

Pumps and Compressors: 2003

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SUMMARY OF FINDINGS

For 2003, the value of shipments for the types of pumps and compressors included in this report increased by 2 percent, from \$8,030.0 million to \$8,213.8 million. Value of shipments for pumps (except vacuum pumps), including parts, rose from \$4,862.7 million in 2002 to \$5,016.2 million in 2003, an increase of 3 percent. Vertical turbine

pumps (except drivers) decreased in value of shipments in 2003 by 5 percent, from \$253.7 million to \$241.1 million.

Domestic water systems, including drivers, increased 2 percent in value of shipments for 2003, from \$460.9 million to \$468.8 million. Domestic sump pumps, including drivers, increased in value of shipments by 40 percent in 2003, from \$140.3 million to \$195.9 million.

Oil well and oil field pumps increased in value of shipments for 2003, from \$279.0 million to \$282.0 million, an increase of 1 percent. The value of shipments of parts for pumps made by manufacturers of complete pumps increased 17 percent in 2003, from \$910.5 million to \$1,065.2 million.

Compressors, including vacuum pumps and parts, increased in value of shipments for 2003 by 1 percent, from \$2,715.2 million to \$2,754.7 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 Keeley Voor, 812-218-3341.

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

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Table 1. Summary of Shipments of Pumps and Compressors: 2003 to 2002
[Quantity in number of units. Value in thousands of dollars]

Product description	2003		2002	
	Quantity	Value	Quantity	Value
Total.....	(X)	8,213,838	(X)	8,029,993
Pumps (except vacuum pumps), including parts.....	(X)	5,016,204	(X)	4,862,701
Industrial pumps.....	12,143,309	2,636,998	11,934,118	2,639,610
Drivers, reported.....	(X)	442,954	(X)	452,102
Centrifugal pumps (except drivers).....	8,078,737	1,594,257	7,650,333	1,553,051
Submersible, reported.....	816,235	285,243	829,504	258,738
Other, reported.....	6,838,765	1,266,518	6,418,166	1,252,472
Estimated from pre-1995-basis reports.....	423,737	42,496	402,663	41,841
Vertical turbine pumps (except drivers).....	51,074	241,141	66,523	253,691
Reported.....	50,729	237,841	66,074	250,219
Estimated from pre-1995-basis reports.....	345	3,300	449	3,472
Reciprocating pumps (except drivers), reported.....	693,926	206,176	671,242	175,062
Diaphragm pumps (except drivers), reported.....	1,737,239	220,809	1,821,313	222,784
Rotary pumps (except drivers), reported.....	869,449	290,948	907,297	301,711
Other (except drivers), reported.....	634,212	113,461	830,547	155,491
Estimated from other sources (potentially including drivers).....	78,672	22,914	77,317	22,937
Domestic water systems, including drivers.....	2,667,841	468,756	2,413,963	460,877
Reported.....	2,662,833	467,950	2,409,842	460,133
Estimated from other sources.....	5,008	806	4,121	744
Domestic sump pumps, including drivers.....	3,077,069	195,940	2,183,538	140,318
Reported.....	3,069,595	195,489	2,178,234	139,995
Estimated from other sources.....	7,474	451	5,304	323
Oil well and oil field pumps.....	43,204	282,005	38,048	279,040
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.....	7,627	29,399	5,449	26,222
Estimated from other sources.....	714	5,018	629	4,965
Other pumps.....	6,226,030	367,295	6,457,876	432,320
Reported.....	6,205,232	366,272	6,436,304	431,116
Estimated from other sources.....	20,798	1,023	21,572	1,204
Parts (reported; made by manufacturers of complete pumps).....	(X)	1,065,210	(X)	910,536
Compressors, including vacuum pumps and parts.....	(X)	2,754,680	(X)	2,715,190
Air and gas compressors (but not vacuum pumps).....	(X)	2,296,363	(X)	2,261,957
Drivers (except for one category of gas compressor), reported.....	(X)	218,645	(X)	194,435
Air compressors (except drivers), new, stationary, reported.....	1,235,319	823,512	1,304,011	828,152
Air compressors (except drivers), new, portable, reported.....	2,310,753	543,279	2,325,136	479,382
Gas compressors (usually except drivers), new, stationary, reported.....	2,917	594,581	2,490	645,915
Other compressors (except drivers), reported.....	2,371	74,025	6,038	72,386
Estimated from other sources.....	60,585	42,321	62,058	41,687
Laboratory vacuum pumps (potentially including drivers; reported).....	(D)	(D)	(D)	(D)
Vacuum pumps (except laboratory).....	(X)	128,383	(X)	136,719
Drivers, reported.....	(X)	25,049	(X)	26,906
Except drivers, reported.....	187,894	93,186	192,775	99,006
Estimated from other sources (potentially including drivers).....	12,372	10,148	12,693	10,807
Parts (reported; made by manufacturers of complete compressors).....	(X)	(D)	(X)	(D)

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

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003		2002	
			Quantity	Value	Quantity	Value
3339111 pt.	Pumps and compressors 1/.....	(X)	(X)	8,213,838	(X)	8,029,993
	Industrial pumps (except hydraulic fluid power pumps).....	(X)	(X)	2,636,998	(X)	2,639,610
3339111401	Value of drivers 2/.....	101	(X) b/	442,954	(X) b/r/	452,102
	Centrifugal pumps:					
	Sewage type (nonsubmersible), vertical or horizontal with nonclog impeller.....	(X)	9,127	77,072	r/ 7,410	r/ 63,271
3339111411	12" and under.....	26	7,688	59,513	a/r/ 7,117	r/ 56,667
3339111412	Over 12".....	11	1,439	c/ 17,559	293	b/ 6,604
	Submersible effluent pumps (less than 1" solids handling capacity).....	(X)	262,646	63,358	317,974	70,937
3339111424	Less than 1 hp.....	15	241,949	39,041	301,370	39,651
3339111425	1 hp and over.....	15	20,697	c/ 24,317	16,604	b/ 31,286
	Submersible solids handling pumps (solids 1" to 2" inclusive).....	(X)	464,002	92,449	418,857	80,222
3339111428	1/2 hp and under.....	15	429,227	72,167	380,124	64,000
3339111429	Over 1/2 hp.....	19	34,775	20,282	38,733	16,222
	Submersible nonclog pumps (greater than 2" solids handling capacity).....	(X)	26,753	54,153	38,929	48,058
333911142C	3" discharge and under.....	12	12,826	11,722	27,206	11,082
333911142E	Discharge more than 3" but less than 7".....	19	13,474	37,368	(D)	(D)
333911142G	7" and over discharge.....	9 a/	453	a/ 5,063	(D)	(D)
	Submersible grinder pumps (incorporating a hardened stainless steel cutter mechanism to macerate the solids into a fine slurry).....	(X)	62,834	75,283	53,744	59,521
333911142K	2 hp and below.....	10	56,523	59,558	(D)	(D)
333911142M	Over 2 hp.....	7	6,311	15,725	(D)	(D)
	Single and two stage, single and end suction, close coupled with driver.....	(X)	833,834	202,775	r/ 883,339	r/ 201,584
3339111444	1" discharge and under.....	35	453,620	59,864	470,571	68,102
3339111445	Discharge more than 1", up to 2".....	45	243,662	a/ 76,188	r/ 255,235	r/ 71,006
3339111447	Over 2" discharge.....	41	136,552	66,723	r/ 157,533	r/ 62,476
	Single and two stage, single suction, in-line, close coupled with driver.....	(X)	932,396	23,234	857,536	r/ 21,829
3339111449	2" discharge and under.....	15	921,425	15,693	846,339	r/ 14,218
333911144A	Over 2" discharge.....	12	10,971	7,541	11,197	7,611
	Single stage, single suction, vertical, in-line frame.....	(X)	469,718	66,352	396,906	60,847
333911144C	2" discharge and under.....	14	460,633	37,378	387,439	29,932
333911144D	Over 2" discharge.....	13	9,085	28,974	9,467	30,915
	Single stage, single suction, frame or foot mounted, metallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858).....	(X)	68,159	132,487	54,041	120,261
333911144F	2" discharge and under.....	27	29,636	48,187	23,118	44,347
333911144G	Over 2" discharge.....	25	38,523	84,300	30,923	75,914
	Single stage, single suction, frame or foot mounted, nonmetallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858).....	(X) c/	3,573	c/ 14,735	r/ 10,634	14,177
333911144J	2" discharge and under.....	7 c/	2,422	c/ 7,600	r/ 9,683	8,517
333911144K	Over 2" discharge.....	7 c/	1,151	c/ 7,135	951	5,660
	Single stage, single suction, frame or foot mounted, non-ANSI, non-ISO, with or without recessed impeller....	(X)	87,550	80,651	75,748	78,162
333911144M	1" discharge and under.....	12	16,680	4,759	15,841	3,928
333911144N	Discharge more than 1", up to 2".....	19 b/	29,869	b/ 18,906	b/ 26,710	b/ 16,741
333911144R	Over 2" discharge.....	21 a/	41,001	56,986	b/ 33,197	57,493
	Single stage, single suction, replaceable elastomer lined or hard metal, frame or foot mounted.....	(X)	4,350	39,474	4,975	40,308
3339111451	1" discharge and under.....	5	161	1,506	242	1,250
3339111452	Discharge more than 1", up to 2".....	6	2,709	15,938	3,032	17,057
3339111454	Over 2" discharge.....	5	1,480	22,030	1,701	22,001
	Single stage, single suction, centerline mounted.....	(X)	27,690	37,697	26,332	45,622
3339111456	2" discharge and under.....	9	25,595	17,212	24,055	20,039
3339111457	Over 2" discharge.....	9	2,095	20,485	r/ 2,277	25,583
	Single stage, axially split, double suction.....	(X)	10,261	75,225	10,427	80,921
3339111459	4" discharge and under.....	14 a/	2,901	9,999	a/ 2,834	10,277
333911145A	Discharge more than 4", up to 8".....	15 a/	5,477	27,541	a/ 5,711	27,989
333911145C	Over 8" discharge.....	17	1,883	b/ 37,685	1,882	a/ 42,655
	Single stage, radially split, double suction impeller pumps, API-610 compliant.....	(X)	66	6,894	66	7,675
333911145E	4" discharge and under.....	2	(D)	(D)	6	656
333911145F	Discharge more than 4", up to 8".....	4	(D)	(D)	(D)	(D)
333911145H	Over 8" discharge.....	4	(D)	(D)	(D)	(D)
	Single stage, radially split, double suction impeller pumps, non-API compliant.....	(X)	(D)	(D)	(D)	(D)
333911145K	4" discharge and under.....	3	(D)	(D)	(D)	(D)

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[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003		2002	
			Quantity	Value	Quantity	Value
333911145L	Discharge more than 4", up to 8".....	2	(D)	(D)	(D)	(D)
333911145N	Over 8" discharge.....	1	(D)	(D)	(D)	(D)
	Multistage, single or double suction, diffuser design, radially split case.....	(X)	38,280	61,308	47,265	43,212
333911146I	4" discharge and under.....	17	(D)	(D)	46,923	22,489
333911146A	Discharge more than 4", up to 8".....	10 c/	549	b/ 37,161	c/ 323	b/ 19,582
3339111467	Over 8" discharge.....	2	(D)	(D)	19	1,141
	Multistage, single or double suction, volute or diffuser design, axially split case.....	(X)	1,379	75,024	r/ 1,170	76,288
333911146C	4" discharge and under.....	11 b/	905	24,730	r/ 617	r/ 22,209
333911146E	Discharge more than 4", up to 8".....	9	438	44,945	513	48,076
333911146H	Over 8" discharge.....	5	36	5,349	40	6,003
	Sealless centrifugal pumps, magnetic drive.....	(X)	194,852	46,151	r/ 218,169	r/ 47,259
333911147I	1" discharge and under.....	16	188,067	a/ 29,320	200,603	23,954
333911147A	Discharge more than 1", up to 2".....	10	(D)	(D)	(D)	(D)
3339111477	Over 2" discharge.....	7	(D)	(D)	(D)	(D)
	Sealless centrifugal pumps, canned motor.....	(X)	(D)	(D)	(D)	(D)
333911147C	1" discharge and under.....	7	4,452	c/ 6,326	r/ 4,057	6,354
333911147E	Discharge more than 1", up to 2".....	4	7,578	4,093	6,945	r/ 4,083
333911147H	Over 2" discharge.....	2	(D)	(D)	(D)	(D)
	Propeller and mixed flow, horizontal and vertical including vertical turbine over 36".....	(X)	1,112	33,226	2,704	39,313
333911148I	36" and under.....	17 b/	808	c/ 18,831	a/ 2,435	b/ 28,339
333911148A	Over 36".....	11	304	b/ 14,395	c/ 269	c/ 10,974
	All other centrifugal pumps.....	(X)	4,134,326	278,527	3,821,444	311,743
333911148K	6" discharge and under.....	38	4,133,343	245,457	3,820,185	244,180
333911148M	Over 6" discharge.....	15	983	b/ 33,070	r/ 1,259	a/ 67,563
	Centrifugal pumps, n.s.k.		423,737	42,496	402,663	41,841
	Vertical turbine pumps not exceeding 36" discharge, including deep-well:					
	Pump with submersible motor.....	(X)	28,221	52,646	r/ 30,568	55,135
3339111493	Bowl diameter 6" and under.....	19	17,438	22,562	r/ 18,598	24,756
3339111498	Bowl diameter over 6".....	17 c/	10,783	c/ 30,084	b/ 11,970	30,379
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	20,293	144,367	33,592	169,479
333911149N	Can and pot type (pump and bowl assemblies, suction can and pot type).....	7 b/	2,215	b/ 40,828	b/ 1,914	25,605
	Vertical turbine pumps, n.s.k.		345	3,300	449	3,472
	Reciprocating pumps:					
33391114C3	Direct-acting steam-driven.....	(X)	(X)	(X)	(X)	(X)
33391114C7	Driven by electric motor, engine, or steam turbine:					
	Reciprocating piston, plunger or diaphragm (not air operated) pumps.....	32	693,926	206,176	671,242	a/r/ 175,062
33391114D5	Diaphragm pumps (air operated).....	20	1,737,239	220,809	1,821,313	222,784
	Rotary pumps:					
	100-PSI and under, designed pressure.....	(X)	622,175	188,752	r/ 663,165	196,575
33391114R1	10 GPM and under, designed capacity.....	32	525,294	b/ 97,004	565,046	b/ 101,227
33391114R3	11 to 99 GPM, designed capacity.....	24 a/	88,168	a/ 39,339	r/ 88,621	r/ 41,805
33391114R5	100 to 299 GPM, designed capacity.....	15	(D)	(D)	(D)	(D)
33391114R7	300 GPM and over, designed capacity.....	11	(D)	(D)	(D)	(D)
	101 to 249 PSI, designed pressure.....	(X)	(D)	(D)	(D)	(D)
33391114RA	10 GPM and under, designed capacity.....	12	65,926	b/ 14,957	74,490	17,468
33391114RC	11 to 99 GPM, designed capacity.....	11	24,285	a/ 18,387	24,196	23,867
33391114RE	100 GPM, and over, designed capacity.....	9	(D)	(D)	(D)	(D)
	250 to 500 PSI, designed pressure.....	(X)	141,895	25,270	132,474	22,138
33391114RJ	10 GPM and under, designed capacity.....	12	134,936	18,384	125,024	14,843
33391114RM	11 GPM, and over, designed capacity.....	10 b/	6,959	c/ 6,886	7,450	7,295
33391114RR	Over 500 PSI, designed pressure.....	7	(D)	(D)	(D)	(D)
33391114T5	Other industrial pumps, n.e.c.	19	634,212	c/ 113,461	830,547	c/ 155,491
	Industrial pumps, n.s.k. 3/.....		78,672	22,914	77,317	22,937
	Domestic water systems, including drivers.....	(X)	2,667,841	468,756	2,413,963	460,877
3339111167	Nonsubmersible pump systems (jet and nonjet, including drivers).....	15	1,386,542	207,875	1,140,880	191,911
	Submersible pump systems, 5 hp and under, including drivers.....	(X)	1,269,353	258,875	1,260,316	267,009
3339111172	Up to 1 hp.....	14 a/	969,507	a/ 185,768	a/ 936,889	a/ 192,300
3339111175	Over 1 hp to 3 hp.....	11 b/	259,853	b/ 56,329	b/ 225,856	b/ 57,585
3339111178	Over 3 hp to 5 hp.....	11 b/	39,993	b/ 16,778	c/ 97,571	b/ 17,124
3339111190	Domestic hand and windmill pumps, pump jacks, and cylinders (sold separately, including drivers).....	3	6,938	1,200	8,646	1,213

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003		2002	
			Quantity	Value	Quantity	Value
	Domestic water systems and related pumps, n.s.k.		5,008	806	4,121	744
3339111 pt.	Domestic sump pumps, 1 hp and under, including drivers....	(X)	3,077,069	195,940	2,183,538	140,318
3339111235	Pedestal, including drivers.....	16	286,073	15,094	219,841	11,512
	Submersible, including drivers.....	(X)	2,783,522	180,395	1,958,393	128,483
3339111238	1/3 hp and under.....	14	(D)	(D)	1,540,711	96,563
3339111239	Over 1/3 hp.....	11	(D)	(D)	417,682	31,920
	Domestic sump pumps, n.s.k. 3/.....		7,474	451	5,304	323
3339111330	Oil well and oilfield pumps (except boiler feed).....	(X)	43,204	282,005	38,048	279,040
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	7,627	29,399	5,449	26,222
	Oil well and oil field pumps, n.s.k. 3/.....		714	5,018	629	4,965
	Other pumps, n.e.c., including drivers.....	(X)	6,226,030	367,295	6,457,876	r/ 432,320
	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).....	29	6,205,232	366,272	6,436,304	r/ 431,116
	Estimated from other sources 3/.....		20,798	1,023	21,572	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)	1,065,210	(X)	910,536
3339115144	Aftermarket (spare) parts for centrifugal pumps.....	64	(X)	520,818	(X)	512,284
3339115155	Aftermarket (spare) parts for vertical turbine pumps.....	14	(X)	73,176	(X)	a/ 41,601
3339115166	Aftermarket (spare) parts for reciprocating pumps.....	33	(X)	132,721	(X)	122,889
3339115199	Other.....	38	(X)	338,495	(X)	233,762
3339121 pt.	Air and gas compressors 1/.....	(X)	(X)	2,296,363	(X)	2,261,957
3339121115	Value of drivers 2/.....	33	(X)	c/ 218,645	(X)	b/ 194,435
	Air compressors, new:					
	Stationary, reciprocating, single acting.....	(X)	1,133,260	390,325	1,203,336	429,110
3339121121	1-1/2 hp and under.....	18	177,321	41,956	191,670	42,774
3339121124	Over 1-1/2 hp to 5 hp.....	22	633,690	192,411	576,073	184,968
3339121127	6 hp to 25 hp.....	28	(D)	(D)	(D)	(D)
333912112A	26 hp and over.....	10	(D)	(D)	(D)	(D)
3339121133	Stationary, reciprocating, double acting.....	6	c/ 14,852	c/ 10,597	c/ 11,162	7,942
	Stationary, rotary positive:					
3339121144	Discharge pressure 50 PSIG and under, all hp sizes.....	7	53,997	c/ 26,445	57,982	c/ 28,698
	Discharge pressure of 51 PSIG and over.....	(X)	16,104	233,151	14,397	225,784
3339121151	40 hp and under.....	13	a/ 8,208	b/ 64,497	6,526	55,153
3339121154	41-150 hp.....	14	c/ 6,309	c/ 100,578	6,244	100,977
3339121157	151-300 hp.....	9	c/ 895	c/ 31,028	972	34,071
333912115A	301 hp and over.....	6	692	a/ 37,048	655	35,583
3339121166	Stationary, centrifugal and axial.....	11	17,106	162,994	17,134	136,618
	Portable.....	(X)	2,310,753	543,279	2,325,136	479,382
3339121171	Under 11 CFM.....	9	2,292,818	348,469	2,309,422	320,620
3339121174	11 to 74 CFM.....	4	4,997	a/ 7,064	(D)	(D)
3339121177	75 to 124 CFM.....	5	c/ 377	c/ 2,858	c/ (D)	(D)
333912117A	125 to 249 CFM.....	6	c/ 8,672	c/ 72,097	c/ 7,882	66,476
333912117E	250 to 599 CFM.....	5	(D)	(D)	1,687	21,184
333912117H	600 CFM and over.....	5	(D)	(D)	1,457	62,927
	Gas compressors, new:					
	Stationary, centrifugal and axial.....	(X)	709	265,770	580	277,123
3339121183	Natural gas.....	6	b/ 131	a/ 145,869	112	108,140
3339121188	All other gases.....	9	578	a/ 119,901	468	168,983
	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	995	258,603	907	275,112
33391211CC	Stationary rotary positive.....	7	b/ 212	a/ 17,730	a/r/ 266	a/ 32,884
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	c/ 2,371	c/ 74,025	r/ 6,038	c/r/ 72,386

Table 2. Quantity and Value of Shipments of Selected Pumps and Compressors: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003		2002	
			Quantity	Value	Quantity	Value
	Air and gas compressors, n.s.k. 3/.....		60,585	42,321	62,058	41,687
3391110123	Laboratory vacuum pumps.....	(X)	(D)	(D)	(D)	(D)
	Laboratory vacuum pumps, including drivers and replacement parts.....	4	(D)	(D)	(D)	(D)
3339121 pt.	Vacuum pumps, excluding laboratory.....	(X)	(X)	128,383	(X)	136,719
3339121225	Value of drivers 2/.....	12	(X)	25,049	(X)	26,906
	Low vacuum, 29.5" mercury vacuum and lower:					
3339121261	Under 5 hp.....	16	166,319	34,891	168,649	35,807
3339121265	5 hp and over.....	14 a/	2,111 b/	12,838 a/	2,377 a/	17,762
	High vacuum, 29.6" mercury vacuum and over:					
3339121273	Under 5 hp.....	11	15,142	15,792	r/ 17,551	r/ 16,455
3339121277	5 hp and over.....	7 a/	4,322 b/	29,665 a/	4,198 b/	28,982
	Vacuum pumps, n.s.k. 3/.....		12,372	10,148	12,693	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)	(D)	(X)	(D)
3339125111	Parts and attachments for air and gas compressors and vacuum pumps.....	42	(X)	(D)	(X)	(D)

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

1/Value includes parts but quantity does not.

2/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: 2003 and 2002
[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/
2003						
Pumps 6/.....	24,157,454	3,950,994	2,274,086	957,415	70,798,831	879,002
Centrifugal pumps, submersible.....	816,235	285,243	519,613	106,980	1,787,772	101,897
Centrifugal pumps, other 7/.....	7,262,502	1,309,014	120,674	304,918	13,171,843	299,200
Turbine pumps, vertical.....	51,074	241,141	59,037	35,476	45,639	3,094
Reciprocating pumps.....	693,926	206,176	55,834	66,870	758,200	99,101
Diaphragm pumps.....	1,737,239	220,809	320,315	57,855	403,875	23,590
Rotary pumps.....	869,449	290,948	60,147	109,902	2,490,346	87,772
Oil well and oil field pumps (except boiler feed).....	43,204	282,005	6,412	61,786	13,899	20,545
Domestic water systems, including windmill and hand pumps.....	2,667,841	468,756	538,654	32,856	38,240,629	45,264
Other pumps, including sump pumps, hot water circulator pumps, etc.	9,937,311	676,696	593,400	180,772	13,886,628	198,539
Compressors 6/.....	3,551,360	2,035,397	1,913,558	195,051	4,612,907	75,623
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	1,148,112	400,922	(NA)	(NA)	(NA)	(NA)
Rotary positive, centrifugal, and axial 8/.....	87,207	422,590	(NA)	(NA)	(NA)	(NA)
Portable air compressors 8/.....	2,310,753	543,279	4,682	70,856	79,669	12,757
Other air and gas compressors, including gas compressors, and compressor packages.....	5,288	668,606	1,908,876	124,195	4,533,238	62,866
Vacuum pumps.....	200,266	128,383	581,070	121,535	4,532,940	343,641
2002						
Pumps 6/.....	23,027,543	4,862,701	1,885,057	928,948	49,346,904	659,167
Centrifugal pumps, submersible.....	829,504	258,738	244,456	73,068	1,364,056	42,181
Centrifugal pumps, other 7/.....	6,820,829	1,294,313	140,333	285,907	12,441,688	247,028
Turbine pumps, vertical.....	66,523	253,691	8,459	31,136	132,291	5,231
Reciprocating pumps.....	(D)	(D)	89,241	83,626	666,365	82,444
Diaphragm pumps.....	1,821,313	222,784	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).....	38,048	279,040	5,971	55,798	32,211	3,994
Domestic water systems, including windmill and hand pumps.....	2,413,963	460,877	429,413	37,874	22,157,531	38,217
Other pumps, including sump pumps, hot water circulator pumps, etc.	9,466,657	727,806	687,709	192,606	11,147,909	174,157
Compressors 6/.....	3,512,983	2,083,891	1,882,406	186,587	10,613,229	363,573
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	1,214,498	437,052	(NA)	(NA)	379,067	91,782
Rotary positive, centrifugal, and axial 8/.....	89,513	391,100	(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.....	7,791	657,505	1,878,277	129,649	3,826,025	42,587
Vacuum pumps.....	205,468	136,719	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 Table 4.

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes and HTSUSA Import Codes: 2003

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, 444, 445, 447, 449, 44A, 44C, 44D, 44F, 44G, 44J, 44K, 44M, 44N, 44R, 451, 452, 454, 456, 457, 459, 45A, 45C, 45E, 45F, 45H, 45K, 45L, 45N, 461, 464, 467, 46C, 46E, 46H, 471, 474, 477, 47C, 47E, 47H, 481, 484, 48K, 48M	Centrifugal pumps, other.....	8413.70.1000	8413.70.1000
		8413.70.2005	8413.70.2005
		8413.70.2015	8413.70.2015
		8413.70.2022	8413.70.2022
		8413.70.2025	8413.70.2025
		8413.70.2030	8413.70.2030
		8413.70.2040	8413.70.2040
		8413.70.2090	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	8413.60.0070
		8413.60.0090	8413.60.0090
3339111335, 341, 352, 363	Oil well and oil field pumps (except boiler feed).....	8413.50.0010	8413.50.0010
		8413.60.0050	8413.60.0050
3339111167, 172, 175, 178, 190	Domestic water systems, including windmill and hand pumps.....	8413.20.0000	8413.20.0000
		8413.81.0030	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	8414.80.1505
		8414.80.1042	8414.80.1515
		8414.80.1055	8414.80.1525
			8414.80.1535
			8414.80.1540
			8414.80.1545
3339121144, 151, 154, 157, 15A, 166	Stationary air compressors. rotary positive, centrifugal, and axial.....	8414.80.1060	8414.80.1560
		8414.80.1067	8414.80.1565
		8414.80.1075	8414.80.1570
		8414.80.1080	8414.80.1575
			8414.80.1580
3339121171, 174, 177, 17A, 17E, 17H	Portable air compressors.....	8414.40.0000	8414.40.0000
		8414.80.1095	8414.80.1585
3339121183, 188, 199, 1A1, 1A9, 1CC, 1FF	Other compressors.....		8414.80.1590
		8414.80.2010	8414.80.2010
		8414.80.2050	8414.80.2050
		8414.80.2060	8414.80.2060
		8414.80.2070	8414.80.2070
3391110123, 3339121225, 261, 265, 273, 277	Vacuum pumps.....	8414.80.9000	8414.80.9000
		8414.10.0000	8414.10.0000

1/Source: 2003 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 (2003).

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 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.