

MATERIAL REFERENCE

NdFeB Magnets

A structured reference for comparing catalogue grades and defining the conditions needed for your application.



Product illustration. Geometry and configuration are project-specific.

Selection conditions.

Working point

Share the air gap, pole geometry, target flux or force, and the nearby steel path. A grade number alone is not enough to confirm performance.

Temperature profile

Provide continuous, peak and dwell temperatures at the magnet, not only the ambient temperature. Include start-up and fault conditions when relevant.

Surface environment

State humidity, salt, chemicals, vacuum, cleaning agents and whether the finished part will be edge-sealed or encapsulated.

Magnetizing and assembly

Show orientation, pole count, adhesive, insertion force, fixturing and any shock or high-speed loads applied after magnetizing.

MATERIAL DATA

Catalogue grade reference.

Catalogue figures support initial selection. They are not a lot test report or an approved project specification. The source does not state a complete test basis for these values; agree temperature, sample geometry, magnetization state, method and acceptance limits before use.

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m³ (MGOe)
N35	1180-1230 (11.8-12.3)	≥876 (≥11)	≥955 (≥12)	263-287 (33-36)
N38	1230-1260 (12.3-12.6)	≥899 (≥11.3)	≥955 (≥12)	287-310 (36-39)
N40	1260-1290 (12.6-12.9)	≥912 (≥11.5)	≥955 (≥12)	302-326 (38-41)
N42	1290-1330 (12.9-13.3)	≥923 (≥11.6)	≥955 (≥12)	318-342 (40-43)
N45	1330-1370 (13.3-13.7)	≥931 (≥11.7)	≥955 (≥12)	342-366 (43-46)
N48	1370-1400 (13.7-14.0)	≥939 (≥11.8)	≥955 (≥12)	366-390 (46-49)
N50	1390-1430 (13.9-14.3)	≥947 (≥11.9)	≥955 (≥12)	374-406 (47-51)
N52	1420-1460 (14.2-14.6)	≥947 (≥11.9)	≥955 (≥12)	390-414 (49-52)
N54	1450-1490 (14.5-14.9)	≥912 (≥11.5)	≥955 (≥12)	406-438 (51-55)
N56	Project-specific	≥860 (≥10.8)	≥876 (≥11)	422-454 (52-57)
35M	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥1114 (≥14)	263-287 (33-36)
38M	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥1114 (≥14)	287-310 (36-39)
40M	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥1114 (≥14)	302-326 (38-41)
42M	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥1114 (≥14)	318-342 (40-43)
45M	1330-1370 (13.3-13.7)	≥1002 (≥12.6)	≥1114 (≥14)	342-366 (43-46)
48M	1370-1400 (13.7-14.0)	≥1027 (≥12.9)	≥1114 (≥14)	366-390 (46-49)
50M	1390-1430 (13.9-14.3)	≥1035 (≥13.0)	≥1114 (≥14)	374-406 (47-51)
52M	1420-1460 (14.2-14.6)	≥995 (≥12.5)	≥1114 (≥14)	390-414 (49-52)
54M	1450-1490 (14.5-14.9)	≥995 (≥12.5)	≥1114 (≥14)	406-438 (51-55)
30H	1080-1140 (10.8-11.4)	≥827 (≥10.4)	≥1353 (≥17)	223-247 (28-31)

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m ³ (MGOe)
33H	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥1353 (≥17)	247-271 (31-34)
35H	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥1353 (≥17)	263-287 (33-36)
38H	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥1353 (≥17)	287-310 (36-39)
40H	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥1353 (≥17)	302-326 (38-41)
42H	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥1353 (≥17)	318-342 (40-43)
45H	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥1353 (≥17)	342-366 (43-46)
48H	1370-1400 (13.7-14.0)	≥1035 (≥13.0)	≥1353 (≥17)	366-390 (46-49)
50H	1390-1430 (13.9-14.3)	≥1058 (≥13.3)	≥1353 (≥17)	374-406 (47-51)
52H	1420-1460 (14.2-14.6)	≥1074 (≥13.5)	≥1353 (≥17)	390-414 (49-52)
54H	1450-1490 (14.5-14.9)	≥1074 (≥13.5)	≥1274 (≥16)	406-438 (51-55)
30SH	1080-1140 (10.8-11.4)	≥827 (≥10.4)	≥1592 (≥20)	223-247 (28-31)
33SH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥1592 (≥20)	247-271 (31-34)
35SH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥1592 (≥20)	263-287 (33-36)
38SH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥1592 (≥20)	287-310 (36-39)
40SH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥1592 (≥20)	302-326 (38-41)
42SH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥1592 (≥20)	318-342 (40-43)
N42SH-HRE	1310-1330 (13.1-13.3)	≥1020 (≥12.8)	≥1671 (≥21.0)	333-341 (42.0-43.0)
45SH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥1592 (≥20)	342-366 (43-46)
48SH	1370-1400 (13.7-14.0)	≥1035 (≥13.0)	≥1592 (≥20)	366-390 (46-49)
50SH	1390-1430 (13.9-14.3)	≥1058 (≥13.3)	≥1592 (≥20)	374-406 (47-51)
52SH	1420-1460 (14.2-14.6)	≥1074 (≥13.5)	≥1512 (≥19)	390-414 (49-52)
N54SH	1460-1480 (14.6-14.8)	≥1136 (≥14.3)	≥1751 (≥22.0)	413-421 (52.0-53.0)
28UH	1040-1090 (10.4-10.9)	≥780 (≥9.8)	≥1990 (≥25)	207-231 (26-29)

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m³ (MGOe)
30UH	1080-1140 (10.8-11.4)	≥827 (≥10.4)	≥1990 (≥25)	223-247 (28-31)
33UH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥1990 (≥25)	247-271 (31-34)
35UH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥1990 (≥25)	263-287 (33-36)
38UH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥1990 (≥25)	287-310 (36-39)
40UH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥1990 (≥25)	302-326 (38-41)
42UH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥1990 (≥25)	318-342 (40-43)
45UH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥1990 (≥25)	342-366 (43-46)
48UH	1360-1400 (13.6-14.0)	≥1035 (≥13.0)	≥1990 (≥25)	358-390 (45-49)
N52UH	1440-1460 (14.4-14.6)	≥1120 (≥14.1)	≥2069 (≥26.0)	402-410 (50.5-51.5)
28EH	1040-1090 (10.4-10.9)	≥780 (≥9.8)	≥2388 (≥30)	207-231 (26-29)
30EH	1080-1140 (10.8-11.4)	≥827 (≥10.4)	≥2388 (≥30)	223-247 (28-31)
33EH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥2388 (≥30)	247-271 (31-34)
35EH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥2388 (≥30)	263-287 (33-36)
38EH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥2388 (≥30)	287-310 (36-39)
40EH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥2388 (≥30)	302-326 (38-41)
42EH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥2388 (≥30)	318-342 (40-43)
45EH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥2308 (≥29)	342-366 (43-46)
N45AH	1340-1350 (13.4-13.5)	≥1039 (≥13.1)	≥2865 (≥36.0)	342-350 (43.0-44.0)
N50EH	1410-1430 (14.1-14.3)	≥1097 (≥13.8)	≥2467 (≥31.0)	385-392 (48.5-49.2)
28TH	1040-1090 (10.4-10.9)	≥780 (≥9.8)	≥2786 (≥35)	207-231 (26-29)
30TH	1080-1140 (10.8-11.4)	≥827 (≥10.4)	≥2786 (≥35)	223-247 (28-31)
33TH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥2786 (≥35)	247-271 (31-34)
35TH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥2786 (≥35)	263-287 (33-36)

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m³ (MGOe)
38TH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥2786 (≥35)	287-310 (36-39)
40TH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥2786 (≥35)	302-326 (38-41)
42TH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥2706 (≥34)	318-342 (40-43)
G-52H	1430-1460 (14.3-14.6)	≥1074 (≥13.5)	≥1353 (≥17)	398-422 (50-53)
G-55H	1460-1500 (14.6-15.0)	≥1098 (≥13.8)	≥1353 (≥17)	421-446 (53-56)
G-48SH	1370-1400 (13.7-14.0)	≥1035 (≥13.0)	≥1600 (≥20)	366-390 (46-49)
G-50SH	1400-1430 (14.0-14.3)	≥1058 (≥13.3)	≥1600 (≥20)	374-406 (47-51)
G-52SH	1430-1460 (14.3-14.6)	≥1074 (≥13.5)	≥1600 (≥20)	398-422 (50-53)
G-55SH	1460-1500 (14.6-15.0)	≥1098 (≥13.8)	≥1600 (≥20)	421-446 (53-56)
G-42UH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥1990 (≥25)	318-342 (40-43)
G-45UH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥1990 (≥25)	342-366 (43-46)
G-48UH	1370-1400 (13.7-14.0)	≥1035 (≥13.0)	≥1990 (≥25)	366-390 (46-49)
G-50UH	1400-1430 (14.0-14.3)	≥1058 (≥13.3)	≥1990 (≥25)	374-406 (47-51)
G-52UH	1430-1460 (14.3-14.6)	≥1074 (≥13.5)	≥1990 (≥25)	398-422 (50-53)
G-33EH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥2388 (≥30)	247-271 (31-34)
G-35EH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥2388 (≥30)	263-287 (33-36)
G-38EH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥2388 (≥30)	287-310 (36-39)
G-40EH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥2388 (≥30)	302-326 (38-41)
G-42EH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥2388 (≥30)	318-342 (40-43)
G-45EH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥2388 (≥30)	342-366 (43-46)
G-48EH	1370-1400 (13.7-14.0)	≥1035 (≥13.0)	≥2388 (≥30)	366-390 (46-49)
G-50EH	1400-1430 (14.0-14.3)	≥1035 (≥13.0)	≥2388 (≥30)	374-406 (47-51)
G-33TH	1140-1180 (11.4-11.8)	≥860 (≥10.8)	≥2785 (≥35)	247-271 (31-34)

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m³ (MGOe)
G-35TH	1180-1230 (11.8-12.3)	≥899 (≥11.3)	≥2785 (≥35)	263-287 (33-36)
G-38TH	1230-1260 (12.3-12.6)	≥923 (≥11.6)	≥2785 (≥35)	287-310 (36-39)
G-40TH	1260-1290 (12.6-12.9)	≥947 (≥11.9)	≥2785 (≥35)	302-326 (38-41)
G-42TH	1290-1330 (12.9-13.3)	≥971 (≥12.2)	≥2785 (≥35)	318-342 (40-43)
G-45TH	1330-1370 (13.3-13.7)	≥1003 (≥12.6)	≥2706 (≥34)	342-366 (43-46)
G-54H	1440-1470 (14.4-14.7)	≥1074 (≥13.5)	≥1353 (≥17)	398-422 (50-53)
G-56H	1460-1500 (14.6-15.0)	≥1074 (≥13.5)	≥1274 (≥16)	406-438 (51-55)
G-54SH	1440-1470 (14.4-14.7)	≥1074 (≥13.5)	≥1592 (≥20)	398-422 (50-53)
G-56SH	1460-1480 (14.6-14.8)	≥1035 (≥13.0)	≥1512 (≥19)	406-438 (51-55)
G-54UH	1430-1470 (14.3-14.7)	≥1035 (≥13.0)	≥1910 (≥24)	390-422 (49-53)

Project-specific cells intentionally omit values that need clarification. No replacement value or unit conversion has been inferred.

APPLICATION REVIEW

Specify the finished part.

Magnetic performance

Agree on the measured property, test method, sample quantity and acceptance band for Br, H_{cj}, flux, pull force or torque.

Temperature verification

For H, SH, UH or EH selections, define the temperature exposure and the post-exposure magnetic acceptance criterion.

Coating and corrosion

Confirm coating system, thickness range, adhesion method and environmental test requirement before production release.

Dimensional release

Identify critical faces, datum scheme, flatness, chamfer and coating allowance so the inspection report matches the drawing.

Temperature coefficients

Agree the signed definition, reference temperature, measurement interval and method for the selected grade. No coefficient is assigned in this edition.

Geometry and surface

Specify dimensions, datums, tolerances, edge treatment, coating allowance and environmental exposure on the drawing.

Coating qualification.

Choose the coating system for the complete environment. Agree thickness and dimensional allowance, specimen and edge condition, salt-spray or other exposure method, duration, and the corrosion or adhesion acceptance criterion. No universal salt-spray rating is assigned.

Define the next step.

Share your drawing, application conditions and target quantity for a material or assembly review.

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ABOUT THIS EDITION

New editorial reference edition 2026.09-R1, compiled 2026-09-27. Catalogue data and selection questions are reorganized for clarity. This edition does not record an engineering approval or certify a measured production result.

Source: Empire Magnets existing product catalogue and technical-library archive. For a project-controlled specification, request an engineering review.