



U.S. Aerospace Industry and the Global Demand for Fastener Trade

by Sabrina Rodriguez

The US aerospace industry is growing at exponential rates. Have the recent years of space exploration and ramped-up production of aircrafts increased the fastener demand in the US? Will the demand continue to grow as new and existing markets continue innovations?

Data note: The data for this article is derived from Descartes™ Datamyne's US Census trade statistics. US Import and Export Census trade statistics is based on all modes of transportation. That value is calculated in USD by CIF (imports). In this article fasteners are defined as any product under HS Code 7318 (screws, bolts, nuts, coach screws, rivets, cotters, cotter pins, washers and similar articles or iron or steel), as well as the subcategories of 7318.

The United States has been a global leader in aerospace exporters for several years thanks to essential market leaders such as Lockheed Martin, Boeing and most recently, SpaceX. Recent space shuttle launches and explorations to Mars may be the first things that come to mind; however, the aerospace industry expands to military aircraft and missiles, commercial and cargo airline carriers as well as the entire aviation industry. The innovative minds of Elon Musk and Jeff Bezos are paving the way for NASA when it comes to space exploration and space craft manufacturing. When Elon is not busy hosting Saturday Night Live or tweeting, he is devoted to the development of space travel at an affordable and efficient manner.

The US's aerospace industry is expected to continue growing at exponential rates. Deloitte has predicted a growth of more than 15% in 2021 compared to 2020 when space investments reached a height of \$25 billion USD. NASA along with the US government is contracting and subsidizing privately owned and operated companies such as SpaceX and Blue Origin to remain competitive in the industry. Meanwhile, market leaders such as Boeing faced hardships in 2020 while aircraft production was significantly reduced due to the decline in commercial air travel. According to the Defense & Security Monitor forecast, Boeing delivered a total of 77 jets ranking from 737s, 747s, 777s and 787s during the first quarter of 2021. While Boeing has taken obvious reductions in their aircraft manufacturing, competitors such as Airbus are ramping up production of aircrafts despite a less than favorable market demands. With less production of aircrafts, one is led to believe there will be a reduction in the demand of imported goods such as fasteners and other essential goods used for aircraft manufacturing.

Is the Aerospace Industry Beginning to See an Increase in Demand?



After an extremely difficult 2020 where international demand was reduced significantly, the US has already begun to see an increase in demand from internationally traded goods. Fasteners being one of the key commodities imported for the manufacturing of



aircrafts have increased during the first quarter of 2021 by 10%. Countries such as Taiwan, China and Japan continue to be global leaders in the production of fasteners, and the US remains as one of the most demanding importers. Notably other countries such as Mexico, South Korea and India increased their exports to upwards of 20% during Q1 of 2021. The United Kingdom declined their fastener exports to the US during the first quarter of 2021 by comparison to the same time in 2020 by 55% which can possibly be attributed to the UK's participation in Brexit.

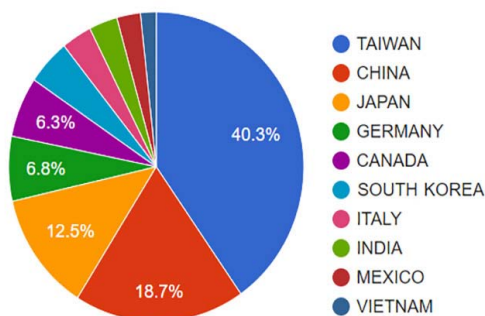
The US saw an increase of fastener imports of nearly 23% during the month of March 2021. Countries such as Taiwan, China and Japan all increased their fastener exports to the US during the month of March which leads to the possibility of increased aircraft manufacturing during the second quarter of 2021. South Korea decreased their fastener exports to the US in March 2021 by 12% compared to February 2021. February 2021 total values and general quantities slightly decreased, but then took an upwards turn during March 2021.

Main Query Filters: Product HS : 7318 -

Screws, Bolts, Nuts, Coach Screws, Screw Hooks, Rivets, Cotters, Cotter Pins, Washers and Similar Articles, of Iron or Steel

Country of Origin	2020 - Q1				2021 - Q1				Volume Change			
	USD	%	KG	%	USD	%	KG	%	USD	%	KG	%
Taiwan	466,309,671	35.01	147,694,664	40.91	519,164,863	36.62	159,511,874	40.15	52,855,192	11.34	11,817,210	8.01
China	201,722,628	15.15	88,249,432	24.44	240,515,382	16.97	102,022,311	25.68	38,792,754	19.24	13,772,879	15.61
Japan	157,858,073	11.85	23,207,211	6.43	160,737,857	11.34	25,908,732	6.52	2,879,784	1.83	2,701,521	11.65
Germany	107,690,458	8.09	12,473,412	3.46	87,066,770	6.15	10,501,911	2.65	(20,623,688)	-19.16	(1,971,501)	-15.81
Canada	79,623,776	5.98	17,909,557	4.96	81,078,162	5.72	18,206,366	4.59	1,454,386	1.83	296,809	1.66
S. Korea	52,956,268	3.98	15,099,365	4.19	61,581,885	4.35	19,193,464	4.83	8,625,617	16.29	4,094,099	27.12
Italy	37,653,243	2.83	4,602,252	1.28	42,640,428	3.01	5,113,208	1.29	4,987,185	13.25	510,956	11.11
India	32,708,762	2.46	15,862,547	4.40	40,233,651	2.84	18,943,062	4.77	7,524,889	23.01	3,080,515	19.43
Mexico	31,664,768	2.38	3,375,916	0.94	33,394,394	2.36	4,068,789	1.03	1,729,626	5.47	692,873	20.53
U.K.	25,232,037	1.90	1,986,902	0.56	17,990,733	1.27	893,543	0.23	(7,241,304)	-28.70	(1,093,359)	-55.03
Totals	1,332,220,033	100.00	361,099,649	100.00	1,417,774,022	100.00	397,386,479	100.00	85,553,989	6.43	36,286,830	10.05

Country of Origin	2021 - JAN				2021 - FEB				2021 - MAR			
	USD	%	KG	%	USD	%	KG	%	USD	%	KG	%
Taiwan	171,417,886	37.48	52,893,157	40.33	158,336,912	37.46	48,531,974	40.63	189,410,065	35.24	58,086,743	39.59
China	82,611,356	18.07	36,182,311	27.59	72,526,991	17.16	30,407,602	25.46	85,377,035	15.89	35,432,398	24.15
Japan	51,282,588	11.22	8,486,232	6.47	37,166,572	8.80	5,456,093	4.57	72,288,697	13.45	11,966,407	8.16
Canada	26,150,070	5.72	5,692,916	4.35	25,843,231	6.12	5,701,098	4.78	29,084,861	5.42	6,812,352	4.65
Germany	25,418,328	5.56	3,424,564	2.62	26,217,472	6.21	3,064,488	2.57	35,430,970	6.60	4,012,859	2.74
S. Korea	16,690,223	3.65	4,983,606	3.80	18,874,511	4.47	7,565,286	6.34	26,017,151	4.84	6,644,572	4.53
Italy	13,552,820	2.97	1,510,766	1.16	13,215,435	3.13	1,520,639	1.28	15,872,173	2.96	2,081,803	1.42
India	12,856,789	2.82	6,380,639	4.87	12,046,339	2.85	5,862,988	4.91	15,330,523	2.86	6,699,435	4.57
Mexico	10,079,183	2.21	1,187,041	0.91	11,379,768	2.70	1,337,310	1.12	11,935,443	2.23	1,544,438	1.06
Vietnam	8,053,440	1.77	4,345,515	3.32	6,626,494	1.57	3,509,436	2.94	7,555,148	1.41	4,992,062	3.41
Totals	457,410,830	100.00	131,169,438	100.00	422,753,840	100.00	119,464,517	100.00	537,609,352	100.00	146,752,524	100.00



How Much Has Fastener Demand Increased Over the Recent Years?

Over the last five years, Taiwan, China, and Japan have led the fastener industry in its exportation to the US. During 2019, US imports of fasteners from Taiwan spiked to over \$2 billion USD. Overall, during the year 2018 was when the total value of fasteners imported into the US spiked to a total of over \$6 billion USD, while in 2016 the total value was just over \$4.7 billion USD. Of these imports, subcategories 731815, 731816 and 731814 have been the most widely imported fasteners. 731815 alone accounts for upwards of 45% of the entirety of fastener imports, while subcategories 731813 and 731811 account for small percentages between 1 and 2% of the total imported.



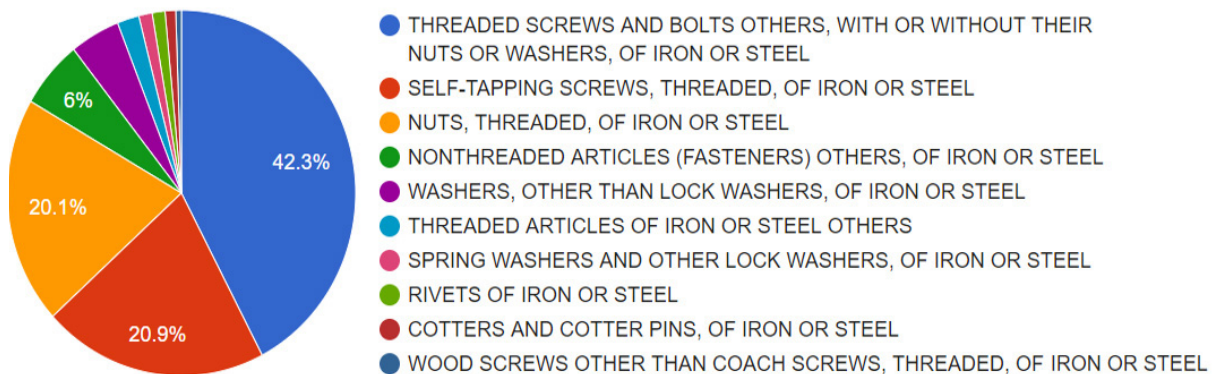
Country of Origin	2016		2017		2018		2019		2020	
	USD	%	USD	%	USD	%	USD	%	USD	%
Taiwan	1,512,763,809	31.62	1,695,177,002	32.80	1,935,363,130	32.10	647,320,640	39.50	1,878,810,525	37.04
China	1,089,267,219	22.77	1,229,973,800	23.80	1,630,859,894	27.05	516,843,311	31.54	906,334,869	17.87
Japan	645,603,874	13.50	648,194,818	12.55	644,506,115	10.69	100,429,867	6.13	524,511,802	10.34
Germany	304,531,405	6.37	297,601,078	5.76	344,921,221	5.73	46,957,565	2.87	343,044,039	6.77
Canada	263,340,402	5.51	277,584,037	5.38	313,533,514	5.21	73,544,433	4.49	264,497,330	5.22
S. Korea	220,695,373	4.62	188,722,047	3.66	198,057,295	3.29	43,288,996	2.65	182,819,205	3.61
Mexico	105,183,837	2.20	110,837,933	2.15	121,771,895	2.02	12,899,674	0.79	114,068,791	2.25
Italy	103,507,730	2.17	139,830,777	2.71	161,124,929	2.68	19,697,076	1.21	143,541,776	2.83
India	94,439,645	1.98	99,159,729	1.92	124,494,325	2.07	61,184,524	3.74	116,556,900	2.30
France	83,194,275	1.74	88,195,580	1.71	87,583,105	1.46	3,372,924	0.21	71,848,617	1.42
Totals	4,785,685,901	100.00	5,168,791,299	100.00	6,029,489,521	100.00	1,638,796,650	100.00	5,073,308,249	100.00

Country of Origin	2016		2017		2018		2019		2020	
	KG	%	KG	%	KG	%	KG	%	KG	%
Taiwan	544,975,268	36.03	572,892,820	37.05	642,108,310	36.03	647,320,640	39.50	611,967,110	41.03
China	552,585,092	36.53	577,920,267	37.37	703,375,316	39.46	516,843,311	31.54	417,921,776	28.02
Japan	136,998,245	9.06	96,792,773	6.26	101,606,714	5.71	100,429,867	6.13	82,099,225	5.51
Germany	37,775,762	2.50	34,902,355	2.26	32,657,036	1.84	46,957,565	2.87	41,671,866	2.80
Canada	58,970,087	3.90	66,367,145	4.30	76,422,263	4.29	73,544,433	4.49	54,444,523	3.66
S. Korea	45,536,620	3.01	42,404,509	2.75	45,024,072	2.53	43,288,996	2.65	67,151,608	4.51
Mexico	12,552,726	0.83	12,593,742	0.82	13,636,933	0.77	12,899,674	0.79	13,485,743	0.91
Italy	15,010,621	1.00	20,744,214	1.35	22,662,888	1.28	19,697,076	1.21	16,625,921	1.12
India	46,518,739	3.08	49,848,457	3.23	54,607,876	3.07	61,184,524	3.74	55,992,096	3.76
France	3,622,410	0.24	4,399,425	0.29	4,368,457	0.25	3,372,924	0.21	2,495,212	0.17
Totals	1,512,964,397	100.00	1,546,678,148	100.00	1,782,518,912	100.00	1,638,796,650	100.00	1,491,564,174	100.00

Imported Items	2016		2017		2018		2019		2020	
	USD	%	USD	%	USD	%	USD	%	USD	%
731815 - Threaded screws and bolts others, with or without their nuts or washers, of iron or steel	2,043,565,282	42.71	2,194,268,058	42.46	2,608,262,715	43.26	2,519,490,267	43.13	2,130,349,004	42.00
731816 - Nuts, threaded, of iron or steel	1,033,481,378	21.60	1,136,811,397	22.00	1,301,408,883	21.59	1,244,256,479	21.30	1,013,175,272	19.98
731814 - Self-tapping screws, threaded, of iron or steel	796,823,447	16.66	869,386,804	16.82	1,023,827,815	16.99	1,012,431,566	17.34	1,050,790,184	20.72
731829 - Nonthreaded articles (fasteners) others, of iron or steel	322,929,560	6.75	327,374,457	6.34	363,019,201	6.03	375,859,819	6.44	302,876,894	5.98
731822 - Washers, other than lock washers, of iron or steel	247,995,647	5.19	265,558,478	5.14	315,806,429	5.24	290,939,839	4.99	233,704,485	4.61
731819 - Threaded articles of iron or steel others	95,323,414	2.00	111,328,850	2.16	126,203,948	2.10	122,764,796	2.11	102,361,767	2.02
731823 - Rivets of iron or steel	72,147,023	1.51	63,954,957	1.24	68,692,413	1.14	71,453,620	1.23	60,010,185	1.19
731821 - Spring washers and other lock washers, of iron or steel	55,097,545	1.16	64,266,977	1.25	83,122,435	1.38	77,385,912	1.33	62,631,557	1.24
731824 - Cotter pins, of iron or steel	45,932,229	0.96	53,987,911	1.05	59,468,718	0.99	61,610,884	1.06	49,501,470	0.98
731812 - Wood screws other than coach screws, threaded, of iron or steel	39,604,236	0.83	45,048,165	0.88	35,675,783	0.60	29,313,333	0.51	26,470,901	0.53
731811 - Coach screws, threaded, of iron or steel	17,299,119	0.37	20,435,692	0.40	26,429,955	0.44	21,236,758	0.37	21,133,381	0.42
731813 - Screw hooks and screw rings, threaded, of iron or steel	15,487,021	0.33	16,369,553	0.32	17,571,226	0.30	15,141,948	0.26	20,303,149	0.41
Totals	4,785,685,901	100.00	5,168,791,299	100.00	6,029,489,521	100.00	5,841,885,221	100.00	5,073,308,249	100.00



Imported Items	2016		2017		2018		2019		2020	
	KG	%	KG	%	KG	%	KG	%	KG	%
731815 - Threaded screws and bolts others, with or without their nuts or washers, of iron or steel	698,444,315	46.17	728,788,474	47.12	849,603,960	47.67	788,387,776	48.11	667,875,342	44.78
731816 - Nuts, threaded, of iron or steel	290,829,802	19.23	293,614,271	18.99	329,015,639	18.46	302,894,154	18.49	239,456,030	16.06
731814 - Self-tapping screws, threaded, of iron or steel	344,939,371	22.80	333,843,401	21.59	393,066,682	22.06	357,259,777	21.81	409,320,309	27.45
731829 - Nonthreaded articles (fasteners) others, of iron or steel	37,697,125	2.50	38,056,896	2.47	42,752,302	2.40	42,763,202	2.61	35,369,799	2.38
731822 - Washers, other than lock washers, of iron or steel	73,170,552	4.84	79,555,431	5.15	94,961,393	5.33	79,496,753	4.86	73,965,878	4.96
731819 - Threaded articles of iron or steel others	13,476,417	0.90	16,038,471	1.04	14,523,630	0.82	14,494,015	0.89	12,731,084	0.86
731823 - Rivets of iron or steel	12,321,968	0.82	10,782,384	0.70	10,564,249	0.60	12,452,709	0.76	10,504,262	0.71
731821 - Spring washers and other lock washers, of iron or steel	7,829,184	0.52	8,487,525	0.55	9,889,600	0.56	8,913,271	0.55	7,011,337	0.48
731824 - Cotters and cotter pins, of iron or steel	5,267,960	0.35	5,872,322	0.38	6,230,029	0.35	5,879,744	0.36	5,481,334	0.37
731812 - Wood screws other than coach screws, threaded, of iron or steel	12,087,675	0.80	13,738,286	0.89	11,034,330	0.62	8,808,076	0.54	8,720,959	0.59
731811 - Coach screws, threaded, of iron or steel	12,477,840	0.83	13,081,540	0.85	16,098,822	0.91	13,387,935	0.82	14,456,635	0.97
731813 - Screw hooks and screw rings, threaded, of iron or steel	4,422,188	0.30	4,819,147	0.32	4,778,276	0.27	4,059,238	0.25	6,671,205	0.45
Totals	1,512,964,397	100.00	1,546,678,148	100.00	1,782,518,912	100.00	1,638,796,650	100.00	1,491,564,174	100.00



While it is difficult to attribute the entirety of US fastener imports to the aerospace industry, much can be said about the increase of fasteners over the last few years. The production of rockets such as Falcon 1 started soon after SpaceX was founded, and rocket manufacturing has only increased from that point on. It was not until 2010 and the first successful launch of Falcon 1 that gave SpaceX the much-needed appreciation (and government funding) needed to continue its innovations.

On the other hand, commercial travel is beginning to resume after a year of near abeyance. Domestic flight bookings within the continental US have seen incredible increases over the last few months as more people become vaccinated and begin to feel safe enough to travel by air. With the increased demand for medical equipment and pharmaceuticals, aircrafts will continue to be in demand for the rapid delivery and mass quantities of demand in many parts of the world. While most global trade relies on ocean transport, time sensitive and higher valued commodities such as pharmaceuticals rely on air transport. **Right now, there is a global demand for vaccines by nearly every country on earth, most of which will be necessary to transport as air cargo. The demand for air carriers and aircrafts remains extremely high especially during this difficult time as the planet heals and attempts to recuperate from COVID-19.**