

Table SINV-45

USPTO utility patents granted in electrical machinery, apparatus, energy, 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	8,361	9,029	9,756	10,283	10,547	10,566	10,983	9,326	10,702	9,591	9,731	10,557	13,395	13,553	14,888	16,029	17,544	18,817	20,124	21,595	20,958	23,407	21,858	
North America	na	4,050	4,352	4,562	4,733	4,587	4,514	4,744	4,033	4,571	4,053	4,008	4,279	5,148	5,172	5,414	6,045	6,424	6,630	7,222	7,715	7,467	8,360	7,641	
Canada	High	133	138	145	159	143	169	188	182	189	201	174	209	237	238	249	276	280	264	270	351	316	370	319	
Mexico	Upper middle	4	4	4	6	5	9	7	8	7	5	8	6	13	7	11	13	16	12	22	26	20	21	25	
United States	High	3,913	4,211	4,413	4,568	4,439	4,336	4,550	3,843	4,375	3,847	3,827	4,064	4,898	4,927	5,154	5,756	6,129	6,353	6,930	7,338	7,131	7,969	7,297	
Central America and Caribbean	na	0	2	1	5	3	2	2	5	2	2	3	1	3	4	4	3	7	4	5	4	4	4	4	
Puerto Rico	High	0	2	0	2	2	2	2	5	2	2	2	0	1	4	1	2	5	2	2	2	3	2	2	
South America	na	2	4	7	12	10	8	6	8	4	9	9	13	11	17	14	25	17	21	20	22	22	25	28	
Argentina	Upper middle	1	0	4	3	1	1	0	0	0	2	0	1	3	1	3	2	0	2	1	4	4	2	4	
Brazil	Upper middle	0	3	0	8	8	7	6	8	4	5	9	9	6	15	10	20	13	16	14	13	14	17	19	
Europe	na	1,392	1,543	1,677	1,613	1,652	1,606	1,613	1,360	1,455	1,212	1,292	1,356	1,864	1,899	2,155	2,438	2,688	2,874	3,151	3,518	3,378	3,741	3,400	
EU-27 + UK ^a	na	1,300	1,438	1,566	1,514	1,561	1,510	1,506	1,274	1,373	1,127	1,201	1,271	1,774	1,788	2,040	2,269	2,533	2,711	2,967	3,312	3,164	3,536	3,189	
United Kingdom	High	152	178	153	166	153	143	135	150	137	127	125	133	184	171	204	266	320	314	348	359	359	396	350	
EU-27 ^b	na	1,149	1,260	1,413	1,348	1,408	1,367	1,371	1,125	1,236	1,000	1,077	1,137	1,590	1,616	1,836	2,003	2,213	2,397	2,619	2,953	2,804	3,140	2,839	
Austria	High	17	20	28	20	25	28	32	27	37	21	38	32	43	57	77	59	80	90	128	152	142	171	150	
Belgium	High	28	30	41	26	20	27	20	23	12	20	19	20	29	23	28	24	44	35	48	40	52	64	54	
Denmark	High	10	7	20	21	18	20	17	18	15	12	22	23	42	41	48	51	69	59	70	59	58	74	50	
Finland	High	15	26	26	22	35	28	31	28	41	31	24	26	48	38	37	46	58	45	73	82	68	62	59	
France	High	230	281	279	245	284	204	188	150	181	150	143	175	259	227	236	283	318	346	380	403	434	474	394	
Germany	High	575	623	711	708	682	705	780	635	688	545	593	622	876	861	925	1,020	1,051	1,221	1,279	1,483	1,312	1,499	1,418	
Hungary	High	9	6	6	5	6	11	6	4	2	4	7	6	6	11	18	17	19	17	8	9	8	18	10	
Ireland	High	8	6	12	13	13	11	11	9	15	5	8	6	6	11	16	15	20	16	19	20	20	21	19	
Italy	High	78	62	102	85	105	103	106	95	90	73	81	78	106	110	125	153	166	165	164	210	196	232	219	
Netherlands	High	124	127	111	108	118	142	92	59	68	74	78	60	75	110	157	166	187	207	242	266	295	255	236	
Spain	High	4	8	14	14	17	17	21	16	20	12	12	23	24	20	21	33	33	30	36	40	52	60	46	
Sweden	High	44	58	58	71	76	57	59	51	53	38	32	48	49	80	110	96	126	107	111	111	95	98	86	
Other Europe	na	91	106	111	99	91	96	107	85	82	85	90	85	89	111	115	169	155	163	184	206	214	205	212	
Other Europe-2020 ^b	na	243	283	264	265	244	239	241	235	219	212	215	219	274	283	319	435	475	477	532	565	573	601	561	
Belarus	Upper middle	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Moldova	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	7	9	8	7	3	6	8	10	6	9	12	9	11	11	19	16	15	21	29	28	28	21	23	
Russia	Upper middle	9	14	18	16	13	15	12	18	9	11	13	8	14	13	11	18	11	16	23	26	26	22	15	
Switzerland	High	72	81	82	73	70	73	80	52	64	61	61	63	60	83	77	127	122	115	121	137	148	146	159	

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Ukraine	Lower middle	0	1	1	0	4	2	3	3	2	1	3	2	2	1	6	2	1	2	1	2	3	0	2
Asia	na	2,859	3,079	3,453	3,847	4,218	4,355	4,547	3,853	4,581	4,244	4,335	4,836	6,273	6,364	7,191	7,374	8,279	9,109	9,530	10,104	9,843	11,021	10,512
China	Upper middle	33	30	50	89	110	105	134	126	172	170	269	327	553	610	724	774	819	930	1,137	1,346	1,558	1,858	1,818
India	Lower middle	2	1	1	7	9	3	14	21	10	13	14	14	34	37	51	53	71	80	79	110	94	144	138
Japan	High	2,225	2,376	2,532	2,823	3,134	3,273	3,158	2,676	3,053	2,699	2,625	2,832	3,576	3,499	4,005	3,941	4,442	4,782	5,031	5,364	5,129	5,755	5,373
Malaysia	Upper middle	0	4	4	3	5	4	4	7	10	14	10	10	10	9	10	8	10	13	18	14	14	13	11
Singapore	High	7	11	11	14	19	16	19	16	16	19	25	28	38	35	45	41	49	56	60	78	62	48	53
South Korea	High	275	294	222	233	305	357	456	363	457	478	553	699	908	897	930	1,187	1,555	1,833	1,903	1,939	1,863	2,076	1,993
Taiwan	High	315	363	633	676	631	591	757	640	853	847	833	917	1,147	1,272	1,419	1,362	1,321	1,404	1,289	1,234	1,104	1,099	1,109
Middle East	na	17	23	31	30	41	42	28	35	39	41	43	37	46	47	68	81	75	105	126	143	146	154	180
Israel	High	16	21	28	28	38	38	27	31	36	40	40	35	41	45	60	72	62	90	105	118	116	118	131
Africa	na	7	7	4	7	8	6	6	8	9	3	6	6	12	7	5	7	3	5	12	10	9	11	5
South Africa	Upper middle	7	6	4	6	7	5	6	8	9	3	7	5	11	7	5	5	2	4	8	9	4	8	3
Australia and Oceania	na	32	18	18	35	28	32	38	25	39	26	36	30	36	42	36	54	50	67	56	73	87	89	86
Australia	High	22	13	12	26	21	28	31	20	35	23	32	25	29	35	29	40	39	52	38	46	61	55	58
New Zealand	High	10	5	6	9	6	4	7	5	4	3	4	5	7	7	7	14	11	15	18	26	26	34	28
Unclassified	na	2	0	3	1	0	1	0	1	0	0	0	0	1	0	2	2	1	3	3	6	1	3	2

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

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

^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):**

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. China includes Hong Kong.

Source(s):

National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2021.

Science and Engineering Indicators