 174, 177, 17A, 17E, 17H	Portable air compressors.....	8414.40.0000 8414.80.1095	8414.40.0000 8414.80.1585 8414.80.1590
3339121183, 188, 199, 1A1, 1A9, 1CC, 1FF	Other compressors.....	8414.80.2010 8414.80.2050 8414.80.2060 8414.80.2070 8414.80.9000	8414.80.2010 8414.80.2050 8414.80.2060 8414.80.2070 8414.80.9000
3391110123, 3339121225, 261, 265, 273, 277	Vacuum pumps.....	8414.10.0000	8414.10.0000

1/Source: 2004 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2004).

# Appendix.

## General CIR Survey Information, Explanation of General Terms and Historical Note

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### 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.)



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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.

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**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 pumps and compressors have been collected by the Census Bureau since 1960. Data on hydraulic fluid power pumps and motors formerly collected on this survey are now included in the Current Industrial Report, MA333N, Fluid Power Products. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.