

Fluid Power Products, Including Aerospace

1999

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Information about the scope of the survey, methodology, explanation of terms and historical notes for this survey may be found in the introduction of the 1997 Manufacturing Profiles, issued August 1999.

Current data are released electronically on Internet for all individual surveys as they become available. Use: <http://www.census.gov/econ/www/manumenu.html>. Individual reports can be accessed by choosing "Current Industrial Reports (CIR's)," clicking on "Report Number Index;" from the "Industrial Products by Numeric Index," choose the survey of interest. Follow the menu to view the PDF file or to download the worksheet file (WK format) to your personal computer.

These data are also available through the U.S. Department of Commerce and STAT-USA Electronic Bulletin Board by subscription. To access, dial 202-482-3870 and follow the prompts to register. Also, you may call 202-482-1986 or 1-800-STAT-USA, for further information. The Internet address is: www.stat-usa.gov/.

NOTE: Data are now published on the new North American Industry Classification System (NAICS) basis and therefore are not always comparable

to the old Standard Industrial Classification (SIC) code. For further information on NAICS, see www.census.gov/epcd/www/naics.html.

Summary of Findings

In 1999, fluid power product manufacturers, including aerospace, had shipments of \$11,435 million, a decrease of 3.1 percent from \$11,806.4 million reported in 1998. Hydraulic and pneumatic valves decreased 1.2 percent to \$3,266.5 million in 1999 from \$3,306.6 million in 1998. Fittings and assemblies for tubing and hose, excluding plumbers' brass goods, decreased 5.1 percent to \$2,430.0 million in 1999 from \$2,561.2 million in 1998. Hydraulic and pneumatic cylinder, actuators, accumulators, cushion, and nonvehicular shock absorbers decreased by 5.1 percent to \$2,800.9 million in 1999 from \$2,951 million in 1998. Compressed air and gas dryers and lubricators decreased 1.5 percent to \$80 million in 1999 from \$81.2 million in 1998. Filters of hydraulic and pneumatic systems increased 3.8 percent to \$521.9 million in 1999 from \$502.7 million in 1998. Hydraulic and pneumatic pumps, motors, and hydrostatic transmission components decreased 2.8 percent to \$2,335.4 million in 1999 from \$2,403.6 million in 1998.

Address inquiries concerning these data to Primary Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call James Hinckley, 301-457-4772.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-457-4673.

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

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Economics and Statistics Administration
U.S. Census Bureau



Table 1. Value of Shipments of Fluid Power Products, Including Aerospace: 1999 and 1998
 [Value in thousands of dollars]

Product code	Product description	1999		1998
	Fluid power products, including aerospace.....	11,435,053		11,806,362
3329125	Nonaerospace-type hydraulic directional control valves.....	553,390		582,794
3329127	Nonaerospace-type hydraulic valves (except directional control).....	785,827		825,400
3329129	Nonaerospace-type pneumatic directional control valves.....	484,310		465,651
332912B	Nonaerospace-type pneumatic valves (except directional control).....	276,372		270,001
3329121	Aerospace-type hydraulic fluid power valves.....	399,881		420,244
3329123	Aerospace-type pneumatic fluid power valves.....	501,483		489,513
332912D	Parts for fluid power valves.....	265,266	r/	253,030
332912H	Nonaerospace-type flared (metal) fittings and couplings for, and assemblies of tubing used in fluid power transfer systems.....	288,432	r/	344,551
332912J	Nonaerospace-type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems.....	380,528		431,752
332912L	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose, and manifolds.....	853,091		867,521
332912N	Nonaerospace-type hydraulic and pneumatic assemblies of hose.....	322,644		306,396
332912F	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies and manifolds.....	585,581		610,981
3339993	Nonaerospace-type filters for hydraulic fluid power systems.....	342,977		327,727
3339994	Nonaerospace-type filters for pneumatic fluid power systems.....	120,534		113,363
3339996	Aerospace-type hydraulic and pneumatic filters.....	58,391		61,622
3339998 pt.	Compressed air and gas dryers, and lubricators.....	79,983		81,209
3339951	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary.....	1,111,306		1,237,542
3339953	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary.....	465,019		447,488
3339955	Parts for nonaerospace-type hydraulic and pneumatic fluid power cylinders, actuators, and related items, n.e.c.	294,427		302,338
3339957	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic.....	930,194	r/	963,664
3339961	Nonaerospace-type reciprocating pumps.....	551,520	r/	582,095
3339963	Nonaerospace-type rotary and other fluid power pumps.....	451,704		478,037
3339965	Nonaerospace-type fluid power motors.....	637,372	r/	660,643
3339967	Aerospace-type fluid power pumps and motors.....	242,473		249,506
3339969	Parts for fluid power pumps, motors, and hydrostatic transmissions.....	452,348	r/	433,294

n.e.c. Not elsewhere classified. pt. Part. r/Revised by 5 percent or more from previously published data.

Table 2. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Types: 1999 and 1998
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	1999			1998		
		No. of cos.	Quantity	Value	No. of cos.	Quantity	Value
	Fluid power products, including aerospace.....	(X)	(X)	11,435,053	(X)	(X)	11,806,362
3329125	Nonaerospace-type hydraulic directional control valves.....	(X)	7,772,223	553,390	(X)	8,271,265	582,794
	Manual:						
3329125110	3- and 4-way monoblock.....	27	3,431,919	108,880	26	3,739,690	120,067
3329125120	3- and 4-way sectional.....	19 a/	1,003,398 a/	201,658	19	1,098,076	225,216
3329125130	Other manual.....	5 c/	47,130 b/	1,808	5 c/	44,256 b/	1,566
	Solenoid:						
3329125140	2-way types.....	14	(D)	(D)	15	463,820	33,560
3329125150	3- and 4-way types.....	24	(D)	(D)	23	1,032,999	120,944
3329125160	Other directional control.....	30	1,751,759	73,443	30	1,892,424	81,441
3329127	Nonaerospace-type hydraulic valves (except directional control).....	(X)	20,404,096	785,827	(X)	20,256,222	825,400
	Pressure control:						
3329127110	Relief valves.....	26 a/	892,185	33,777	25 a/	958,725	35,241
3329127120	Other, including load sensing and manual types.....	15	(D)	(D)	15	(D)	(D)
	Flow control:						
3329127130	Manual types.....	19 a/	968,059 a/	22,189	18 a/	870,480	19,474
3329127140	Other flow control valves.....	24	2,745,669	57,617	24 a/	2,593,277	61,769
3329127150	Cartridge valves (all types).....	21	10,854,462	242,110	20	10,306,236	220,715
	Electrohydraulic valves:						
3329127160	Pilot operated, torque motor servovalves.....	9	(D)	(D)	9	(D)	(D)
3329127170	Other types, including proportional.....	12	201,995	54,303	13	199,199 a/	56,817
3329127180	Other nonaerospace-type hydraulic valves, including stack and logic.....	25 a/	2,933,624	234,876	24 r/	3,235,126	286,873
3329129	Nonaerospace-type pneumatic directional control valves.....	(X)	18,372,117	484,310	(X)	16,824,382	465,651
3329129110	Manual.....	36 b/	4,509,159 b/	76,881	36 b/	4,265,932 a/	78,474
	Solenoid:						
3329129120	Under 1/8 inch port diameter.....	12 b/	3,522,769 b/	58,810	11 b/	2,781,370 b/	48,802
	1/8 inch up to and including 1/4 inch port diameter:						
3329129130	3-way types.....	21 b/	2,380,994 b/	57,698	21 b/	2,499,830 a/	59,668
3329129140	4-way types.....	20	3,309,538	119,190	20	3,070,524	109,532
	Over 1/4 inch port diameter:						
3329129150	3-way types.....	18 a/	571,813 b/	43,219	18	577,006	42,587
3329129160	4-way types.....	16	1,420,854 a/	73,295	16	1,363,908	76,744
3329129170	All other types.....	5 c/	134,890 c/	7,265	5	143,202	7,694
3329129180	Mechanical, remote pilot and all other types.....	27 b/	2,522,100 a/	47,952	27	2,122,610	42,150
332912B	Nonaerospace-type pneumatic valves (except directional control).....	(X)	16,134,916	276,372	(X)	14,518,947	270,001
332912B110	Filter-regulator combination units, integral types.....	13	1,557,711 a/	29,127	14	1,426,477	28,462
332912B120	Other FRs and filter-regulator-lubricator combo units.....	16 a/	446,561 a/	18,276	15	556,489	21,998
332912B130	Regulators, sold separately.....	19 a/	4,754,192 a/	79,952	19	4,868,832	76,611
332912B140	Flow control valves.....	28 a/	5,192,480 c/	103,911	28 a/	4,062,575 a/	102,316
332912B150	Check, shuttle, exhaust, needle and all other types.....	28 b/	4,183,972 b/	45,106	28 b/	3,604,574 b/	40,614
3329121	Aerospace-type hydraulic fluid power valves.....	(X)	1,332,064	399,881	(X)	1,392,258	420,244
	2-, 3-, and 4-way directional control valves:						
3329121110	Manually or mechanically operated.....	17	(D)	(D)	17	(D)	(D)
3329121120	Solenoid operated.....	24	(D)	(D)	25	(D)	(D)
3329121130	Motor operated.....	8 b/	26,704 b/	17,848	9	29,865	20,321
3329121140	Electrohydraulic servovalves.....	9 a/	88,080 b/	125,158	8 a/	101,274 c/	139,795
3329121150	Flow, pressure, and other types of hydraulic valves.....	27 b/	412,724 b/	106,874	28	447,444 b/	111,117
3329123	Aerospace-type pneumatic fluid power valves.....	(X)	1,061,276	501,483	(X)	1,071,463	489,513
3329123110	Pneumatic valves (all types).....	27 b/	1,061,276 a/	501,483	30 a/	1,071,463 a/	489,513

Continued

Table 2. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Types: 1999 and 1998
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1999		No of cos.	1998		
			Quantity	Value		Quantity	Value	
332912D	Parts for fluid power valves.....	(X)	(X)	265,266	(X)	(X)	r/	253,030
332912D110	Parts for nonaerospace-type hydraulic and pneumatic valves, sold separately.....	52	(X)	b/ 212,495	55	(X)		202,427
332912D120	Parts for aerospace- type hydraulic and pneumatic valves, sold separately.....	24	(X)	a/ 52,771	24	(X)	a/ r/	50,603
332912H	Nonaerospace-type flared (metal) fittings and couplings for, and assemblies of tubing used in, fluid power transfer systems.....	(X)	(X)	288,432	(X)	(X)	r/	344,551
	Flared fittings:							
332912H110	Brass and bronze (SAE 45 degrees and 37 degrees).....	8	(X)	(D)	9	(X)		(D)
332912H120	Carbon steel (JIC 37 degrees).....	11	(X)	101,845	12	(X)	r/	106,724
332912H130	Other, including alloy steel.....	14	(X)	a/ 56,909	14	(X)		69,725
332912H140	Assemblies of tubing.....	7	(X)	(D) 8,620	7	(X)		(D) 10,931
332912H150	Assemblies of tubing and hose.....	6	(X)	23,338	7	(X)		48,010
332912J	Nonaerospace-type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems.....	(X)	(X)	380,528	(X)	(X)		431,752
	Metal types:							
332912J110	Brass and bronze.....	15	(X)	83,905	15	(X)		88,042
332912J120	Carbon steel.....	13	(X)	91,026	13	(X)		100,575
332912J130	Stainless steel.....	14	(X)	a/ 193,382	14	(X)	a/	224,919
332912J140	Other, including alloy steel.....	7	(X)	a/ 8,620	7	(X)	a/	10,931
332912J150	Nonmetal fittings, including plastic.....	9	(X)	a/ 3,595	9	(X)		7,285
332912L	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose, and manifolds.....	(X)	(X)	853,091	(X)	(X)		867,521
332912L110	Permanent hose end fittings (crimped and swaged).....	18	(X)	a/ 349,408	20	(X)		358,227
332912L120	Hydraulic and pneumatic reusable end fittings.....	26	(X)	b/ 122,649	27	(X)	b/	134,000
332912L130	Hydraulic quick connect and disconnect couplings.....	15	(X)	a/ 147,669	17	(X)		160,490
332912L140	Pneumatic quick connect and disconnect couplings.....	22	(X)	b/ 93,420	23	(X)		90,830
332912L150	Manifolds and manifold assemblies for fluid power systems.....	20	(X)	92,514	19	(X)		79,814
332912L160	All other, including steel adaptor, swivel, rotating, and extension fittings.....	22	(X)	b/ 47,431	24	(X)	a/	44,160
332912N	Nonaerospace-type hydraulic and pneumatic assemblies of hose.....	(X)	(X)	322,644	(X)	(X)		306,396
332912N110	Assemblies with permanent end fittings.....	20	(X)	a/ 272,626	21	(X)		254,842
332912N120	Assemblies with reusable end fittings.....	9	(X)	50,018	9	(X)	r/	51,554
332912F	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies and manifolds.....	(X)	(X)	585,581	(X)	(X)		610,981
332912F110	Assemblies of hose and/or tubing.....	13	(X)	a/ 185,720	14	(X)	a/	188,619
332912F120	Quick connect, rotating, swivel, and extension fittings.....	12	(X)	171,988	12	(X)		167,741
332912F130	Manifolds for aerospace hydraulic systems.....	6	(X)	43,885	6	(X)		46,884
332912F140	Aerospace hose and tube fittings, n.e.c.	14	(X)	a/ 183,988	15	(X)	a/	207,737
3339993	Nonaerospace-type filters for hydraulic fluid power systems.....	(X)	(X)	342,977	(X)	(X)		327,727
	Hydraulic fluid filter assemblies, with or without filter element installed:							
3339993010	Low pressure (below 301 psi).....	25	855,073	49,903	25	756,552	a/	48,283
3339993020	Medium pressure (301 to 2,999 psi).....	19	654,247	23,348	18	715,269		26,759
3339993030	High pressure (3,000 psi and above).....	16	156,751	36,617	15	172,518		40,468
	Filter replacement elements:							
3339993040	Reusable (cleanable) type.....	14	a/ 941,111	a/ 16,750	14	a/ 1,076,630	a/	18,073

Continued

Table 2. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Types: 1999 and 1998
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1999		No of cos.	1998		
			Quantity	Value		Quantity	Value	
3339993050	Nonreusable type.....	25	a/	15,533,473	185,464	25	13,580,582	164,973
3339993060	Strainers and separators, filter parts, and accessories.....	18		(X)	30,895	19	(X)	a/ 29,171
3339994	Nonaerospace-type filters for pneumatic fluid power systems.....	(X)		(X)	120,534	(X)	(X)	113,363
	Air supply filter assemblies and filter replacement elements, excluding those shipped as part of a FR or FRL combo unit:							
3339994010	Coalescing types, including elements sold separately.....	15		(X)	58,166	15	(X)	50,140
3339994020	Other types, including elements sold separately.....	12		(X)	a/ 31,888	12	(X)	35,944
3339994030	Air exhaust mufflers, diffusers, filter parts and air preparation accessories.....	15		(X)	30,480	15	(X)	27,279
3339996	Aerospace-type hydraulic and pneumatic filters.....	(X)		(X)	58,391	(X)	(X)	61,622
3339996010	Hydraulic.....	7		(X)	(D)	7	(X)	(D)
3339996020	Pneumatic.....	3		(X)	(D)	3	(X)	(D)
3339998 pt.	Compressed air and gas dryers, and lubricators.....	(X)		665,448	79,983	(X)	743,527	81,209
	Compressed air and gas dryers:							
3339998872	Refrigerated dryers.....	4		(D)	(D)	4	(D)	(D)
3339998874	Dessicant dryers.....	4		(D)	(D)	4	(D)	(D)
3339998879	Other compressed air and gas dryers.....	4		(D)	(D)	4	(D)	(D)
3339998880	Lubricators for pneumatic systems, sold separately.....	8	a/	585,065	a/ 13,413	8	633,929	14,408
3339951	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary.....	(X)		4,184,884	1,111,306	(X)	4,888,126	1,237,542
	Hydraulic cylinders, excluding electrohydraulic:							
	Tie-rod types:							
	Standard NFPA and JIC tie-rod types:							
3339951110	Less than 1,500 psi.....	21	a/	169,907	41,958	22	169,958	42,265
3339951120	1,500 to 3,000 psi.....	20		243,617	95,700	22	230,877	96,889
3339951130	Greater than 3,000 psi.....	7		(D)	(D)	7	(D)	(D)
3339951140	Other tie-rod types.....	18		(D)	(D)	18	(D)	(D)
3339951150	Threaded/weld fused combination.....	46	b/	2,646,874	b/ 639,645	47	a/ 3,091,886	a/ 748,254
3339951160	Telescoping.....	20	a/	131,474	a/ 113,023	20	r/ 127,325	r/ 115,386
3339951170	Mill type.....	12	a/	32,323	a/ 29,157	11	20,667	19,287
3339951180	Other, including those threaded at both ends.....	22	a/	542,680	a/ 63,330	23	703,880	76,829
3339951190	Electrohydraulic types.....	10	a/	6,392	a/ 26,478	9	a/ 6,160	a/ 21,361
33399511A0	Hydraulic rotary actuators.....	14	b/	61,447	b/ 47,884	14	b/ 60,997	b/ 52,338
3339953	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary.....	(X)		6,241,334	465,019	(X)	6,296,970	447,488
	NFPA interchangeable cylinders:							
3339953110	Steel.....	17	a/	274,384	81,971	18	284,044	85,421
	Aluminum:							
3339953120	Less than 1-1/2 inch bore size.....	7	b/	56,842	a/ 6,087	6	a/ 49,771	a/ 5,659
3339953130	1-1/2 inch bore size and over.....	19	a/	337,939	a/ 56,156	19	338,253	55,831
3339953140	Rodless cylinders.....	11		129,586	42,032	11	122,663	38,074
	Other pneumatic cylinders:							
3339953150	Less than 1-1/2 inch bore size.....	24	a/	3,809,007	a/ 134,275	23	a/ 3,861,191	r/ 126,806
3339953160	1-1/2 inch bore size and over.....	37	b/	1,516,749	a/ 108,498	35	a/ 1,529,852	a/ 103,503
3339953170	Pneumatic rotary actuators.....	15	b/	116,827	b/ 36,000	15	111,196	32,194
3339955	Parts for nonaerospace-type hydraulic and pneumatic fluid power cylinders, actuators, and related items, n.e.c.	(X)		(X)	294,427	(X)	(X)	302,338
3339955110	Accumulators (bladder, piston, and other types)	22		262,510	55,909	20	229,179	r/ 52,609
3339955120	Shock absorbers, not for vehicle suspension, and cushions (hydraulic and pneumatic).....	15		3,512,125	a/ 77,687	15	3,112,799	a/ 73,346

Continued

Table 2. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Types: 1999 and 1998
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1999		No of cos.	1998	
			Quantity	Value		Quantity	Value
3339955130	Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage.....	12	2,459	1,558	13	7,424	2,794
3339955140	Parts for nonaerospace-type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers, sold separately.....	57	(X) a/	159,273	58	(X) a/	173,589
3339957	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic.....	(X)	(X)	930,194	(X)	(X) r/	963,664
	Hydraulic servo-actuator assemblies (linear and rotary):						
3339957110	Mechanical input.....	6 a/	18,793 b/	159,729	6 a/ r/	17,554 b/	154,586
3339957120	Electrical input.....	6 b/	17,934 b/	300,609	7 b/ r/	19,452 b/ r/	321,181
3339957130	Combination input.....	4	(D)	(D)	4	(D)	(D)
	Hydraulic utility actuators:						
3339957140	Linear actuators (cylinders).....	8	15,228 a/	99,781	8 a/	18,820 a/	99,241
3339957150	Rotary actuators (limited rotation).....	2	(D)	(D)	2	(D)	(D)
3339957160	Shock absorbers, snubbers, and cushions, all types, excluding oleo strut assemblies.....	8	(D)	(D)	9	(D)	(D)
3339957170	Pneumatic actuators (linear and rotary).....	7	(D)	(D)	7	(D)	(D)
3339957180	Accumulators (bladder, piston, and other types).....	10	12,040	16,114	10	11,451	16,431
3339957190	Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage.....	5 b/	1,626 a/	13,619	5 b/	1,459 a/	12,967
33399571A0	Other aerospace-type fluid power cylinders, rotary actuators, cushions and related items, n.e.c.	4	(X)	2,263	4	(X)	2,269
3339955150	Parts for aerospace-type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and related items, sold separately.....	13	(X) b/	21,316	14	(X) b/ r/	20,357
3339961	Nonaerospace-type reciprocating pumps.....	(X)	2,000,475	551,520	(X)	2,037,738 r/	582,095
	Axial piston:						
	Variable displacement types:						
3339961110	Closed loop.....	9	1,188,663	314,003	9	1,279,570 r/	353,533
3339961120	Open loop.....	10	(D)	(D)	10 a/ r/	239,012 a/	116,195
3339961130	Fixed displacement types.....	7	(D)	(D)	7	(D)	(D)
3339961140	Radial piston types.....	3	(D)	(D)	3	(D)	(D)
3339963	Nonaerospace-type rotary and other fluid power pumps.....	(X)	3,119,929	451,704	(X)	3,009,678	478,037
	Gear type:						
3339963110	Internal gear type, including gerotors.....	11	1,002,857	105,195	11 r/	961,449	99,029
3339963120	External gear type.....	16 a/	1,800,442 a/	240,187	16	1,689,460	255,819
	Vane type:						
3339963130	Fixed displacement.....	3	(D)	(D)	4	(D)	(D)
3339963140	Variable displacement.....	5	(D)	(D)	5	(D)	(D)
3339965	Nonaerospace-type fluid power motors.....	(X)	(X)	637,372	(X)	(X) r/	660,643
3339965110	Pneumatic (air) motors.....	3	(D)	(D)	3	(D)	(D)
	Hydraulic motors:						
	Gear type:						
3339965120	Internal types, excluding gerotors.....	7	(D)	(D)	8	(D)	(D)
3339965130	Gerotor types.....	6	1,325,371	212,182	7	1,264,951	200,415
3339965140	External.....	8	196,732	29,287	8 r/	183,173 r/	28,594
3339965150	Vane types, fixed and variable.....	8 b/	12,915 b/	13,127	8 b/	13,769 b/	14,990
3339965160	Radial piston types, fixed and variable.....	2	(D)	(D)	2	(D)	(D)
	Axial piston types:						
3339965170	Fixed displacement.....	8	693,286	88,868	8	703,870	91,734
3339965180	Variable displacement.....	8	222,573	111,156	8 r/	220,486 r/	114,074
3339965190	Prime movers shipped with pumps or sold separately.....	6	(X)	(D)	6	(X)	(D)

Table 2. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Types: 1999 and 1998
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1999		1998		
			Quantity	Value	Quantity	Value	
3339967	Aerospace-type fluid power pumps and motors.....	(X)	99,481	242,473	(X)	100,500	249,506
	Hydraulic pumps:						
3339967110	Fixed and variable displacement types.....	9 a/	34,954 a/	125,759	10 a/ r/	33,984 r/	132,222
3339967120	Pump/electric motor assemblies, fixed and variable displacement types.....	10	30,125	83,605	10 a/	27,927 a/	81,261
3339967130	Other pump packages, n.e.c.	7	(D)	(D)	7	33,004 a/	12,154
	Motors:						
3339967140	Pneumatic (air) motors and motor packages.....	1	(D)	(D)	1	(D)	(D)
3339967150	Hydraulic motors, fixed and variable displacement types	2	(D)	(D)	3	(D)	(D)
3339967160	Hydraulic motor packages, including motor/gearbox, motor/valve, motor/generator, and similar combination units.....	3	(D)	(D)	4	(D)	(D)
3339969	Parts for fluid power pumps, motors, and hydrostatic transmissions.....	(X)	(X)	452,348	(X)	(X) r/	433,294
	Hydraulic:						
3339969110	Nonaerospace.....	28	(X)	404,658	30	(X)	367,960
3339969120	Aerospace.....	7	(X)	(D)	9	(X) r/	54,546
	Pneumatic:						
3339969130	Nonaerospace.....	2	(X)	(D)	2	(X)	(D)
3339969140	Aerospace.....	1	(X)	(D)	2	(X)	(D)

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

Note: The percent of estimation for each item is indicated as follows: a/10 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 Fluid Power Products: 1999
 [Quantity in units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Export shipments 1/		Import shipments 2/	
		Quantity	Value	Quantity	Value	Quantity	Value
3329121, 3329125, 3329127	Hydraulic fluid power valves.....	29,508,383	1,739,098	3,868,773	209,986	12,721,265	172,664
3329123, 3329129, 332912B	Pneumatic fluid power valves.....	35,568,309	1,262,165	2,170,310	93,256	22,666,488	179,948
332912D	Parts for fluid power valves: hydraulic, pneumatic, all types.....	(X)	265,266	(X)	88,834	(X)	83,935
3339951 pt., 3339957 pt.	Hydraulic cylinders and hydraulic actuators (except electrohydraulic types).....	4,236,133	1,819,469	326,396	81,854	4,086,661	216,670
3339953 pt.	Pneumatic cylinders (tie-rod types).....	669,165	144,214	423	610	24,063	3,330
3339953 pt., 3339957 pt.	Pneumatic cylinders (except tie-rod types).....	5,814,884	435,127	354,874	39,659	584,368	36,939
3339951 pt., 3339957 pt.	Fluid power accumulators, hydraulic and pneumatic, and other hydraulic, pneumatic or combination devices for fluid energy absorption and/or storage, all types.....	(X)	86,393	185,044	92,282	291,270	72,748
3339965 pt., 3339967 pt.	Pneumatic (air) motors and motor packages, all types.....	(D)	(D)	8,082	2,697	5,459	854
3339965 pt., 3339967 pt.	Hydraulic motors, all types.....	3,346,839	598,356	115,123	35,595	240,139	143,490
3339961, 3339963, 3339967 pt.	Hydraulic pumps, all types.....	5,214,871	1,222,763	5,517,354	380,570	3,476,016	290,782
3339969	Parts for fluid power pumps and motors.....	(X)	452,348	(X)	222,416	(X)	256,634

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

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

2/Source: Census Bureau report, IM 145, U.S. Imports for Consumption.

Table 4. Comparison of North American Industry Classification System-Based Product Codes with Schedule B Export Numbers, and HTSUSA Numbers: 1999

Product code	Product description	Export number 1/	Import number 2/
3329121, 3329125, 3329127	Hydraulic fluid power valves.....	8481.10.0020 8481.20.0010 8481.20.0020 8481.20.0030 8481.20.0040 8481.20.0050	8481.10.0020 8481.20.0010 8481.20.0020 8481.20.0030 8481.20.0040 8481.20.0050
3329123, 3329129, 332912B	Pneumatic fluid power valves.....	8481.10.0040 8481.10.0060 8481.20.0060 8481.20.0070 8481.20.0080	8481.10.0040 8481.10.0060 8481.20.0060 8481.20.0070 8481.20.0080
332912D	Parts for fluid power valves: hydraulic, pneumatic, all types.....	8481.90.9010	8481.90.9020 8481.90.9040
3339951 pt., 3339957 pt.	Hydraulic cylinders and hydraulic actuators (except electrohydraulic types).....	8412.21.0015 8412.21.0030 8412.21.0045 8412.21.0060 8412.21.0075	8412.21.0015 8412.21.0030 8412.21.0045 8412.21.0060 8412.21.0075
3339953 pt.	Pneumatic cylinders (tie-rod types).....	8412.31.0040	8412.31.0040
3339953 pt., 3339957 pt.	Pneumatic cylinders (except tie-rod types).....	8412.31.0080	8412.31.0080
3339951 pt., 3339957 pt.	Fluid power accumulators, hydraulic and pneumatic, and other hydraulic, pneumatic or combination devices for fluid energy absorption and/or storage, all types.....	8412.29.8075 8412.39.0080 8479.89.9765	8412.29.8075 8412.39.0080 8479.89.9765
3339965 pt., 3339967 pt.	Pneumatic (air) motors and motor packages, all types.....	8412.39.0040	8412.39.0040
3339965 pt., 3339967 pt.	Hydraulic motors, all types.....	8412.29.8015 8412.29.8030 8412.29.8045 8412.29.8060	8412.29.8015 8412.29.8030 8412.29.8045 8412.29.8060
3339961, 3339963, 3339967 pt.	Hydraulic pumps, all types.....	8413.50.0070 8413.50.0080 8413.60.0020 8413.60.0030 8413.60.0040	8413.50.0070 8413.50.0080 8413.60.0020 8413.60.0030 8413.60.0040
3339969	Parts for fluid power pumps and motors.....	8412.90.9005 8412.90.9015 8412.90.9025 8412.90.9035 8413.91.9050	8412.90.9005 8412.90.9015 8412.90.9025 8412.90.9035 8413.91.9050

pt. Part.

1/Source: 1999 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 (1999).