

Table SINV-36

International patent families granted in mechanical elements, by region, country, or economy: 1998–2020

(Number)

Region, country, or economy	Economy by income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	na	10,146	11,891	10,340	9,801	10,126	11,169	11,399	11,258	12,221	11,880	12,712	12,912	13,862	15,442	18,086	18,228	17,812	19,734	23,081	24,519	24,140	23,402	22,960
North America	na	1,834	1,958	1,970	1,897	1,867	1,827	1,751	1,371	1,574	1,270	1,197	1,263	1,644	1,658	1,796	2,058	2,202	2,382	2,325	2,497	2,410	2,670	2,385
Canada	High	77	106	87	86	104	98	107	87	94	80	73	87	106	95	99	125	141	143	141	143	140	152	147
Mexico	Upper middle	4	3	2	4	5	3	5	6	2	3	4	3	2	2	3	4	10	8	11	13	23	25	18
United States	High	1,752	1,850	1,880	1,806	1,758	1,726	1,639	1,279	1,478	1,186	1,120	1,173	1,536	1,561	1,694	1,929	2,052	2,231	2,173	2,341	2,247	2,492	2,221
Central America and Caribbean	na	0	2	3	1	3	1	2	0	1	0	1	2	1	1	2	2	1	1	1	0	0	1	1
Puerto Rico	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	16	10	19	19	13	28	21	14	19	11	15	34	46	44	37	43	29	44	47	43	52	65	112
Argentina	Upper middle	1	4	4	2	2	5	2	1	1	3	3	2	2	5	3	5	2	2	4	2	1	1	0
Brazil	Upper middle	12	5	14	15	10	22	18	11	15	7	12	30	42	38	33	34	27	39	40	37	48	62	111
Europe	na	3,647	3,665	3,587	3,479	3,605	3,929	4,423	3,935	4,129	3,603	3,778	3,666	3,697	3,589	4,199	4,030	4,138	4,432	4,700	5,279	5,264	5,211	4,722
EU-27 + UK ^a	na	2,899	3,002	2,983	2,884	2,909	3,034	3,367	3,147	3,215	2,786	2,958	2,798	2,885	2,932	3,356	3,236	3,287	3,545	3,799	4,286	4,159	4,423	4,058
United Kingdom	High	235	220	210	192	245	218	278	249	234	163	193	124	165	174	179	175	145	192	206	200	187	225	264
EU-27 ^b	na	2,664	2,782	2,773	2,692	2,664	2,816	3,089	2,898	2,981	2,623	2,765	2,673	2,721	2,758	3,177	3,062	3,142	3,354	3,593	4,086	3,972	4,198	3,794
Austria	High	56	57	63	63	58	63	51	54	96	50	77	76	89	107	107	127	99	117	106	120	132	128	115
Belgium	High	20	12	13	19	18	20	26	26	28	21	18	23	17	20	22	18	19	27	50	49	39	51	46
Denmark	High	23	18	28	27	31	36	25	38	44	29	32	27	31	29	25	40	37	50	42	48	42	46	41
Finland	High	29	29	29	25	22	36	29	39	26	22	33	27	33	22	34	28	34	47	40	35	34	38	39
France	High	560	507	532	563	492	480	515	400	555	550	579	594	503	435	586	524	597	694	716	738	759	798	717
Germany	High	1,273	1,293	1,293	1,399	1,463	1,638	1,573	1,711	1,831	1,516	1,586	1,471	1,519	1,571	1,858	1,809	1,818	1,919	2,005	2,043	2,076	2,324	2,133
Hungary	High	7	5	9	9	11	6	4	10	5	8	4	4	7	5	9	7	11	6	7	13	12	18	18
Ireland	High	6	5	2	3	2	2	5	4	1	3	1	2	2	6	5	7	8	13	7	5	7	6	11
Italy	High	232	409	391	206	195	154	422	217	52	55	64	69	128	147	123	58	47	44	77	454	367	292	191
Netherlands	High	107	106	105	106	82	85	106	86	77	78	73	83	92	99	85	113	103	84	125	118	101	95	76
Spain	High	50	63	56	44	35	55	59	69	61	85	62	70	60	72	92	85	114	83	72	74	61	56	40
Sweden	High	123	148	107	102	118	137	166	119	100	86	105	98	97	100	98	86	67	102	114	143	130	123	147
Other Europe	na	748	663	604	596	697	895	1,056	788	914	817	820	868	811	657	844	794	850	887	901	993	1,106	788	664
Other Europe-2020 ^b	na	983	882	814	787	941	1,113	1,334	1,037	1,148	980	1,013	993	976	831	1,022	968	995	1,079	1,106	1,193	1,293	1,013	928

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Belarus	Upper middle	3	3	4	1	0	7	17	9	13	12	7	7	13	8	7	9	5	6	6	18	7	15	9
Moldova	Lower middle	0	1	1	3	2	3	3	2	9	4	5	8	10	4	1	2	2	3	2	4	1	0	1
Norway	High	30	43	28	38	37	35	22	37	58	38	37	34	49	35	39	33	45	39	51	50	53	49	41
Russia	Upper middle	625	537	481	468	552	689	701	606	704	606	610	676	589	466	640	592	655	703	693	781	894	586	480
Switzerland	High	65	62	74	59	62	67	60	71	83	62	66	59	64	74	73	82	80	79	86	81	91	88	102
Ukraine	Lower middle	21	13	13	21	40	85	249	59	44	92	89	75	80	57	67	64	48	43	43	39	37	20	9
Asia	na	4,456	6,027	4,557	4,202	4,436	5,145	4,925	5,646	6,219	6,844	7,572	7,814	8,332	10,013	11,897	11,957	11,287	12,739	15,867	16,569	16,305	15,332	15,594
China	Upper middle	28	46	56	112	103	183	167	265	324	547	885	1,265	1,477	2,047	3,087	3,059	3,043	6,130	8,078	8,509	8,605	7,316	7,850
India	Lower middle	0	3	0	0	2	4	2	1	4	2	4	4	7	9	14	20	21	27	23	36	35	36	57
Japan	High	3,877	4,476	3,667	3,359	3,315	3,942	3,769	4,004	4,052	4,578	5,141	5,228	5,422	6,212	6,571	6,036	5,380	4,329	5,089	4,926	4,529	4,696	4,388
Malaysia	Upper middle	0	1	0	1	2	1	3	4	5	12	2	4	13	4	8	5	5	3	2	10	12	2	2
Singapore	High	3	2	2	3	3	4	3	2	2	1	1	3	3	2	5	4	5	7	5	7	3	7	8
South Korea	High	444	1,383	707	558	843	828	799	1,130	1,460	1,423	1,284	969	1,051	1,401	1,840	2,290	2,378	1,792	2,091	2,600	2,726	2,854	2,964
Taiwan	High	101	114	121	163	166	181	176	238	367	274	246	334	355	336	367	536	450	446	571	478	391	419	321
Middle East	na	12	18	14	15	14	13	14	7	23	17	19	11	15	24	31	20	28	26	28	41	30	29	33
Israel	High	11	15	10	11	10	7	9	3	11	6	7	8	10	14	11	12	17	16	20	27	19	16	18
Africa	na	74	64	57	56	59	62	46	48	45	35	54	38	37	23	47	26	32	6	6	7	5	12	9
South Africa	Upper middle	64	57	48	54	49	49	44	45	43	32	52	38	31	15	33	17	29	6	3	5	5	10	5
Australia and Oceania	na	80	92	93	127	126	162	193	134	101	91	72	85	89	89	76	92	95	100	102	81	70	81	104
Australia	High	70	87	90	121	115	154	182	125	90	84	65	74	77	80	64	78	78	84	81	67	55	67	92
New Zealand	High	10	5	3	5	11	8	11	9	11	7	7	11	12	9	12	14	17	16	22	14	15	14	12
Unclassified	na	27	56	41	6	4	2	23	104	109	9	3	0	2	0	1	1	1	3	4	2	3	1	1

na = not applicable, metric not calculated at this level.

EU = European Union; UK = United Kingdom.

^a The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

^b Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):

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. (2013) is used to fill missing information on priority patents using information in successive filings within the families. Priority patents not indexed in PATSTAT are replaced by the next utility patent(s) in the families according to filing dates. Patent families 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. China includes Hong Kong. Data were extracted in June 2021. 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 year for which its output is accounted. As patent authorities become more involved with the European Patent Organisation, these gaps should disappear in the future, strengthening the robustness of statistics for these countries.

Source(s):

National Center for Science and Engineering Statistics; Science-Metrix; PATSTAT, accessed October 2021.

Science and Engineering Indicators