

Pumps and Compressors: 2001

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SUMMARY OF FINDINGS

For 2001, the value of shipments for the types of pumps and compressors included in this report decreased by 4 percent, from \$8,444.0 million to \$8,103.1 million. Value of shipments for pumps (except vacuum pumps), including parts, rose from \$4,967.7 million in 2000 to \$4,979.9 million in 2001, an increase of less than 1 percent. Vertical

turbine pumps (except drivers) increased in value of shipments in 2001 by 8 percent, from \$244.1 million to \$262.9 million.

Domestic water systems, including drivers, changed little in value of shipments for 2001, from \$471.4 million to \$474.3 million. Domestic sump pumps, including drivers decreased in value of shipments by 11 percent in 2001, from \$162.2 million to \$144.0 million.

Oil well and oil field pumps increased in value of shipments for 2001, from \$256.3 million to \$347.5 million, an increase of 36 percent. The value of shipments of parts for pumps made by manufacturers of complete pumps decreased very slightly in 2001, from \$814.0 million to \$811.9 million.

Compressors, including vacuum pumps and parts, decreased in value of shipments for 2001 by 10 percent, from \$2,956.8 million to \$2,656.3 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, 301-457-4746.

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

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Table 1. Summary of Shipments of Pumps and Compressors: 2001 and 2000
[Quantity in number of units. Value in thousands of dollars]

Product description	2001		2000	
	Quantity	Value	Quantity	Value
Total.....	(X)	8,103,094	(X)	8,443,954
Pumps (except vacuum pumps), including parts.....	(X)	4,979,913	(X)	4,967,686
Industrial pumps.....	10,943,598	2,851,201	10,663,238	2,910,446
Drivers, reported.....	(X)	466,879	(X)	519,435
Centrifugal pumps (except drivers).....	7,224,552	1,621,323	6,736,475	1,576,857
Submersible, reported.....	798,174	260,928	773,424	250,339
Other, reported.....	6,057,995	1,315,329	5,618,881	1,282,239
Estimated from pre-1995-basis reports.....	368,383	45,066	344,170	44,279
Vertical turbine pumps (except drivers).....	64,898	262,906	64,380	244,067
Reported.....	64,448	259,307	63,934	240,726
Estimated from pre-1995-basis reports.....	450	3,599	446	3,341
Reciprocating pumps (except drivers), reported.....	(D)	(D)	(D)	(D)
Diaphragm pumps (except drivers), reported.....	1,347,857	235,163	1,296,909	257,049
Rotary pumps (except drivers), reported.....	(D)	(D)	(D)	(D)
Other (except drivers), reported.....	744,997	147,338	765,974	134,517
Estimated from other sources (potentially including drivers).....	68,186	24,675	66,439	25,188
Domestic water systems, including drivers.....	2,543,358	474,267	2,564,956	471,441
Reported.....	2,539,237	473,540	2,560,659	470,675
Estimated from other sources.....	4,121	727	4,297	766
Domestic sump pumps, including drivers.....	2,279,577	143,992	2,723,449	162,184
Reported.....	2,274,039	143,660	2,716,833	161,810
Estimated from other sources.....	5,538	332	6,616	374
Oil well and oil field pumps.....	65,030	347,506	50,899	256,278
Drivers, reported.....	(X)	(D)	(X)	108,422
Subsurface pumps for oil well pumping.....	40,001	111,807	38,154	97,221
Mud pumps, slush pumps.....	(D)	(D)	(D)	(D)
Other oil well and oilfield pumps.....	(D)	(D)	(D)	(D)
Estimated from other sources.....	850	5,692	665	4,198
Other pumps.....	6,474,889	351,034	6,838,434	353,288
Reported.....	6,453,807	349,808	6,816,168	352,054
Estimated from other sources.....	21,082	1,226	22,266	1,234
Parts (reported; made by manufacturers of complete pumps).....	(X)	811,913	(X)	814,049
Compressors, including vacuum pumps and parts.....	(X)	2,656,301	(X)	2,956,833
Air and gas compressors (but not vacuum pumps).....	(X)	2,209,015	(X)	2,386,857
Drivers (except for one category of gas compressor), reported.....	(X)	209,282	(X)	273,456
Air compressors (except drivers), new, stationary, reported.....	1,270,874	813,202	855,016	801,743
Air compressors (except drivers), new, portable, reported.....	2,289,566	511,176	2,361,611	543,189
Gas compressors (usually except drivers), new, stationary, reported.....	4,200	563,896	3,543	633,416
Other compressors (except drivers), reported.....	35,228	69,881	39,584	90,128
Estimated from other sources.....	60,278	41,578	54,583	44,925
Laboratory vacuum pumps (potentially including drivers; reported).....	(D)	(D)	12,513	3,262
Vacuum pumps (except laboratory).....	(X)	185,575	(X)	275,505
Drivers, reported.....	(X)	21,733	(X)	22,467
Except drivers, reported.....	241,080	150,199	336,596	232,783
Estimated from other sources (potentially including drivers).....	13,931	13,643	19,451	20,255
Parts (reported; made by manufacturers of complete compressors).....	(X)	(D)	(X)	291,209

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

Table 2. Quantity and Value of Shipments of Pumps and Compressors: 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
3339111 pt.	Pumps and compressors 1/.....	(X)	(X)	8,103,094	(X)	8,443,954
	Industrial pumps (except hydraulic fluid power pumps).....	(X)	(X)	2,851,201	(X)	2,910,446
3339111401	Value of drivers 2/.....	107	(X) a/	466,879	(X)	519,435
	Centrifugal pumps:					
	Sewage type (nonsubmersible), vertical or horizontal with nonclog impeller.....	(X)				
3339111411	12" and under.....	24		8,369 8,128	8,754 (D)	48,597 (D)
3339111412	Over 12".....	8	241 c/	6,178	(D)	(D)
	Submersible effluent pumps (less than 1" solids handling capacity).....	(X)	296,577	63,197	286,026	60,807
3339111424	Less than 1 hp.....	16	281,584	38,191	271,253	37,447
3339111425	1 hp and over.....	16	14,993 c/	25,006	14,773	23,360
	Submersible solids handling pumps (solids 1" to 2" inclusive).....	(X)	409,270	88,151	398,573 r/	90,219
3339111428	1/2 hp and under.....	16	356,433	59,289	344,904 r/	57,960
3339111429	Over 1/2 hp.....	22	52,837	28,862	53,669	32,259
	Submersible nonclog pumps (greater than 2" solids handling capacity).....	(X)	40,010	52,822	38,971	47,371
333911142C	3" discharge and under.....	13	28,456	13,227	27,567	12,738
333911142E	Discharge more than 3" but less than 7".....	19	10,974 a/	28,849	10,982	28,023
333911142G	7" and over discharge.....	9 a/	580 b/	10,746	422	6,610
	Submersible grinder pumps (incorporating a hardened stainless steel cutter mechanism to macerate the solids into a fine slurry).....	(X)	52,317	56,758	49,854	51,942
333911142K	2 hp and below.....	9	45,573	46,370	43,071	41,883
333911142M	Over 2 hp.....	6	6,744	10,388	6,783	10,059
	Single and two stage, single and end suction, close coupled with driver.....	(X)	892,334	210,686	977,514	229,790
3339111444	1" discharge and under.....	39 a/	349,390 b/	51,911	406,926	58,102
3339111445	Discharge more than 1", up to 2".....	47 a/	472,418 a/	107,162	499,190	118,482
3339111447	Over 2" discharge.....	40 b/	70,526 b/	51,613	71,398	53,206
	Single and two stage, single suction, in-line, close coupled with driver.....	(X)	928,900	23,391	1,120,036	25,456
3339111449	2" discharge and under.....	12	917,044	13,903	1,109,024	17,767
333911144A	Over 2" discharge.....	16	11,856	9,488	11,012	7,689
	Single stage, single suction, vertical, in-line frame.....	(X)	455,847	67,476	427,057	72,145
333911144C	2" discharge and under.....	14	445,682	37,684	415,689	39,728
333911144D	Over 2" discharge.....	14	10,165	29,792	11,368	32,417
	Single stage, single suction, frame or foot mounted, metallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858).....	(X)	59,808	122,370	65,690	136,087
333911144F	2" discharge and under.....	23	26,194	50,855 r/	30,111	52,365
333911144G	Over 2" discharge.....	22	33,614	71,515	35,579	83,722
	Single stage, single suction, frame or foot mounted, nonmetallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858).....	(X)	18,503	13,700	34,953	18,869
333911144J	2" discharge and under.....	8	17,330 b/	7,771	33,643	11,861
333911144K	Over 2" discharge.....	6	1,173 b/	5,929 r/	1,310 r/	7,008
	Single stage, single suction, frame or foot mounted, non-ANSI, non-ISO, with or without recessed impeller.....	(X)	73,606	74,178	78,816 r/	81,942
333911144M	1" discharge and under.....	17	17,747 a/	4,978	19,787 r/	5,230
333911144N	Discharge more than 1", up to 2".....	19 b/	25,829 b/	15,647	26,994	17,362
333911144R	Over 2" discharge.....	25 b/	30,030 a/	53,553	32,035 r/	59,350
	Single stage, single suction, replaceable elastomer lined or hard metal, frame or foot mounted.....	(X)	6,372	53,186	7,013	60,977
3339111451	1" discharge and under.....	4	305	1,614	241	1,227
3339111452	Discharge more than 1", up to 2".....	7	3,568	16,975	3,843	18,184
3339111454	Over 2" discharge.....	6	2,499	34,597	2,929	41,566
	Single stage, single suction, centerline mounted.....	(X)	88,040	52,239 r/	82,219 r/	53,234
3339111456	2" discharge and under.....	9	85,507	26,394 r/	79,156 r/	21,683
3339111457	Over 2" discharge.....	10	2,533	25,845	3,063	31,551
	Single stage, axially split, double suction.....	(X)	11,904	73,553	13,728	89,797
3339111459	4" discharge and under.....	14 b/	3,732	11,238	5,094	19,473

Continued

Table 2. Quantity and Value of Shipments of Pumps and Compressors: 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
333911145A	Discharge more than 4", up to 8".....	16	6,223	28,850	6,379	33,508
333911145C	Over 8" discharge.....	16	1,949 b/	33,465	2,255	36,816
	Single stage, radially split, double suction impeller pumps, API-610 compliant.....	(X)	78	6,823	225	10,700
333911145E	4" discharge and under.....	3 c/	16 a/	595	53	2,086
333911145F	Discharge more than 4", up to 8".....	3	(D)	(D)	(D)	(D)
333911145H	Over 8" discharge.....	3	(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)
333911145L	Discharge more than 4", up to 8".....	4	(D)	(D)	(D)	(D)
333911145N	Over 8" discharge.....	1	(D)	(D)	(D)	(D)
	Multistage, single or double suction, diffuser design, radially split case.....	(X)	37,389	39,448	39,547	33,405
3339111461	4" discharge and under.....	15	(D)	(D)	(D)	(D)
3339111464	Discharge more than 4", up to 8".....	8 c/	345 c/	14,318	196	7,884
3339111467	Over 8" discharge.....	2	(D)	(D)	(D)	(D)
	Multistage, single or double suction, volute or diffuser design, axially split case.....	(X)	6,317	83,979	6,173	63,811
333911146C	4" discharge and under.....	11 c/	5,689	27,885	5,782	22,999
333911146E	Discharge more than 4", up to 8".....	7	(D)	(D)	(D)	(D)
333911146H	Over 8" discharge.....	4	(D)	(D)	(D)	(D)
	Sealless centrifugal pumps, magnetic drive.....	(X)	111,185	39,853 r/	160,774 r/	62,139
3339111471	1" discharge and under.....	13	105,986	17,672	134,182	24,032
3339111474	Discharge more than 1", up to 2".....	8	(D)	(D)	4,409	11,034
3339111477	Over 2" discharge.....	5	(D)	(D)	695	5,480
	Sealless centrifugal pumps, canned motor.....	(X)	(D)	(D)	(D)	(D)
333911147C	1" discharge and under.....	6	4,694	5,532 r/	9,450 r/	9,107
333911147E	Discharge more than 1", up to 2".....	4	7,986	7,973	(D)	(D)
333911147H	Over 2" discharge.....	2	(D)	(D)	1,727	1,992
	Propeller and mixed flow, horizontal and vertical, including vertical turbine over 36".....	(X)	2,858	43,187	3,425	60,386
3339111481	36" and under.....	17 c/	2,021 c/	30,633	2,212	39,293
3339111484	Over 36".....	10 c/	837 a/	12,554	1,213	21,093
	All other centrifugal pumps.....	(X)	3,340,673	347,560	2,592,957	234,904
333911148K	6" discharge and under.....	44	3,338,986	268,567	2,592,263	208,577
333911148M	Over 6" discharge.....	18	1,687 a/	78,993	694	26,327
	Centrifugal pumps, n.s.k.	(X)	368,383	45,066	344,170	44,279
	Vertical turbine pumps not exceeding 36" discharge, including deep-well:					
	Pump with submersible motor.....	(X)	30,204	58,052	32,331	62,476
3339111493	Bowl diameter 6" and under.....	20 a/	18,271 b/	29,667	19,572	31,275
3339111498	Bowl diameter over 6".....	17 c/	11,933 c/	28,385	12,759	31,201
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).....	18 b/	32,290 b/	167,754	29,622	139,389
333911149N	Can and pot type (pump and bowl assemblies, suction can and pot type).....	8 c/	1,954 b/	33,501	1,981	38,861
	Vertical turbine pumps, n.s.k.	(X)	450	3,599	446	3,341
	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.....	35	(D)	(D)	(D)	(D)
33391114D5	Diaphragm pumps (air operated).....	18	1,347,857 b/	235,163	1,296,909	257,049
	Rotary pumps:					
	100 PSI and under designed pressure.....	(X)	713,174	218,231 r/	876,173 r/	300,608
33391114R1	10 GPM and under, designed capacity.....	32	549,515	100,801	651,302	118,084
33391114R3	11 to 99 GPM, designed capacity.....	25	148,556	75,830	164,950	79,390
33391114R5	100 to 299 GPM, designed capacity.....	15	14,311 b/	26,079 r/	16,384	30,281
33391114R7	300 GPM and over, designed capacity.....	10	792 c/	15,521	1,340	17,897
	101 to 249 PSI, designed pressure.....	(X)	165,928	73,745	131,199	71,545
33391114RA	10 GPM and under, designed capacity.....	12	120,142	21,599	87,442	19,715
33391114RC	11 to 99 GPM, designed capacity.....	12	32,512	27,258	30,516	27,471
33391114RE	100 GPM, and over, designed capacity.....	10	13,274	24,888	13,241	24,359
	250 to 500 PSI, designed pressure.....	(X)	85,487	18,977	127,626	22,234
33391114RJ	10 GPM and under, designed capacity.....	10	79,660	9,154	121,068	14,169

Continued

Table 2. Quantity and Value of Shipments of Pumps and Compressors: 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
33391114RM	11 GPM, and over, designed capacity.....	9	5,827	9,823	6,558	8,065
33391114RR	Over 500 PSI, designed pressure.....	7	(D)	(D)	(D)	(D)
33391114T5	Other industrial pumps, n.e.c.	27	744,997	147,338	765,974 r/	134,517
	Industrial pumps, n.s.k. 3/.....	(X)	68,186	24,675	66,439	25,188
	Domestic water systems, including drivers.....	(X)	2,543,358	474,267	2,564,956	471,441
3339111167	Nonsubmersible pump systems (jet and nonjet, including drivers).....	18	1,107,558 a/	187,243	1,154,811	197,276
	Submersible pump systems, 5 hp and under, including drivers.....	(X)	1,423,090	285,162	1,395,859	272,094
3339111172	Up to 1 hp.....	18 b/	1,081,365 b/	207,459	1,025,630	188,205
3339111175	Over 1 to 3 hp.....	14 c/	236,791 c/	59,061	252,162	63,014
3339111178	Over 3 to 5 hp.....	14 c/	104,934 b/	18,642	118,067	20,875
3339111190	Domestic hand and windmill pumps, pump jacks, and cylinders (sold separately, including drivers).....	3	8,589	1,135	9,989	1,305
	Domestic water systems and related pumps, n.s.k.	(X)	4,121	727	4,297	766
3339111 pt.	Domestic sump pumps, 1 hp and under, including drivers.....	(X)	2,279,577	143,992 r/	2,723,449 r/	162,184
3339111235	Pedestal, including drivers.....	19	222,052	11,984 r/	237,410 r/	13,081
	Submersible, including drivers.....	(X)	2,051,987	131,676 r/	2,479,423 r/	148,729
3339111238	1/3 hp and under.....	17	1,592,409	99,283 r/	2,048,181 r/	113,705
3339111239	Over 1/3 hp.....	9	459,578	32,393 r/	431,242 r/	35,024
	Domestic sump pumps, n.s.k. 3/.....	(X)	5,538	332	6,616	374
3339111330	Oil well and oil field pumps (except boiler feed).....	(X)	65,030	347,506	50,899	256,278
3339111335	Value of drivers 2/.....	7	(X)	(D)	(X)	108,422
3339111341	Subsurface pumps for oil-well pumping.....	8 b/	40,001	111,807	38,154	97,221
3339111352	Mud pumps (slush pumps).....	3	(D)	(D)	(D)	(D)
3339111363	Other oil well and oil field pumps 4/.....	8	(D)	(D)	(D)	(D)
	Oil well and oil field pumps, n.s.k. 3/.....	(X)	850	5,692	665	4,198
	Other pumps, n.e.c., including drivers.....	(X)	6,474,889	351,034	6,838,434	353,288
	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 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	6,453,807	349,808	6,816,168	352,054
	Estimated from other sources 3/.....	(X)	21,082	1,226	22,266	1,234
	Parts and attachments for pumps and pumping equipment whose product codes begin with 333911; made by manufacturers of complete units only.....	(X)	(X)	811,913	(X)	814,049
3339115144	Aftermarket (spare) parts for centrifugal pumps.....	58	(X)	477,853	(X)	511,253
3339115155	Aftermarket (spare) parts for vertical turbine pumps.....	16	(X) b/	85,587	(X) r/	57,440
3339115166	Aftermarket (spare) parts for reciprocating pumps.....	29	(X) a/	117,261	(X)	110,055
3339115199	Other.....	33	(X) a/	131,212	(X)	135,301
3339121 pt.	Air and gas compressors.....	(X)	(X)	2,209,015	(X)	2,386,857
3339121115	Value of drivers 2/.....	33	(X) a/	209,282	(X)	273,456
	Air compressors, new:					
	Stationary, reciprocating, single acting.....	(X)	1,167,700	400,257	677,949	247,832
3339121121	1-1/2 hp and under.....	19	190,133	42,634	266,739	45,544
3339121124	Over 1-1/2 to 5 hp.....	22	626,820	189,465	176,200	78,945
3339121127	6 to 25 hp.....	26 b/	349,710 a/	151,544	233,891 r/	111,130
333912112A	26 hp and over.....	10	1,037	16,614	1,119	12,213
3339121133	Stationary, reciprocating, double acting.....	7	11,291 b/	11,999	55,949	37,316
	Stationary, rotary positive:					
3339121144	Discharge pressure 50 PSIG and under, all hp sizes.....	8	58,437	29,356	75,250	35,002
	Discharge pressure of 51 PSIG and over.....	(X)	15,934	236,561	22,361	316,235
3339121151	40 hp and under.....	11	7,763	54,801	12,389	96,988
3339121154	41-150 hp.....	14	6,333	101,011	7,559	114,111
3339121157	151-300 hp.....	9	1,142	41,626	1,457	49,485
333912115A	301 hp and over.....	6	696	39,123	956	55,651
3339121166	Stationary, centrifugal and axial.....	10	17,512	135,029	23,507	165,358
	Portable:					
3339121171	Under 11 CFM.....	(X)	2,289,566	511,176	2,361,611	543,189
3339121174	11 to 74 CFM.....	10	2,265,537	321,770	2,166,321	302,904
3339121177	75 to 124 CFM.....	7 c/	10,337 c/	12,268	179,314	43,727

Continued

Table 2. Quantity and Value of Shipments of Pumps and Compressors: 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
333912117A	125 to 249 CFM.....	6 b/	379 a/	2,802	482	3,471
333912117E	250 to 599 CFM.....	6	9,759	81,349 r/	11,850	95,705
333912117H	600 CFM and over.....	5	1,945	27,051	(D)	(D)
	Gas compressors, new:	5	1,609	65,936	(D)	(D)
	Stationary, centrifugal and axial:					
3339121183	Natural gas.....	(X)	623	155,070	594 r/	218,491
3339121188	All other gases.....	5	(D)	(D)	67	60,651
	Stationary reciprocating:	8	(D)	(D)	527 r/	157,840
3339121199	Integral engine, including drivers.....	2	(D)	(D)	(D)	(D)
	Other than integral engine:					
33391211A1	1,000 hp and under.....	16	1,447 a/	65,832	1,235	68,318
33391211A9	1,001 hp and over.....	7	1,424	281,745	1,010	255,520
33391211CC	Stationary rotary positive.....	7 b/	349 a/	50,717 r/	320 r/	49,170
33391211FF	Other compressors (except for refrigeration, air-conditioning, and ice-making), including rebuilt compressors, compressor packages, and packaged compressor units assembled from purchased compressors.....	11 c/	35,228 a/	69,881	39,584 r/	90,128
	Air and gas compressors, n.s.k. 3/.....	(X)	60,278	41,578	54,583	44,925
	Laboratory vacuum pumps.....	(X)	(D)	(D)	12,513	3,262
3391110123	Laboratory vacuum pumps, including drivers and replacement parts.....	3	(D)	(D)	12,513	3,262
3339121 pt.	Vacuum pumps, excluding laboratory.....	(X)	(X)	185,575	(X)	275,505
3339121225	Value of drivers 2/.....	14	(X)	21,733	(X)	22,467
	Low vacuum, 29.5" mercury vacuum and lower:					
3339121261	Under 5 hp.....	16	182,364	38,217	258,649	62,558
3339121265	5 hp and over.....	14 b/	3,072 a/	27,832	4,388	37,703
	High vacuum, 29.6" mercury vacuum and over:					
3339121273	Under 5 hp.....	13 c/	51,269	47,966	68,573	90,752
3339121277	5 hp and over.....	7 a/	4,375 b/	36,184	4,986	41,770
	Vacuum pumps, n.s.k. 3/.....	(X)	13,931	13,643	19,451	20,255
	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)	291,209
3339125111	Parts and attachments for air and gas compressors and vacuum pumps.....	38	(X)	(D)	(X)	291,209

D Withheld to avoid disclosing data of 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/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 code level. Drivers may in some cases be included.

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: 2001 and 2000
[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/
2001						
Pumps 6/.....	22,306,452	4,168,000	1,869,272	1,011,327	71,548,787	717,874
Centrifugal pumps, submersible.....	798,174	260,928	307,788	88,628	1,087,589	53,901
Centrifugal pumps, other 7/.....	6,426,378	1,360,395	130,575	292,888	9,379,263	267,707
Turbine pumps, vertical.....	64,898	262,906	24,125	35,607	5,792	12,506
Reciprocating pumps.....	(D)	(D)	51,706	60,987	325,389	90,088
Diaphragm pumps.....	1,347,857	235,163	155,684	56,125	939,263	20,511
Rotary pumps.....	(D)	(D)	57,308	117,262	497,041	66,843
Oil well and oil field pumps (except boiler feed).....	65,030	347,506	10,687	119,399	23,679	30,833
Domestic water systems, including windmill and hand pumps.....	2,543,358	474,267	552,012	32,604	45,368,197	36,557
Other pumps, including sump pumps, hot water circulator pumps, etc.	9,499,463	642,364	579,387	207,827	13,922,574	138,928
Compressors 6/.....	3,599,868	1,958,155	2,588,977	197,403	11,994,397	410,048
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	1,178,991	412,256	(NA)	(NA)	306,764	65,351
Rotary positive, centrifugal, and axial 8/.....	91,883	400,946	(NA)	(NA)	501,920	113,957
Portable air compressors 8/.....	2,289,566	511,176	3,911	53,988	6,975,983	154,650
Other air and gas compressors, including gas compressors, and compressor packages.....	39,428	633,777	2,585,066	143,415	4,209,730	76,090
Vacuum pumps.....	255,011	185,575	421,672	125,484	4,994,300	376,563
2000						
Pumps 6/.....	22,840,976	4,967,686	1,885,057	928,948	49,346,904	659,167
Centrifugal pumps, submersible.....	773,424	250,339	244,456	73,068	1,364,056	42,181
Centrifugal pumps, other 7/.....	5,963,051	1,326,518	140,333	285,907	12,441,688	247,028
Turbine pumps, vertical.....	64,380	244,067	8,459	31,136	132,291	5,231
Reciprocating pumps.....	(D)	(D)	89,241	83,626	666,365	82,444
Diaphragm pumps.....	1,296,909	257,049	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).....	50,899	256,278	5,971	55,798	32,211	3,994
Domestic water systems, including windmill and hand pumps.....	2,564,956	471,441	429,413	37,874	22,157,531	38,217
Other pumps, including sump pumps, hot water circulator pumps, etc.	10,321,241	649,615	687,709	192,606	11,147,909	174,157
Compressors 6/.....	3,098,940	2,081,604	1,882,406	186,587	10,613,229	363,573
Stationary air compressors:						
Reciprocating, single and double acting 8/.....	733,898	285,148	(NA)	(NA)	379,067	91,782
Rotary positive, centrifugal, and axial 8/.....	121,118	516,595	(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.....	42,743	681,627	1,878,277	129,649	3,826,025	42,587
Vacuum pumps.....	368,560	278,767	369,466	90,748	3,403,063	313,984

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

1/Manufacturers' shipments generally exclude values of drivers. See Table 4 for comparability.

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

3/Excludes the value of drivers.

4/Sources: Census Bureau report IM 145, U.S. 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 add to total because of such factors as drivers, parts, and "n.s.k."; see Table 1.

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

8/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.

Table 4. 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/
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 8413.60.0050	8413.50.0010 8413.60.0050
3339111167, 172, 175, 178, 190	Domestic water systems, including windmill and hand pumps	8413.20.0000	8413.20.0000
		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
3339121144, 151, 154, 157, 15A, 166	Stationary air compressors, rotary positive, centrifugal, and axial.....		8414.80.1545
			8414.80.1555
		8414.80.1060	8414.80.1560
		8414.80.1067	8414.80.1565
		8414.80.1075	8414.80.1570
3339121171, 174, 177, 17A, 17E, 17H	Portable air compressors.....	8414.80.1080	8414.80.1575
			8414.80.1580
		8414.40.0000	8414.40.0000
		8414.80.1095	8414.80.1585
			8414.80.1590
3339121183, 188, 199, 1A1, 1A9, 1CC, 1FF	Other compressors.....	8414.80.2010	8414.80.2010
		8414.80.2050	8414.80.2050
		8414.80.2060	8414.80.2060
		8414.80.2070	8414.80.2070
		8414.80.9000	8414.80.9000
3391110123, 3339121225, 261, 265, 273, 277	Vacuum pumps.....	8414.10.0000	8414.10.0000

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).

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.