

“Sintered Nd-Fe-B Magnets: The Patent and License Situation” **(April 2007)**

With the merger of Hitachi Metals, Ltd. (“Hitachi Metals”) with NEOMAX Co., Ltd. (“NEOMAX”) as of April 1, 2007, Hitachi Metals succeeded to NEOMAX patents covering Nd-Fe-B magnets and NEOMAX’s rights and obligations under the license agreements with respect to those patents. From now on, we will provide information regarding the Nd-Fe-B magnet patents and licenses under the patents. This information is provided for general reference purposes only, and we are not responsible or liable for any loss or damage that a party may incur as a result of its use of or reliance on this information. Any questions regarding this information should be directed to your attorney or to our Patent & Licensing Division.

1. Hitachi Metals Patents

Hitachi Metals currently holds 615 patents covering sintered Nd-Fe-B magnets in Japan, the United States, Canada, Europe, Southeast Asia and other countries (see the listing of Hitachi Metals patents at the end of this article). In addition, about 420 patent applications have been filed and are pending. Although some of basic patents in Japan and Europe have expired, Hitachi Metals patents still cover a wide range of compositions, compounds, surface treatments and manufacturing processes. In the United States, for example, we hold a basic patent covering a compound with a tetragonal crystal structure, the term of which extends to July 2014 (USP 5,645,651). The validity and enforceability of this patent were verified in a US ITC proceeding (in which Sumitomo Special Metals (predecessor of NEOMAX) and Magnequench jointly obtained a general exclusion order prohibiting the importation into the United States of products covered by six of their respective patents, including USP 5,645,651). This patent applies not only to Co-containing compounds but also to compounds not including Co and/or compounds with additives such as Dy. Accordingly, if you purchase sintered Nd-Fe-B magnets, Hitachi Metals patents may impose certain restrictions on the importation, sale or use thereof.

2. License Agreements

(1) Licensees of Hitachi Metals’ Sintered Nd-Fe-B Magnets

As of April 2007, Hitachi Metals has entered into license agreements with the following eleven companies, which include major manufacturers of sintered Nd-Fe-B magnets, inside and outside of Japan (see note (i)).

- Shin-Etsu Chemical Co., Ltd. (Japan)

- TDK Corporation (Japan)
- The Morgan Crucible Company plc (U.K.)
- Vacuumschmelze GmbH (Germany)
- Magnetfabrik Schramberg GmbH (Germany)
- Neorem Magnets Oy (Finland)
- Beijing Zhong Ke San Huan High-Tech Co., Ltd. (China) (see note (ii))
- Beijing Jingci Magnetism Technology Co. (China)
- Advanced Technology & Materials Co., Ltd. (China)
- Thinova Co., Ltd. (China)
- Ningbo Yunsheng Co., Ltd. (China) ----- sales window: Ningbo Yunsheng High-tech Magnetics Co., Ltd. (China) (see note (iii))

(i) Hitach Metals' license agreements are with these eleven companies only. It must be noted that their subsidiaries are not Hitachi Metals' licensees.

(ii) With respect to subsidiaries of Beijing Zhong Ke San Huan High-Tech Co., Ltd., four companies ----- Ningbo Konit Industries Inc. Ltd., Tianjin San Huan Lucky New Materials Inc. Ltd., SANVAC Magnetics (Beijing) Co., Ltd. and Zhaoqing San Huan Jingyue Magnetic Materials Inc. Ltd. ---- are licensed to manufacture the magnets but are not licensed to sell them. Zhong Ke San Huan Yu Xian Jingxiu Magnetic Materials Inc., Ltd. is not licensed to manufacture or sell the magnets.

(iii) As to subsidiaries of Ningbo Yunsheng Co., Ltd., two companies ----Ningbo Yunsheng Strong Magnet Material Co., Ltd. and Baotou Yunsheng Strong Magnet Material Co., Ltd. ---- are licensed to manufacture the magnets but are not licensed to sell them. Ningbo Yunsheng Magnet Devices Technology Co., Ltd. is not licensed to manufacture or sell the magnets.

(2) Term of License Agreements

Most of the license agreements with Hitachi Metals' licensees will remain in effect until 2014.

(3) Territory of Sales

The licensees outside Japan are not licensed to sell sintered Nd-Fe-B magnets in Japan. This also applies to downstream products incorporating the magnets. Other restrictions may apply. Please contact the relevant licensee or our Patent & Licensing Division for further information.

(4) “Licensed Magnets”

- A. Sintered Nd-Fe-B magnets may be covered by one or more Hitachi Metals patents, whether they are sold as magnets or as a part of a component and/or assembled product, such as a speaker or motor (hereafter “Containing Products”). Therefore, when you procure magnets or Containing Products for importation, sale or use in a country in which Hitachi Metals has a patent (a “Patent Territory”), it is also necessary to confirm that the magnets are “Licensed Magnets.”
- B. “Licensed Magnets” are magnets that have been manufactured by one of Hitachi Metals’ licensees, and for which the necessary royalties have been paid to Hitachi Metals.
- C. The “Patent Territories” include Japan, the United States, Canada, Europe, Southeast Asia and other countries.

(5) Caution when Purchasing Sintered Nd-Fe-B Magnets and/or Containing Products

- A. The importation, sale or use of a “Licensed Magnet” may be subject to certain restrictions (for example, Hitachi Metals’ licensees outside of Japan are not licensed to sell magnets for importation, sale or use in Japan, and this also applies to magnets in Containing Products). For this reason, when you purchase magnets and/or Containing Products, please provide your suppliers with information about the intended importation, sale, and use of the products, so your suppliers can determine whether that activity would be appropriate or inappropriate in those circumstances. (Again, please contact Hitachi Metals’ Patent & Licensing Division for assistance in this process or for answers to questions a supplier may have.)
- B. We recommend that you purchase “Licensed Magnets” or Containing Products which incorporate “Licensed Magnets” whenever the magnets or Containing Products (including computers, electrical goods, automotive products) are to be imported, sold or used in the licensed “Patent Territories.”

We understand that it may not be easy to accomplish these procedures. We have worked with companies who are adopting these procedures, however, and once these procedures are in place, they appear to work well and with a minimum of inconvenience. We appreciate your understanding that these procedures are necessary to avoid infringement of our patents, and that attention to these issues will benefit your customers.

3. Cross-License Agreement between Hitachi Metals and Magnequench

Magnequench holds patents on Nd-Fe-B magnets, including composition patents that have terms through 2012 in the United States. Hitachi Metals has entered into a Cross-License Agreement with Magnequench that covers our respective Nd-Fe-B magnet patents. Under this Cross-License Agreement, we have a license under the Magnequench patents in the United States with respect to sintered Nd-Fe-B magnets. Most of our licensees are also covered under this license with respect to Nd-Fe-B patents held by Magnequench.

4. Exclusive License Agreement between Hitachi Metals and Magnequench

Our USP 5,645,651 (“651 patent”) covers not only sintered Nd-Fe-B magnets but also isotropic Nd-Fe-B powders produced using a rapid solidification process (“isotropic Nd-Fe-B powders”). As of August 2007, Hitachi Metals granted an exclusive license under the ‘651 patent to Magnequench in the isotropic Nd-Fe-B powder field. Hitachi Metals retains the right to make and sell certain isotropic Nd-Fe-B powders including Hitachi Metals' SPRAX® products.

For further information regarding Hitachi Metals' patents and patent licenses, please contact:

Patent & Licensing Division
Hitachi Metals, Ltd.
2-15-17 Egawa, Shimamoto-cho
Mishima-gun, Osaka 618-0013, Japan
e-mail: Kimiharu_Ohta@hitachi-metals.co.jp
Tel: 075-961-3146 Fax: 075-961-8167

Listing of Hitachi Metals patents covering sintered Nd-Fe-B magnets (March 2007)

• Japanese patent numbers (181 patents)

1881650	2036488	2064341	2107896	2110977	2132474	2551797	2571403	2599753
2606904	2631492	2631493	2665590	2693601	2720038	2720039	2720040	2731150
2731337	2741508	2745042	2751109	2754098	2789269	2791470	2823076	2840998
2844269	2844270	2859517	2883144	2886378	2886384	2898463	2908637	2922535
2922614	2928494	2935376	2941446	2948223	2954816	2960629	2966342	2986598
2989178	2989420	3001876	3009687	3009804	3020717	3029711	3037699	3047239
3078633	3080275	3083963	3096105	3116885	3120080	3128993	3132393	3135120
3135174	3148573	3148581	3151087	3151088	3157660	3157661	3159693	3160274
3170156	3171415	3171426	3172521	3174442	3174443	3174448	3176597	3180331
3182142	3184355	3187396	3192642	3193912	3193916	3209380	3213157	3218028
3223251	3229435	3231034	3233359	3234306	3240034	3247460	3253006	3255344
3255593	3256413	3294841	3298219	3298220	3298221	3299000	3300570	3301743
3305786	3325933	3337449	3337468	3337558	3338590	3346628	3349061	3350595
3351768	3359004	3377605	3380575	3383338	3383448	3393018	3395968	3411605
3415208	3417633	3418605	3423299	3436404	3445405	3452561	3456958	3459477
3471876	3474683	3474684	3479168	3489741	3492823	3494361	3498395	3499186
3501753	3504213	3519069	3535253	3540389	3545695	3556786	3557582	3559217
3560057	3576672	3586577	3595078	3595082	3611870	3628255	3630340	3631330
3652816	3652818	3676513	3701117	3705754	3713254	3737830	3746330	3749839
3765793	3770879	3771710	3777199	3801418	3807999	3815983	3841722	3846835
3865351								

• US patent numbers (137 patents)

4888512	5080731	5089066	5110377	5167914	5183516	5192372	5194098	5200001
5223047	5230749	5230751	5275891	5314756	5316595	5338372	5360674	5387291
5427734	5466308	5472525	5489343	5575830	5645651	5662943	5666635	5788782
5858123	5858124	5876518	5913255	5997804	6080245	6080498	6149861	6159308
6187259	6211762	6247660	6251196	6254694	6275130	6280792	6281774	6299832
6312494	6321800	6322428	6325965	6326087	6332932	6344168	6352598	6361738
6376089	6381830	6386948	6391386	6399147	6403024	6408840	6432158	6432354
6443143	6444328	6447621	6461565	6463920	6464386	6464931	6468365	6471583
6474371	6474576	6481993	6482349	6482353	6491765	6505394	6511552	6511631
6527874	6529107	6531090	6537385	6537488	6548014	6558230	6595094	6599468
6602352	6617044	6635120	6648984	6649124	6656416	6656417	6676773	6696015
6736343	6743082	6743394	6752879	6756010	6755883	6779995	6800967	6818041
6821560	6821357	6837778	6861089	6866765	6872260	6878210	6878217	6884513
6889586	6896595	6902469	6945242	6960368	6992553	7014440	7014811	7018485
7025054	7025930	7037465	7040969	7045092	7045093	7048808	7056197	7056393

7086934 7141126

- Canadian patent numbers (10 patents)

1277159 1279777 1280012 1280013 1287509 1287750 1315571 1316375 1336866
2031127

- German patent numbers (37 patents)

10019831 10022677 10022717 10297484 10392157 19734225 3750661 3786719
3884817 60100154 60106527 60106695 60108024 60112642 60119864 60206031
69006459 69314098 69318147 69320084 69429326 69511202 69622798 69630283
69633490 69728547 69909569 69911138 69915025 69915554 69918660 69918915
69924438 69926964 69929385 69931133 (EP)1386681

- UK patent numbers (25 patents)

2262288 0255939 0416098 0421488 0430278 0561650 0633581 0659508 0706190
0753867 0778594 0811994 0923087 0983831 0991085 0992309 0994493 1026706
1032000 1145802 1154444 1172177 1180771 1189244 1377691

- French patent numbers (19 patents)

0255939 0416098 0421488 0430278 0561650 0633581 0659508 0706190 0753867
0778594 0923087 0983831 0991085 0994493 1026706 1154444 1172177 1180771
1189244

- Dutch patent numbers (15 patents)

0255939 0416098 0430278 0561650 0633581 0659508 0706190 0778594 0811994
0991085 1026706 1172177 1180771 1189244 1377691

- Italian patent numbers (7 patents)

0255939 0416098 0430278 0561650 0633581 0706190 1026706

- Belgian patent numbers (6 patents)

0255939 0416098 0430278 0561650 0633581 0706190

- Finnish patent numbers (6 patents)

0923087 0983831 1154444 1172177 1180771 1189244

- Swedish patent numbers (4 patents)

0255939 0416098 0430278 0706190

- Swiss patent numbers (4 patents)

0255939 0416098 0430278 0706190

- Liechtenstein patent numbers (4 patents)

0255939 0416098 0430278 0706190

- Austrian patent numbers (6 patents)

0255939 0416098 0430278 0561650 0633581 0706190

- Spanish patent numbers (2 patents)

0430278 0706190

- Danish patent number (1 patent)

0430278

- Luxembourgian patent number (1 patent)

0430278

- Russian patent numbers (2 patents)

2112627 2113742

- Malaysian patent numbers (12 patents)

MY-111353-A MY-111354-A MY-115936-A MY-117187-A MY-117198-A MY-119680-A
MY-121489-A MY-122679-A MY-124815-A MY-122768-A MY-126040-A MY-177489-A

- Singaporean patent numbers (4 patents)

9790098-9 9790099-7 P-95636 P-95638

- Filipino patent numbers (12 patents)

1-1999-00731 1-1999-02093 1-1999-03112 1-2000-00198 1-2000-01109 1-2000-01413
1-2000-02299 1-2000-02489 1-2000-03339 1-2001-01559 1-2001-02047 1-2001-03173

- Chinese patent numbers (90 patents)

ZL87105186.9 ZL87106209.7 ZL90110401.9 ZL91103569.9 ZL92112861.4 ZL93104569.X
ZL93115008.6 ZL94101181.X ZL94120449.9 ZL95117263.8 ZL96107766.2 ZL96190684.7
ZL96192129.3 ZL97118016.4 ZL97198134.5 ZL99100365.9 ZL99107311.8 ZL99118336.3
ZL99118337.1 ZL99120530.8 ZL99120880.3 ZL99123291.7 ZL99124437.0 ZL99124967.4
ZL99125012.5 ZL99127091.6 ZL99800747.1 ZL99800866.4 ZL99800997.0 ZL00100874.9
ZL00103012.4 ZL00104103.7 ZL00106827.X ZL00106899.7 ZL00107318.4 ZL00108190.X
ZL00108341.4 ZL00108643.X ZL00118653.1 ZL00123900.7 ZL00124384.5 ZL00126292.0
ZL00126407.9 ZL00129884.4 ZL00131653.2 ZL00132110.2 ZL00133362.3 ZL00133432.8
ZL00134131.6 ZL01104104.8 ZL01104329.6 ZL01109785.X ZL01109941.0 ZL01111757.5
ZL01112097.5 ZL01115681.3 ZL01116103.5 ZL01118848.0 ZL01120003.0 ZL01120067.7

ZL01120621.7 ZL01122484.3 ZL01124565.4 ZL01129498.1 ZL01131371.4 ZL01131495.8
ZL01134650.7 ZL01139610.5 ZL01141507.X ZL01141802.8 ZL01801937.4 ZL01812597.2
ZL02107300.7 ZL02800504.X ZL02800819.7 ZL02801014.0 ZL02801400.6 ZL02801915.6
ZL02802080.4 ZL02802680.2 ZL02802747.7 ZL02803126.1 ZL01803526.7 ZL02804360.X
ZL02804993.4 ZL02807276.6 ZL03101664.2 ZL03160313.0 ZL200410063479.X
ZL200410102903.7

• Hong Kong patent numbers (3 patents)

HK1000642 HK1026060 HK1027207

• Taiwanese patent numbers (13 patents)

076907 081872 107246 112632 134120 135152 156876 163628 166092 185116
202548 245078 251618

• Korean patent numbers (14 patents)

0046043 0131060 0135209 0202161 0300933 0302929 0305974 0310650 0354371
10-0547753 10-0606156 10-0607293 10-0607294 10-0607297