

Table SINV-74

USPTO utility patents granted in thermal processes and apparatus, 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	1,650	1,755	1,764	1,845	1,653	1,613	1,506	1,429	1,489	1,244	1,037	1,072	1,491	1,461	1,683	1,903	2,091	2,244	2,370	2,948	2,998	3,516	3,281
North America	na	944	951	953	995	907	919	869	798	845	660	546	587	803	760	887	1,035	1,100	1,149	1,198	1,421	1,396	1,717	1,588
Canada	High	69	59	63	63	48	45	52	49	58	45	36	37	49	37	53	51	48	62	78	78	77	82	80
Mexico	Upper middle	1	3	7	5	4	2	2	1	6	3	2	0	2	6	2	2	7	4	1	8	8	6	8
United States	High	873	888	882	927	854	872	816	748	782	612	509	549	752	718	832	982	1,045	1,082	1,118	1,335	1,310	1,629	1,499
Central America and Caribbean	na	0	2	1	0	1	3	0	0	2	0	0	2	0	0	0	1	0	2	2	1	1	2	1
Puerto Rico	High	0	1	1	0	0	2	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	1
South America	na	3	2	13	17	7	7	5	2	4	1	1	3	4	6	3	3	9	6	3	9	5	9	9
Argentina	Upper middle	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Brazil	Upper middle	1	1	12	16	7	3	3	1	4	1	1	3	4	5	3	3	8	6	1	8	5	7	7
Europe	na	316	342	348	357	286	302	252	216	225	216	175	172	233	253	315	359	437	471	445	559	567	621	577
EU-27 + UK ^a	na	280	295	308	323	259	282	239	202	207	201	162	153	218	229	298	329	403	437	410	520	520	584	526
United Kingdom	High	30	36	34	37	25	26	23	25	19	17	16	14	13	17	30	26	43	40	39	48	44	50	55
EU-27 ^b	na	250	260	274	287	234	256	216	177	188	184	146	140	205	211	268	303	360	397	371	473	475	534	471
Austria	High	4	6	5	10	3	4	4	2	5	5	4	5	4	6	7	7	10	9	12	18	14	13	12
Belgium	High	3	4	5	7	4	4	2	2	3	1	1	2	2	2	3	6	15	10	9	15	13	19	10
Denmark	High	12	8	10	5	3	6	5	6	3	7	4	2	5	8	15	10	15	17	16	22	18	19	28
Finland	High	15	8	6	11	7	9	16	7	6	5	4	3	2	3	10	9	8	16	11	11	15	13	16
France	High	50	59	54	60	53	45	34	23	34	31	21	19	27	30	41	43	55	60	73	79	77	98	60
Germany	High	103	113	120	119	113	125	102	90	96	93	77	72	103	107	116	142	146	162	137	189	188	196	171
Hungary	High	0	2	2	2	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1	1	3	0	1
Ireland	High	1	0	3	2	0	0	1	1	0	1	0	1	2	1	3	3	2	3	3	2	5	5	8
Italy	High	22	20	24	29	21	26	19	21	16	20	12	15	26	18	26	30	35	50	37	57	60	62	58
Netherlands	High	11	6	11	8	8	11	10	10	10	5	10	6	11	10	12	14	16	12	20	18	26	40	27
Spain	High	5	3	5	4	5	6	4	4	2	3	2	3	4	4	13	14	13	21	14	12	11	14	20
Sweden	High	22	27	28	25	13	14	15	11	10	9	11	11	12	16	15	17	28	21	27	35	26	33	30
Other Europe	na	35	47	39	34	27	20	12	13	18	15	13	19	15	24	17	30	33	34	35	39	47	36	51
Other Europe-2020 ^b	na	66	83	74	70	52	46	36	38	37	32	29	33	28	42	47	55	77	74	74	86	92	87	107
Belarus	Upper middle	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
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
Norway	High	4	6	7	4	6	1	2	2	3	3	2	3	1	0	2	4	4	3	4	5	5	2	5
Russia	Upper middle	4	4	5	4	2	1	1	2	2	2	0	3	2	3	2	3	1	1	1	3	4	6	7
Switzerland	High	27	34	23	23	18	18	8	8	13	10	11	11	9	18	13	18	26	28	27	25	29	26	29

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Ukraine	Lower middle	1	3	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Asia	na	369	429	416	446	416	363	363	389	402	349	301	294	435	414	448	472	513	573	668	893	972	1,105	1,048
China	Upper middle	9	5	10	15	12	16	17	16	14	20	26	20	34	35	45	43	55	53	78	95	117	174	176
India	Lower middle	1	1	2	0	0	2	1	2	2	2	2	2	4	5	6	10	9	8	12	15	19	22	30
Japan	High	243	305	314	318	274	243	201	227	214	178	149	139	235	226	221	232	264	304	361	514	523	579	524
Malaysia	Upper middle	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	1	0	0	3	2	1	0
Singapore	High	0	1	2	1	4	2	2	0	3	0	0	2	3	1	2	1	4	2	1	1	1	4	2
South Korea	High	81	81	57	46	60	47	77	86	104	106	81	78	102	107	117	125	113	132	158	198	226	254	236
Taiwan	High	34	36	30	62	65	54	64	57	65	43	43	53	56	40	56	59	64	71	59	64	81	67	78
Middle East	na	4	12	11	9	10	7	7	12	5	5	7	2	7	11	11	20	20	28	30	44	33	37	35
Israel	High	4	11	7	7	7	6	6	11	3	3	5	1	6	10	5	10	12	15	13	17	14	10	11
Africa	na	0	0	4	3	2	1	4	3	1	3	0	1	1	2	2	3	0	1	4	4	6	2	3
South Africa	Upper middle	0	0	4	2	1	1	2	2	1	2	0	1	1	2	2	3	0	1	4	4	6	1	3
Australia and Oceania	na	14	19	20	19	26	11	7	10	5	11	7	10	7	13	17	11	13	15	20	17	18	22	20
Australia	High	13	18	16	17	24	9	6	9	5	11	7	8	7	10	14	9	12	13	15	14	16	18	16
New Zealand	High	2	1	4	1	2	2	2	1	1	1	0	1	0	3	3	2	1	2	4	3	3	4	3
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	1	0

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.