

TABLE S8-30

USPTO patents and patent families granted in machine tools, by region, country, or economy: 1998–2018

(Number)

Region, country, or economy	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families		
World	3,781	10,087	4,259	10,483	4,449	8,803	4,561	8,272	4,106	8,285	4,301	8,830	3,991	9,425	3,489	9,826	4,077	11,117	3,270	10,494	2,689	10,386	2,487	11,394	3,162	12,010	3,321	14,199	3,655	16,807	4,087	17,268	4,175	18,664	4,329	23,289	4,259	27,393	4,640	28,594	4,400	27,007
North America	2,095	1,686	2,351	1,797	2,355	1,698	2,386	1,598	2,114	1,287	2,157	1,351	1,997	1,229	1,782	1,054	2,069	1,241	1,230	1,189	997	1,241	723	1,189	750	1,498	1,575	1,053	1,633	1,161	1,849	1,237	1,929	1,283	1,912	1,094	1,904	881	2,075	811	1,907	669
Canada	90	78	114	98	122	93	100	79	101	68	99	86	91	68	78	63	98	68	78	53	63	57	58	49	77	54	71	66	87	61	80	67	90	67	78	57	86	52	82	40	78	36
Mexico	2	1	4	3	1	0	5	4	2	0	1	0	2	0	1	1	2	1	1	1	1	1	0	1	1	2	2	2	4	2	1	4	2	4	3	4	6	4	7	4	10	
Puerto Rico	1	0	0	0	1	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	
United States	2,003	1,606	2,234	1,695	2,230	1,605	2,281	1,514	2,008	1,219	2,057	1,265	1,905	1,160	1,701	991	1,969	1,161	1,540	943	1,177	666	1,131	699	1,420	939	1,502	986	1,541	1,098	1,766	1,169	1,832	1,212	1,832	1,033	1,815	822	1,989	765	1,824	623
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Central and South America	1	3	7	4	7	7	3	4	4	3	4	5	8	5	4	4	5	5	4	7	4	9	4	20	6	15	4	20	4	17	3	16	7	18	6	9	10	17	9	23	23	
Argentina	0	1	1	0	1	0	0	0	0	0	0	0	2	0	1	2	0	1	0	1	0	1	0	1	0	1	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1
Brazil	0	0	6	3	2	5	2	2	4	3	2	3	5	2	2	2	4	4	3	5	2	5	2	16	5	14	2	17	3	19	2	15	4	17	3	7	3	16	7	22	22	
All others	1	2	1	2	4	2	1	2	0	2	2	2	2	1	2	2	2	1	2	1	2	4	2	3	2	1	2	2	1	2	1	2	1	3	2	1	3	1	3	1	0	
Europe	820	2,921	894	2,700	962	2,606	965	2,397	867	2,467	944	2,847	839	3,177	688	2,836	795	2,732	672	2,450	607	2,541	538	2,770	699	2,276	722	2,129	864	2,374	967	2,219	944	2,389	1,021	2,461	991	2,175	1,099	2,446	1,032	1,951
EU	752	1,808	828	2,010	883	1,854	892	1,710	798	1,666	854	1,648	756	1,879	630	1,831	716	1,707	625	1,516	562	1,538	497	1,463	653	1,344	678	1,329	796	1,424	908	1,367	875	1,570	1,587	928	1,612	1,033	1,655	947	1,372	
Austria	18	54	22	39	28	77	41	63	27	65	26	74	27	53	25	48	29	100	21	62	23	67	20	74	19	61	28	75	26	93	31	80	44	74	42	97	44	88	62	37	65	
Belgium	11	5	8	5	5	6	5	6	7	8	10	5	7	4	7	5	2	4	5	5	5	5	4	6	15	3	7	6	7	4	12	3	11	6	11	10	13	8	10	17	13	19
Denmark	4	6	3	3	5	6	10	11	6	8	11	5	14	7	6	6	5	5	6	6	6	5	8	9	3	7	6	3	9	3	8	3	9	7	8	13	9	10	7	4	2	
Finland	18	67	19	34	20	34	28	31	19	45	17	44	14	34	13	45	15	27	10	17	8	26	8	24	13	23	7	29	12	23	4	24	11	16	18	47	9	24	14	27	9	22
France	62	257	71	280	73	226	80	254	78	228	76	243	61	216	54	191	70	257	54	232	53	261	44	307	56	222	57	178	69	288	78	231	93	355	85	309	83	259	96	285	85	195
Germany	379	656	422	659	463	658	436	660	406	686	479	730	404	721	356	918	390	907	363	801	309	791	261	645	370	578	377	539	452	548	514	618	475	700	685	517	678	560	610	509	580	
Hungary	1	2	1	1	0	3	0	2	1	4	1	3	2	3	0	4	1	2	3	1	2	1	2	0	1	3	1	5	2	1	2	3	1	5	2	3	5	1	5	1	2	
Ireland	1	8	2	7	3	0	2	1	2	2	6	4	2	3	2	4	1	2	0	1	1	2	1	2	2	3	2	2	3	2	4	1	4	2	9	2	6	3	2	2	2	
Italy	74	273	98	466	97	429	78	240	77	219	72	155	64	423	38	168	58	21	43	24	37	30	41	34	32	89	49	121	57	95	61	15	57	18	65	25	77	242	72	185		
Netherlands	30	54	22	73	21	55	25	64	23	47	21	45	21	55	16	43	13	48	15	44	10	44	11	34	16	33	15	47	27	42	22	44	18	31	27	29	32	29	38	34	13	
Spain	5	51	6	50	12	48	7	56	7	47	2	34	5	57	1	75	4	61	3	70	2	57	5	66	7	56	6	63	10	59	18	56	7	71	8	46	8	50	17	38	10	40
Sweden	61	138	89	198	75	105	87	101	70	131	68	132	65	120	59	130	51	102	51	111	54	105	53	84	54	55	64	68	46	64	35	68	49	56	64	36	61	59	60	65	55	
United Kingdom	85	63	62	56	75	38	87	50	72	50	67	57	65	67	47	76	71	60	51	32	46	49	39	49	57	42	57	61	79	61	88	46	72	55	83	62	62	48	72	44	78	46
All others	4	174	2	139	4	167	6	170	5	126	8	108	5	116	6	115	3	113	2	107	5	95	6	131	6	142	11	136	14	201	14	186	17	225	17	335	17	215	25	144		
Other Europe	68	1,113	66	691	79	753	74	687	69	801	90	1,200	83	1,298	58	1,005	79	1,025	47	934	45	1,003	41	1,307	47	800	68	951	69	819	64	852	69	874	63	819	66	791	85	579	579	
Former Soviet Union	2	37	1	20	2	21	2	29	1	34	1	124	0	384	0	118	0	72	0	123	1	103	0	147	2	125	0	102	0	78	2	103	2	81	1	59	2	60	1	80		
Norway	5	9	2	8	3	6	3	7	4	7	3	6	0	4	2	9	4	6	1	13	1	7	0	8	3	11	2	7	3	5	5	7	10	4	7	9	7	4	7	4	8	
Russia	4	1,024	2	608	4	672	9	587	3	674	6	986	4	852	7	813	6	874	3	733	3	797	3	1,090	2	734	2	648	1	804	4	672	691	4	770	2	457	2	678	4	442	
Switzerland	56	39	59	51	68	49	58	60	59	80	77	82	72	54	47	62	63	69	43	60	38	72	35	61	36	59	35	40	62	56	48	56	53	52	32	52	43	55	42	71	44	
All others	1	3	2	4	3	4	1	4	2	6	3	2	6	4	1	3	5	3	1	6	2	3	3	1	3	2	4	3	4	6	4	3	6	4	2	3	3	3	5	5	5	
Asia	806	5,407	958	5,803	1,082	4,339	1,144	4,192	1,074	4,471	1,136	4,596	1,087	4,922	976	5,690	1,148	7,047	932	6,983	800	7,045	723	7,802	909	8,654	977	10,925	1,088	13,148	1,174	13,674	1,207	14,858	1,314	19,636	1,292	24,226	1,382	25,217	1,379	24,302

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China	5	48	6	88	8	144	15	207	17	160	27	250	22	355	29	428	34	550	25	754	22	1,476	39	2,102	47	2,603	57	3,853	77	5,271	74	5,200	103	6,211	116	13,329	139	17,400	174	19,155	157	18,379
India	1	1	2	2	0	0	1	2	4	2	0	0	1	1	0	0	0	0	2	4	2	2	0	0	2	4	7	5	7	12	12	8	12	8	20	4	20	4	18	4		
Japan	622	4,758	678	4,305	738	3,314	757	3,158	692	3,397	744	3,156	677	3,086	576	3,235	669	3,559	528	3,444	486	3,429	437	3,958	600	4,136	633	4,540	681	4,751	722	4,810	759	4,859	780	2,965	782	3,895	830	2,972	863	2,984
Malaysia	0	0	1	0	1	1	0	0	3	1	0	1	2	2	2	4	2	8	5	13	2	0	1	4	2	13	4	7	4	9	7	3	4	4	5	4	10	4	11	2	11	
Singapore	1	2	3	2	7	5	15	15	8	9	10	5	9	5	7	5	7	10	16	9	5	4	8	11	6	3	5	4	6	5	5	5	7	3	11	5	7	4	1	4	2	
South Korea	28	384	35	1,130	39	499	40	333	40	521	50	786	43	1,035	40	1,482	54	2,293	40	2,065	45	1,668	47	1,242	50	1,389	43	1,921	57	2,446	64	2,949	98	3,085	98	2,585	98	2,145	110	2,176	102	2,308
Taiwan	148	211	230	272	288	375	314	473	306	375	304	396	331	436	320	533	379	624	315	691	235	463	187	484	204	517	229	587	254	659	289	686	231	677	295	740	237	758	232	613		
All others	0	4	1	4	1	2	2	4	3	4	2	1	2	2	2	2	3	2	4	0	4	1	1	1	0	3	2	3	3	4	4	2	6	4	3	5	8	3	9	2	2	
Middle East	30	11	20	4	24	10	30	11	21	12	31	4	24	10	12	6	31	5	26	5	17	7	20	5	16	4	24	6	32	16	59	12	48	33	39	23	38	27	45	28		
Israel	29	10	20	4	22	5	28	8	19	5	30	4	23	6	12	3	30	3	25	2	16	3	18	3	15	2	23	4	28	5	60	7	44	29	37	20	32	20	39	22		
All others	1	1	0	0	2	5	1	3	3	7	1	0	1	4	0	3	1	2	1	3	5	2	3	2	2	1	2	4	11	6	5	5	3	4	4	2	3	6	7	6	6	
Africa	3	11	4	15	4	7	4	15	5	10	2	9	2	14	2	16	3	11	17	9	3	17	0	13	3	7	5	5	7	3	6	2	4	3	2	4	0	3	0	2	1	
South Africa	3	8	4	12	4	4	4	8	5	1	2	4	2	7	2	13	3	7	2	6	3	16	0	8	3	5	2	3	5	2	3	3	2	4	1	4	0	2	0	2	0	
All others	0	3	0	3	0	2	0	8	0	10	0	6	0	7	0	3	0	4	0	3	0	1	0	5	0	2	0	5	0	4	0	5	0	1	0	1	0	0	0	0	0	1
Australia and Oceania	25	22	24	25	16	27	29	36	21	25	27	18	33	43	26	39	26	36	14	40	17	36	13	32	30	47	18	61	29	80	27	60	26	66	24	45	21	59	32	75	24	33
Australia	21	22	19	23	16	27	26	36	16	25	24	16	27	40	24	37	23	36	12	39	16	36	9	32	28	46	14	60	24	79	23	60	22	64	20	45	15	57	26	75	17	33
New Zealand	5	0	5	1	0	0	3	0	5	0	3	2	6	2	2	2	1	3	1	1	0	0	4	0	2	1	4	1	5	1	4	1	5	4	0	6	2	6	0	7	0	
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unclassified	0	26	0	136	1	108	0	19	0	9	0	1	0	25	0	182	0	50	0	4	0	9	0	2	0	12	0	0	0	2	39	0	26	1	0	2	19	0	2	0	0	

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. International Patent Documentation (INPADOC) patent families across all patent offices covered in the Worldwide Patent Statistical Database (PATSTAT) are counted according to the year of the first granted patent in the patent family. Patent families are allocated according to patent inventorship information found on the priority patent of the INPADOC patent families. To account for missing ownership information in PATSTAT for some offices, a method designed by de Rassenfosse et al. (2012) is used to fill in missing information on priority patents using information in successive filings within the patent families (see technical documentation for details). Patent families are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Because of data coverage issues for some patent offices in PATSTAT, statistics for some countries may be underestimated partially for some years or across the whole trend. Countries with identified issues include India (missing data) and South Africa (no data for 2018). For Italy, because of data gaps regarding information on granted patents, patent applications are used instead, which slightly overestimates Italy's output and creates a small shift in the year for which its output is accounted. The EU includes 28 member countries. China includes Hong Kong.

Source(s)

Science-Metrix; PATSTAT, accessed April 2019; PatentsView, USPTO, accessed June 2019.