



## Sintered NdFeB



## Grade Characteristics

| Grade |
|-------|
| N35   |
| N38   |
| N40   |
| N42   |
| N45   |
| N48   |
| N50   |
| N35M  |
| N38M  |



| Grade |
|-------|
| N40M  |
| N45M  |
| N48M  |
| N50M  |
| N35H  |
| N38H  |
| N40H  |
| N50H  |
| N35SH |
| N40SH |
| N42SH |
| N30UH |

## Magnetic Characteristics

| Grade               | Br        | Br        | Hcb     | Hcb       | Hcj  | Hcj      | Bhmax   | Bhmax |
|---------------------|-----------|-----------|---------|-----------|------|----------|---------|-------|
|                     | mT        | KGs       | Gauss   | KA/m      | KOe  | Oersteds | KOe     | KA/m  |
| <a href="#">N30</a> | 1070-1110 | 10.7-11.0 | 796-865 | 10.0-11.0 | ≥ 12 | ≥ 955    | 223-247 | 28-31 |
| <a href="#">N33</a> | 1120-1170 | 11.2-11.7 | 836-915 | 10.5-11.5 | ≥ 12 | ≥ 955    | 243-263 | 31-33 |
| <a href="#">N35</a> | 1160-1210 | 11.6-12.1 | 860-930 | 10.8-11.7 | ≥ 12 | ≥ 955    | 263-286 | 33-36 |
| <a href="#">N38</a> | 1220-1280 | 12.2-12.8 | 860-930 | 10.8-11.7 | ≥ 12 | ≥ 955    | 286-310 | 36-39 |
| <a href="#">N40</a> | 1250-1290 | 12.5-12.9 | 923-990 | 11.6-12.5 | ≥ 12 | ≥ 955    | 303-318 | 38-40 |
| <a href="#">N42</a> | 1280-1320 | 12.8-13.2 | 860-930 | 10.8-11.7 | ≥ 12 | ≥ 955    | 318-342 | 40-43 |
| <a href="#">N45</a> | 1320-1360 | 13.2-13.6 | 860-930 | 10.8-11.7 | ≥ 12 | ≥ 955    | 340-372 | 42-46 |



| Grade                | Br        | Br        | Hcb       | Hcb       | Hcj  | Hcj      | Bhmax   | Bhmax |
|----------------------|-----------|-----------|-----------|-----------|------|----------|---------|-------|
|                      | mT        | KGs       | Gauss     | KA/m      | KOe  | Oersteds | KOe     | KA/m  |
| <a href="#">N48</a>  | 1380-1430 | 13.8-14.3 | 836-915   | 10.5-11.5 | ≥ 12 | ≥ 955    | 366-390 | 46-49 |
| <a href="#">N50</a>  | 1400-1450 | 14.0-14.5 | 836-915   | 10.5-11.5 | ≥ 12 | ≥ 955    | 376-408 | 47-51 |
| <a href="#">N52</a>  | 1420-1480 | 14.2-14.8 | 836-915   | 10.5-11.5 | ≥ 11 | ≥ 876    | 390-422 | 49-53 |
| <a href="#">N55</a>  | 1440-1510 | 14.4-15.1 | 716-785   | 9.0-10.0  | ≥ 11 | ≥ 876    | 414-446 | 52-56 |
| <a href="#">N30M</a> | 1070-1110 | 10.7-11.0 | 812-876   | 10.2-11.0 | ≥ 13 | ≥ 1114   | 207-223 | 26-28 |
| <a href="#">N33M</a> | 1080-1150 | 10.8-11.5 | 836-915   | 10.5-11.5 | ≥ 13 | ≥ 1114   | 223-247 | 28-31 |
| <a href="#">N35M</a> | 1120-1170 | 11.2-11.7 | 868-938   | 10.9-11.8 | ≥ 13 | ≥ 1114   | 247-263 | 31-33 |
| <a href="#">N38M</a> | 1160-1210 | 11.6-12.1 | 899-970   | 11.3-12.2 | ≥ 13 | ≥ 1114   | 263-286 | 33-36 |
| <a href="#">N40M</a> | 1220-1280 | 12.2-12.8 | 923-990   | 11.6-12.5 | ≥ 13 | ≥ 1114   | 286-310 | 36-39 |
| <a href="#">N42M</a> | 1250-1290 | 12.5-12.9 | 955-1010  | 12.0-12.9 | ≥ 13 | ≥ 1114   | 302-326 | 38-41 |
| <a href="#">N45M</a> | 1280-1320 | 12.8-13.2 | 971-1025  | 12.2-13.1 | ≥ 13 | ≥ 1114   | 318-342 | 40-43 |
| <a href="#">N48M</a> | 1320-1360 | 13.2-13.6 | 1000-1034 | 12.5-13.4 | ≥ 13 | ≥ 1114   | 344-376 | 43-47 |
| <a href="#">N50M</a> | 1370-1420 | 13.7-14.2 | 1011-1055 | 12.7-13.6 | ≥ 13 | ≥ 1114   | 366-390 | 46-49 |
| <a href="#">N52M</a> | 1420-1480 | 14.2-14.8 | 1035-1090 | 13.0-13.9 | ≥ 13 | ≥ 1114   | 376-408 | 47-51 |
| <a href="#">N30H</a> | 1070-1110 | 10.7-11.0 | 796-865   | 10.0-10.9 | ≥ 17 | ≥ 1353   | 223-247 | 28-31 |
| <a href="#">N33H</a> | 1120-1170 | 11.2-11.7 | 836-915   | 10.5-11.5 | ≥ 17 | ≥ 1353   | 247-263 | 31-33 |
| <a href="#">N35H</a> | 1160-1210 | 11.6-12.1 | 868-938   | 10.9-11.8 | ≥ 17 | ≥ 1353   | 263-286 | 33-36 |
| <a href="#">N38H</a> | 1220-1280 | 12.2-12.8 | 899-970   | 11.3-11.7 | ≥ 17 | ≥ 1353   | 286-310 | 36-39 |
| <a href="#">N40H</a> | 1250-1290 | 12.5-12.9 | 923-990   | 11.6-12.5 | ≥ 17 | ≥ 1353   | 302-326 | 38-41 |
| <a href="#">N42H</a> | 1280-1320 | 12.8-13.2 | 955-1010  | 12.0-12.9 | ≥ 17 | ≥ 1353   | 318-342 | 40-43 |
| <a href="#">N45H</a> | 1320-1360 | 13.2-13.6 | 971-1025  | 12.2-13.1 | ≥ 17 | ≥ 1353   | 344-376 | 43-47 |
| <a href="#">N48H</a> | 1370-1410 | 13.7-14.1 | 1011-1055 | 12.7-13.6 | ≥ 17 | ≥ 1353   | 366-390 | 46-49 |



| Grade                 | Br        | Br        | Hcb       | Hcb       | Hcj  | Hcj      | Bhmax   | Bhmax |
|-----------------------|-----------|-----------|-----------|-----------|------|----------|---------|-------|
|                       | mT        | KGs       | Gauss     | KA/m      | KOe  | Oersteds | KOe     | KA/m  |
| <a href="#">N50H</a>  | 1390-1440 | 13.9-14.4 | 1035-1090 | 13.0-13.9 | ≥ 16 | ≥ 1274   | 376-408 | 47-51 |
| <a href="#">N30SH</a> | 1080-1130 | 10.8-11.3 | 811-880   | 10.2-11.1 | ≥ 20 | ≥ 1592   | 223-247 | 28-31 |
| <a href="#">N33SH</a> | 1160-1170 | 11.2-11.7 | 844-912   | 10.6-11.5 | ≥ 20 | ≥ 1592   | 247-263 | 31-33 |
| <a href="#">N35SH</a> | 1160-1210 | 11.6-12.1 | 876-955   | 11.0-12.0 | ≥ 20 | ≥ 1592   | 263-286 | 33-36 |
| <a href="#">N38SH</a> | 1220-1280 | 12.2-12.8 | 907-975   | 11.4-11.7 | ≥ 20 | ≥ 1592   | 286-310 | 36-39 |
| <a href="#">N40SH</a> | 1250-1290 | 12.5-12.9 | 939-955   | 11.8-12.0 | ≥ 20 | ≥ 1592   | 302-326 | 38-41 |
| <a href="#">N42SH</a> | 1300-1350 | 13.0-13.5 | 955-1010  | 12.0-12.9 | ≥ 20 | ≥ 1592   | 312-344 | 39-43 |
| <a href="#">N45SH</a> | 1320-1360 | 13.2-13.6 | 979-1030  | 12.3-13.2 | ≥ 20 | ≥ 1592   | 344-376 | 43-47 |
| <a href="#">N48SH</a> | 1370-1410 | 13.7-14.1 | 1000-1034 | 12.5-13.4 | ≥ 19 | ≥ 1512   | 366-390 | 46-49 |
| <a href="#">N25UH</a> | 970-1050  | 9.7-10.5  | 732-812   | 9.2-10.2  | ≥ 25 | ≥ 1990   | 183-199 | 23-25 |
| <a href="#">N28UH</a> | 1040-1080 | 10.4-10.8 | 764-833   | 9.6-10.5  | ≥ 25 | ≥ 1990   | 207-223 | 26-28 |
| <a href="#">N30UH</a> | 1080-1130 | 10.8-11.3 | 812-876   | 10.2-11.0 | ≥ 25 | ≥ 1990   | 223-239 | 28-30 |
| <a href="#">N33UH</a> | 1130-1170 | 11.3-11.7 | 852-923   | 10.7-11.6 | ≥ 25 | ≥ 1990   | 247-263 | 31-34 |
| <a href="#">N35UH</a> | 1160-1210 | 11.6-12.1 | 860-930   | 10.8-11.7 | ≥ 25 | ≥ 1990   | 263-286 | 33-36 |
| <a href="#">N38UH</a> | 1220-1280 | 12.2-12.8 | 876-955   | 11.0-12.0 | ≥ 25 | ≥ 1990   | 286-310 | 36-39 |
| <a href="#">N40UH</a> | 1250-1290 | 12.5-12.9 | 915-980   | 11.5-11.8 | ≥ 25 | ≥ 1990   | 303-318 | 38-40 |
| <a href="#">N42UH</a> | 1300-1350 | 13.0-13.5 | 955-1010  | 12.0-12.9 | ≥ 25 | ≥ 1990   | 312-344 | 39-43 |
| <a href="#">N45UH</a> | 1320-1360 | 13.2-13.6 | 1000-1034 | 12.5-13.4 | ≥ 24 | ≥ 1910   | 344-380 | 43-47 |
| <a href="#">N28EH</a> | 1050-1090 | 10.5-10.9 | 780-850   | 9.8-10.7  | ≥ 30 | ≥ 2388   | 211-235 | 26-28 |
| <a href="#">N30EH</a> | 1080-1130 | 10.8-11.3 | 812-876   | 10.2-11.0 | ≥ 30 | ≥ 2388   | 223-247 | 28-31 |
| <a href="#">N33EH</a> | 1140-1180 | 11.4-11.8 | 820-868   | 10.3-11.2 | ≥ 30 | ≥ 2388   | 247-263 | 31-34 |
| <a href="#">N35EH</a> | 1160-1220 | 11.6-12.0 | 836-915   | 10.5-11.5 | ≥ 30 | ≥ 2388   | 263-286 | 33-35 |



| Grade                  | Br        | Br        | Hcb      | Hcb       | Hcj  | Hcj      | Bhmax   | Bhmax |
|------------------------|-----------|-----------|----------|-----------|------|----------|---------|-------|
|                        | mT        | KGs       | Gauss    | KA/m      | KOe  | Oersteds | KOe     | KA/m  |
| <a href="#">N38EH</a>  | 1180-1240 | 11.8-12.4 | 899-970  | 11.3-12.2 | ≥ 30 | ≥ 2388   | 282-306 | 36-38 |
| <a href="#">N40EH</a>  | 1230-1285 | 12.3-12.8 | 915-980  | 11.5-11.8 | ≥ 30 | ≥ 2388   | 301-314 | 38-40 |
| <a href="#">N42EH</a>  | 1300-1350 | 13.0-13.5 | 971-1025 | 12.2-13.1 | ≥ 29 | ≥ 2308   | 306-330 | 40-42 |
| <a href="#">N28AH</a>  | 1040-1080 | 10.4-10.8 | 780-850  | 9.8-10.7  | ≥ 34 | ≥ 2706   | 207-231 | 26-29 |
| <a href="#">N30AH</a>  | 1080-1120 | 10.8-11.2 | 812-876  | 10.2-11.0 | ≥ 34 | ≥ 2706   | 223-247 | 28-31 |
| <a href="#">N33AH</a>  | 1130-1170 | 11.3-11.7 | 812-876  | 10.2-11.0 | ≥ 34 | ≥ 2706   | 239-262 | 30-33 |
| <a href="#">N35AH</a>  | 1150-1220 | 11.5-11.9 | 883-956  | 11.2-11.6 | ≥ 34 | ≥ 2706   | 262-286 | 33-35 |
| <a href="#">N38AH</a>  | 1190-1250 | 11.9-12.5 | 923-990  | 11.6-12.5 | ≥ 33 | ≥ 2626   | 278-302 | 36-38 |
| <a href="#">N35X</a>   | 1160-1210 | 11.6-12.1 | 860-930  | 10.8-11.7 | ≥ 12 | ≥ 955    | 263-286 | 33-36 |
| <a href="#">N35MX</a>  | 1160-1210 | 11.6-12.1 | 868-938  | 10.9-11.8 | ≥ 14 | ≥ 1114   | 263-286 | 33-36 |
| <a href="#">N45MX</a>  | 1320-1360 | 13.2-13.6 | 971-1025 | 12.2-13.1 | ≥ 14 | ≥ 1114   | 344-376 | 43-47 |
| <a href="#">N38HX</a>  | 1220-1280 | 12.2-12.8 | 899-970  | 11.3-12.2 | ≥ 17 | ≥ 1353   | 286-310 | 36-39 |
| <a href="#">N40HX</a>  | 1250-1290 | 12.5-12.9 | 923-990  | 11.6-12.5 | ≥ 17 | ≥ 1353   | 302-326 | 38-41 |
| <a href="#">N45HX</a>  | 1320-1360 | 13.2-13.6 | 971-1025 | 12.2-13.1 | ≥ 17 | ≥ 1353   | 344-376 | 43-47 |
| <a href="#">N33SHX</a> | 1130-1170 | 11.3-11.7 | 844-912  | 10.6-11.5 | ≥ 20 | ≥ 1592   | 247-263 | 31-33 |
| <a href="#">N35SHX</a> | 1160-1210 | 11.6-12.1 | 876-944  | 11.0-11.9 | ≥ 20 | ≥ 1592   | 263-286 | 33-36 |
| <a href="#">N38SHX</a> | 1220-1280 | 12.2-12.8 | 907-975  | 11.4-12.3 | ≥ 20 | ≥ 1592   | 286-310 | 36-39 |
| <a href="#">N42SHX</a> | 1300-1350 | 13.0-13.5 | 955-1010 | 12.0-12.9 | ≥ 20 | ≥ 1592   | 312-344 | 39-43 |
| <a href="#">N30SHZ</a> | 1080-1130 | 10.8-11.3 | 804-872  | 10.1-11.0 | ≥ 20 | ≥ 1592   | 223-247 | 28-31 |
| <a href="#">N33SHZ</a> | 1130-1170 | 11.3-11.7 | 844-912  | 10.6-11.5 | ≥ 20 | ≥ 1592   | 247-263 | 31-33 |
| <a href="#">N35SHZ</a> | 1160-1210 | 11.6-12.1 | 876-944  | 11.0-11.9 | ≥ 20 | ≥ 1592   | 263-286 | 33-36 |
| <a href="#">N38SHZ</a> | 1220-1280 | 12.2-12.8 | 907-975  | 11.4-12.3 | ≥ 20 | ≥ 1592   | 286-310 | 36-39 |



| Grade                  | Br        | Br        | Hcb      | Hcb       | Hcj  | Hcj      | Bhmax   | Bhmax |
|------------------------|-----------|-----------|----------|-----------|------|----------|---------|-------|
|                        | mT        | KGs       | Gauss    | KA/m      | KOe  | Oersteds | KOe     | KA/m  |
| <a href="#">N45SHZ</a> | 1320-1360 | 13.2-13.6 | 979-1030 | 12.3-13.2 | ≥ 20 | ≥ 1592   | 344-376 | 43-47 |
| <a href="#">N30UHZ</a> | 1080-1130 | 10.8-11.3 | 812-876  | 10.2-11.0 | ≥ 25 | ≥ 1990   | 223-247 | 28-31 |
| <a href="#">N33UHZ</a> | 1130-1170 | 11.3-11.7 | 852-920  | 10.7-11.6 | ≥ 25 | ≥ 1990   | 247-263 | 31-33 |
| <a href="#">N38UHZ</a> | 1220-1280 | 12.2-12.8 | 876-944  | 11.0-11.9 | ≥ 25 | ≥ 1990   | 286-310 | 36-39 |
| <a href="#">N40UHZ</a> | 1250-1290 | 12.5-12.9 | 915-980  | 11.5-11.8 | ≥ 25 | ≥ 1990   | 303-318 | 38-40 |
| <a href="#">N30EHZ</a> | 1080-1130 | 10.8-11.3 | 812-876  | 10.2-11.0 | ≥ 30 | ≥ 2388   | 223-247 | 28-31 |
| <a href="#">N38EHZ</a> | 1180-1240 | 11.8-12.4 | 899-970  | 11.3-12.2 | ≥ 30 | ≥ 2388   | 282-306 | 36-38 |
| <a href="#">N30AHZ</a> | 1080-1120 | 10.8-11.2 | 812-876  | 10.2-11.0 | ≥ 34 | ≥ 2706   | 223-247 | 28-31 |

## Thermal Characteristics

| Grade               | Max Operating Temp | Curie Temp | Rev Temp Coeff     | Rev Temp Coeff       |
|---------------------|--------------------|------------|--------------------|----------------------|
|                     | °C                 | %/°C       | Br (TC a(Br) %/°C) | Hcj (Tc a(Hcj) %/°C) |
| <a href="#">N30</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N33</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N35</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N38</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N40</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N42</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N45</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N48</a> | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N50</a> | 80                 | 310        | -0.120             | -0.750               |



| Grade                 | Max Operating Temp | Curie Temp | Rev Temp Coeff     | Rev Temp Coeff       |
|-----------------------|--------------------|------------|--------------------|----------------------|
|                       | °C                 | %/°C       | Br (TC a(Br) %/°C) | Hcj (Tc a(Hcj) %/°C) |
| <a href="#">N52</a>   | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N55</a>   | 80                 | 310        | -0.120             | -0.750               |
| <a href="#">N30M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N33M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N35M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N38M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N40M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N42M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N45M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N48M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N50M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N52M</a>  | 100                | 310        | -0.120             | -0.675               |
| <a href="#">N30H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N33H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N35H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N38H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N40H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N42H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N45H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N48H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N50H</a>  | 120                | 310        | -0.120             | -0.605               |
| <a href="#">N30SH</a> | 150                | 320        | -0.120             | -0.535               |



| Grade                 | Max Operating Temp | Curie Temp | Rev Temp Coeff     | Rev Temp Coeff       |
|-----------------------|--------------------|------------|--------------------|----------------------|
|                       | °C                 | %/°C       | Br (TC a(Br) %/°C) | Hcj (Tc a(Hcj) %/°C) |
| <a href="#">N33SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N35SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N38SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N40SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N42SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N45SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N48SH</a> | 150                | 320        | -0.120             | -0.535               |
| <a href="#">N25UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N28UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N30UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N33UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N35UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N38UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N40UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N42UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N45UH</a> | 180                | 320        | -0.120             | -0.465               |
| <a href="#">N28EH</a> | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N30EH</a> | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N33EH</a> | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N35EH</a> | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N38EH</a> | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N40EH</a> | 200                | 320        | -0.120             | -0.420               |



| Grade                  | Max Operating Temp | Curie Temp | Rev Temp Coeff     | Rev Temp Coeff       |
|------------------------|--------------------|------------|--------------------|----------------------|
|                        | °C                 | %/°C       | Br (TC a(Br) %/°C) | Hcj (Tc a(Hcj) %/°C) |
| <a href="#">N42EH</a>  | 200                | 320        | -0.120             | -0.420               |
| <a href="#">N28AH</a>  | 220                | 320        | -0.120             | -0.393               |
| <a href="#">N30AH</a>  | 220                | 320        | -0.120             | -0.393               |
| <a href="#">N33AH</a>  | 220                | 320        | -0.120             | -0.393               |
| <a href="#">N35AH</a>  | 220                | 320        | -0.120             | -0.393               |
| <a href="#">N38AH</a>  | 220                | 320        | -0.120             | -0.393               |
| <a href="#">N35X</a>   | 80                 | 320        | -0.110             | -0.750               |
| <a href="#">N35MX</a>  | 100                | 320        | -0.110             | -0.675               |
| <a href="#">N45MX</a>  | 100                | 320        | -0.110             | -0.675               |
| <a href="#">N38HX</a>  | 120                | 320        | -0.110             | -0.605               |
| <a href="#">N40HX</a>  | 120                | 320        | -0.110             | -0.605               |
| <a href="#">N45HX</a>  | 120                | 320        | -0.110             | -0.605               |
| <a href="#">N33SHX</a> | 150                | 320        | -0.110             | -0.535               |
| <a href="#">N35SHX</a> | 150                | 320        | -0.110             | -0.535               |
| <a href="#">N38SHX</a> | 150                | 320        | -0.110             | -0.535               |
| <a href="#">N42SHX</a> | 150                | 320        | -0.110             | -0.535               |
| <a href="#">N30SHZ</a> | 150                | 320        | -0.100             | -0.535               |
| <a href="#">N33SHZ</a> | 150                | 320        | -0.100             | -0.535               |
| <a href="#">N35SHZ</a> | 150                | 320        | -0.100             | -0.535               |
| <a href="#">N38SHZ</a> | 150                | 320        | -0.100             | -0.535               |
| <a href="#">N45SHZ</a> | 150                | 320        | -0.100             | -0.535               |
| <a href="#">N30UHZ</a> | 180                | 320        | -0.100             | -0.465               |



| Grade                  | Max Operating Temp | Curie Temp | Rev Temp Coeff     | Rev Temp Coeff       |
|------------------------|--------------------|------------|--------------------|----------------------|
|                        | °C                 | %/°C       | Br (TC a(Br) %/°C) | Hcj (Tc a(Hcj) %/°C) |
| <a href="#">N33UHZ</a> | 180                | 320        | -0.100             | -0.465               |
| <a href="#">N38UHZ</a> | 180                | 320        | -0.100             | -0.465               |
| <a href="#">N40UHZ</a> | 180                | 320        | -0.100             | -0.465               |
| <a href="#">N30EHZ</a> | 200                | 320        | -0.100             | -0.420               |
| <a href="#">N38EHZ</a> | 200                | 320        | -0.100             | -0.420               |
| <a href="#">N30AHZ</a> | 220                | 320        | -0.100             | -0.393               |

## Mechanical/Physical Characteristics

| Grade               | Density |
|---------------------|---------|
|                     | g/cm3   |
| <a href="#">N30</a> | 7.5-7.8 |
| <a href="#">N33</a> | 7.5-7.8 |
| <a href="#">N35</a> | 7.5-7.8 |
| <a href="#">N38</a> | 7.5-7.8 |
| <a href="#">N40</a> | 7.5-7.8 |
| <a href="#">N42</a> | 7.5-7.8 |
| <a href="#">N45</a> | 7.5-7.8 |
| <a href="#">N48</a> | 7.5-7.8 |
| <a href="#">N50</a> | 7.5-7.8 |
| <a href="#">N52</a> | 7.5-7.8 |



| Grade                 | Density      |
|-----------------------|--------------|
|                       | <b>g/cm3</b> |
| <a href="#">N55</a>   | 7.5-7.8      |
| <a href="#">N30M</a>  | 7.5-7.8      |
| <a href="#">N33M</a>  | 7.5-7.8      |
| <a href="#">N35M</a>  | 7.5-7.8      |
| <a href="#">N38M</a>  | 7.5-7.8      |
| <a href="#">N40M</a>  | 7.5-7.8      |
| <a href="#">N42M</a>  | 7.5-7.8      |
| <a href="#">N45M</a>  | 7.5-7.8      |
| <a href="#">N48M</a>  | 7.5-7.8      |
| <a href="#">N50M</a>  | 7.5-7.8      |
| <a href="#">N52M</a>  | 7.5-7.8      |
| <a href="#">N30H</a>  | 7.5-7.8      |
| <a href="#">N33H</a>  | 7.5-7.8      |
| <a href="#">N35H</a>  | 7.5-7.8      |
| <a href="#">N38H</a>  | 7.5-7.8      |
| <a href="#">N40H</a>  | 7.5-7.8      |
| <a href="#">N42H</a>  | 7.5-7.8      |
| <a href="#">N45H</a>  | 7.5-7.8      |
| <a href="#">N48H</a>  | 7.5-7.8      |
| <a href="#">N50H</a>  | 7.5-7.8      |
| <a href="#">N30SH</a> | 7.5-7.8      |
| <a href="#">N33SH</a> | 7.5-7.8      |



| Grade                 | Density |
|-----------------------|---------|
|                       | g/cm3   |
| <a href="#">N35SH</a> | 7.5-7.8 |
| <a href="#">N38SH</a> | 7.5-7.8 |
| <a href="#">N40SH</a> | 7.5-7.8 |
| <a href="#">N42SH</a> | 7.5-7.8 |
| <a href="#">N45SH</a> | 7.5-7.8 |
| <a href="#">N48SH</a> | 7.5-7.8 |
| <a href="#">N25UH</a> | 7.5-7.8 |
| <a href="#">N28UH</a> | 7.5-7.8 |
| <a href="#">N30UH</a> | 7.5-7.8 |
| <a href="#">N33UH</a> | 7.5-7.8 |
| <a href="#">N35UH</a> | 7.5-7.8 |
| <a href="#">N38UH</a> | 7.5-7.8 |
| <a href="#">N40UH</a> | 7.5-7.8 |
| <a href="#">N42UH</a> | 7.5-7.8 |
| <a href="#">N45UH</a> | 7.5-7.8 |
| <a href="#">N28EH</a> | 7.5-7.8 |
| <a href="#">N30EH</a> | 7.5-7.8 |
| <a href="#">N33EH</a> | 7.5-7.8 |
| <a href="#">N35EH</a> | 7.5-7.8 |
| <a href="#">N38EH</a> | 7.5-7.8 |
| <a href="#">N40EH</a> | 7.5-7.8 |
| <a href="#">N42EH</a> | 7.5-7.8 |



| Grade                  | Density |
|------------------------|---------|
|                        | g/cm3   |
| <a href="#">N28AH</a>  | 7.5-7.8 |
| <a href="#">N30AH</a>  | 7.5-7.8 |
| <a href="#">N33AH</a>  | 7.5-7.8 |
| <a href="#">N35AH</a>  | 7.5-7.8 |
| <a href="#">N38AH</a>  | 7.5-7.8 |
| <a href="#">N35X</a>   | 7.5-7.8 |
| <a href="#">N35MX</a>  | 7.5-7.8 |
| <a href="#">N45MX</a>  | 7.5-7.8 |
| <a href="#">N38HX</a>  | 7.5-7.8 |
| <a href="#">N40HX</a>  | 7.5-7.8 |
| <a href="#">N45HX</a>  | 7.5-7.8 |
| <a href="#">N33SHX</a> | 7.5-7.8 |
| <a href="#">N35SHX</a> | 7.5-7.8 |
| <a href="#">N38SHX</a> | 7.5-7.8 |
| <a href="#">N42SHX</a> | 7.5-7.8 |
| <a href="#">N30SHZ</a> | 7.5-7.8 |
| <a href="#">N33SHZ</a> | 7.5-7.8 |
| <a href="#">N35SHZ</a> | 7.5-7.8 |
| <a href="#">N38SHZ</a> | 7.5-7.8 |
| <a href="#">N45SHZ</a> | 7.5-7.8 |
| <a href="#">N30UHZ</a> | 7.5-7.8 |
| <a href="#">N33UHZ</a> | 7.5-7.8 |



| Grade                  | Density |
|------------------------|---------|
|                        | g/cm3   |
| <a href="#">N38UHZ</a> | 7.5-7.8 |
| <a href="#">N40UHZ</a> | 7.5-7.8 |
| <a href="#">N30EHZ</a> | 7.5-7.8 |
| <a href="#">N38EHZ</a> | 7.5-7.8 |
| <a href="#">N30AHZ</a> | 7.5-7.8 |



## MSDS

### Section 1 - Product Name

**Product Name:** Sintered Neodymium Iron Boron (NdFeB) Permanent Magnet

### Section 2 - Hazardous Ingredients

**Chemical Name:** Sintered Neodymium Iron Boron (NdFeB) Permanent Magnet

**Material/Component(s):**

| Material or Component | Weight %  | CAS No.    | ACGUH TLV (mg/m <sup>3</sup> ) | Notes                           |
|-----------------------|-----------|------------|--------------------------------|---------------------------------|
| Neodymium             | 33%       | 7440-00-8  | Not Established                |                                 |
| Iron                  | 65%       | 7439-89-6  | 10 (oxide)                     |                                 |
| Boron                 | 1.3%      | 7440-42-8  | 10                             | test                            |
| Nickel                | 0.01-0.4% | 7440-02-0  | 1 (dust) / 0.1 (fume)          | Plating                         |
| Copper                | 0.01-0.2% | 7440-50-8  | 1 (dust) / 0.2 (fume)          | Plating                         |
| Dysprosium            | 0-4%      | 7429-91-6  | Not established                | May be used in high-temp grades |
| Cobalt                | 0-5%      | 7440-48-4  | 0.02                           | May be used in high-temp grades |
| Praseodymium          | 0-5%      | 74410-10-1 | Not Established                | N/A                             |

### Section 3 - Physical Characteristics

**Vapor Pressure:** (mm Hg.) N/A

**Vapor Density:** (air = 1) N/A

**Specific Gravity:** 7.1 - 7.6

**Melting Point:** Above 1000 Degrees C (1832 Degrees F)

**Evaporation Rate:** N/A

**Odor:** No Odor

**Solubility in Water:** Not Soluble



## Section 4 - Fire and Explosion Hazard Data

**Flash Point:** N/A

**FLAMMABLE LIMITS:** N/A

**LEL:** N/A

**UEL:** N/A

**Extinguishing Media:** Dry Chemicals without Oxygen Compounds or Sand

**Special Fire Fighting Procedures:** Do not use Halon agents or water on smoldering, burning powder.

**Unusual Fire and Explosion Hazards(s):** Dry powders of neodymium magnets will oxidize, smolder, and burn rapidly in the presences of air or oxygen. Maintain powders in water slurry or in inert atmospheres of nitrogen or argon to prevent spontaneous combustion. Magnets may spark on impact. Handle carefully in explosive atmospheres.

## Section 5 - Reactivity Data

**Stability:** Stable

**Conditions to Avoid:** Avoid exposure of powdered magnet material to air, oxygen or halogenated hydrocarbons, and to elevated temperatures above 150 Degrees Celsius.

**Incompatibility (Materials to Avoid):** Fine powders are incompatible with air, oxygen, halogentated hydrocarbons with strong oxidizers

## Section 6 - Health Hazard Data

**Health Hazards (Acute & Chronic):** Prolonged skin contact may cause irritation or allergic dermatitis.

### Emergency and First Aid Procedures:

| Procedure For | Procedure                                            |
|---------------|------------------------------------------------------|
| Skin          | Brush off powders and wash well with soap and water. |
| Eyes          | Flush with water until clear.                        |

## Section 7 - Precautions for Safe Handling and Use

**Spill Procedure:** Sweep up dust and store in water slurry or sealed containers utilizing inert atmosphere such as argon or nitrogen to prevent spontaneous combustion.

**Waste Disposal Method:** Dispose of in accordance with federal, state and local regulations.

## Section 8 - Control Measures



**Respiratory Protection:** Use NIOSH approved respirator when TLV is exceeded.

**Eye Protection:** Use safety glasses or goggles when handling magnets.

**Skin Protection:** Protective gloves are recommended when handling magnetized part or parts which may have sharp edges.

**Ventilation:** Use wet machining/grinding processes and adequate local ventilation to reduce dust levels

**Work / Hygienic Practices:** Use personal protection equipment when required. Use good personal hygiene practices. Keep magnetized parts away from mechanical/electrical instruments which may be damaged by high magnetic fields.

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