TECHNICAL DATASHEET

NdFeB Magnets

High-performance neodymium iron boron magnets engineered by grade, temperature, coating and geometry.

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Technical Data 1

Application	Typical Spec	Why this material
EV / BLDC Motors	N42SH-N48SH	High torque density in a compact rotor
Sensors & Encoders	N35-N42	Strong stable field in small packages
Magnetic Separators	N42-N52	High field gradient for particle capture
Wind Generators	N42SH-N48SH	High energy with elevated-temperature margin
Acoustic Devices	N35-N45	Compact driver magnetic circuits
Magnetic Couplings	N38SH-N42SH	Torque transfer through sealed barriers

Technical Data 2

Class	Typical reference temperature*	Selection logic	Typical applications
Standard N	~80 deg C	Maximum energy density where thermal margin is modest	Speakers, fixtures, sensors, general industrial
M	~100 deg C	Moderate added coercivity	Compact motors, actuators
H	~120 deg C	Higher demagnetization margin	Industrial motors, generators
SH	~150 deg C	Common automotive / traction-motor class	EV motors, wind generators, servos
UH	~180 deg C	High-temperature compact magnetic circuits	EV/HEV, actuators, aerospace-related industrial systems
EH	~200 deg C	Extreme thermal/demag margin	High-temperature motors and sensors
TH / AH	~220-230 deg C class	Special high-coercivity families	Application-specific high-temperature designs

Technical Data 3

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m3 (MGOe)	alphaBr %/ deg C	betaHcj %/ deg C
N35	1180-1230 (11.8-12.3)	>=876 (>=11)	>=955 (>=12)	263-287 (33-36)	0.10-0.124	0.65-0.80
N38	1230-1260 (12.3-12.6)	>=899 (>=11.3)	>=955 (>=12)	287-310 (36-39)	0.10-0.124	0.65-0.80
N40	1260-1290 (12.6-12.9)	>=912 (>=11.5)	>=955 (>=12)	302-326 (38-41)	0.10-0.124	0.65-0.80
N42	1290-1330 (12.9-13.3)	>=923 (>=11.6)	>=955 (>=12)	318-342 (40-43)	0.10-0.124	0.65-0.80
N45	1330-1370 (13.3-13.7)	>=931 (>=11.7)	>=955 (>=12)	342-366 (43-46)	0.10-0.124	0.65-0.80
N48	1370-1400 (13.7-14.0)	>=939 (>=11.8)	>=955 (>=12)	366-390 (46-49)	0.10-0.124	0.65-0.80
N50	1390-1430 (13.9-14.3)	>=947 (>=11.9)	>=955 (>=12)	374-406 (47-51)	0.10-0.124	0.65-0.80
N52	1420-1460 (14.2-14.6)	>=947 (>=11.9)	>=955 (>=12)	390-414 (49-52)	0.10-0.124	0.65-0.80
N54	1450-1490 (14.5-14.9)	>=912 (>=11.5)	>=955 (>=12)	406-438 (51-55)	0.10-0.124	0.65-0.80
N56	1480-1520 (14.6-15.2)	>=860 (>=10.8)	>=876 (>=11)	422-454 (52-57)	0.10-0.124	0.65-0.80
35M	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=1114 (>=14)	263-287 (33-36)	0.10-0.124	0.60-0.75
38M	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=1114 (>=14)	287-310 (36-39)	0.10-0.124	0.60-0.75
40M	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=1114 (>=14)	302-326 (38-41)	0.10-0.124	0.60-0.75
42M	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=1114 (>=14)	318-342 (40-43)	0.10-0.124	0.60-0.75
45M	1330-1370 (13.3-13.7)	>=1002 (>=12.6)	>=1114 (>=14)	342-366 (43-46)	0.10-0.124	0.60-0.75
48M	1370-1400 (13.7-14.0)	>=1027 (>=12.9)	>=1114 (>=14)	366-390 (46-49)	0.10-0.124	0.60-0.75
50M	1390-1430 (13.9-14.3)	>=1035 (>=13.0)	>=1114 (>=14)	374-406 (47-51)	0.10-0.124	0.60-0.75
52M	1420-1460 (14.2-14.6)	>=995 (>=12.5)	>=1114 (>=14)	390-414 (49-52)	0.10-0.124	0.60-0.75
54M	1450-1490 (14.5-14.9)	>=995 (>=12.5)	>=1114 (>=14)	406-438 (51-55)	0.10-0.124	0.60-0.75
30H	1080-1140 (10.8-11.4)	>=827 (>=10.4)	>=1353 (>=17)	223-247 (28-31)	0.09-0.120	0.55-0.70
33H	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=1353 (>=17)	247-271 (31-34)	0.09-0.120	0.55-0.70
35H	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=1353 (>=17)	263-287 (33-36)	0.09-0.120	0.55-0.70
38H	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=1353 (>=17)	287-310 (36-39)	0.09-0.120	0.55-0.70
40H	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=1353 (>=17)	302-326 (38-41)	0.09-0.120	0.55-0.70
42H	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=1353 (>=17)	318-342 (40-43)	0.09-0.120	0.55-0.70
45H	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=1353 (>=17)	342-366 (43-46)	0.09-0.120	0.55-0.70
48H	1370-1400 (13.7-14.0)	>=1035 (>=13.0)	>=1353 (>=17)	366-390 (46-49)	0.09-0.120	0.55-0.70
50H	1390-1430 (13.9-14.3)	>=1058 (>=13.3)	>=1353 (>=17)	374-406 (47-51)	0.09-0.120	0.55-0.70
52H	1420-1460 (14.2-14.6)	>=1074 (>=13.5)	>=1353 (>=17)	390-414 (49-52)	0.09-0.120	0.55-0.70
54H	1450-1490 (14.5-14.9)	>=1074 (>=13.5)	>=1274 (>=16)	406-438 (51-55)	0.09-0.120	0.55-0.70

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m3 (MGOe)	alphaBr %/ deg C	betaHcj %/ deg C
30SH	1080-1140 (10.8-11.4)	>=827 (>=10.4)	>=1592 (>=20)	223-247 (28-31)	0.09-0.120	0.50-0.65
33SH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=1592 (>=20)	247-271 (31-34)	0.09-0.120	0.50-0.65
35SH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=1592 (>=20)	263-287 (33-36)	0.09-0.120	0.50-0.65
38SH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=1592 (>=20)	287-310 (36-39)	0.09-0.120	0.50-0.65
40SH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=1592 (>=20)	302-326 (38-41)	0.09-0.120	0.50-0.65
42SH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=1592 (>=20)	318-342 (40-43)	0.09-0.120	0.50-0.65
N42SH-HRE	1310-1330 (13.1-13.3)	>=1020 (>=12.8)	>=1671 (>=21.0)	333-341 (42.0-43.0)	-0.125	-0.600
45SH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=1592 (>=20)	342-366 (43-46)	0.09-0.120	0.50-0.65
48SH	1370-1400 (13.7-14.0)	>=1035 (>=13.0)	>=1592 (>=20)	366-390 (46-49)	0.09-0.120	0.50-0.65
50SH	1390-1430 (13.9-14.3)	>=1058 (>=13.3)	>=1592 (>=20)	374-406 (47-51)	0.09-0.120	0.50-0.65
52SH	1420-1460 (14.2-14.6)	>=1074 (>=13.5)	>=1512 (>=19)	390-414 (49-52)	0.09-0.120	0.50-0.65
N54SH	1460-1480 (14.6-14.8)	>=1136 (>=14.3)	>=1751 (>=22.0)	413-421 (52.0-53.0)	-0.120	-0.600
28UH	1040-1090 (10.4-10.9)	>=780 (>=9.8)	>=1990 (>=25)	207-231 (26-29)	0.09-0.110	0.50-0.60
30UH	1080-1140 (10.8-11.4)	>=827 (>=10.4)	>=1990 (>=25)	223-247 (28-31)	0.09-0.110	0.50-0.60
33UH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=1990 (>=25)	247-271 (31-34)	0.09-0.110	0.50-0.60
35UH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=1990 (>=25)	263-287 (33-36)	0.09-0.110	0.50-0.60
38UH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=1990 (>=25)	287-310 (36-39)	0.09-0.110	0.50-0.60
40UH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=1990 (>=25)	302-326 (38-41)	0.09-0.110	0.50-0.60
42UH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=1990 (>=25)	318-342 (40-43)	0.09-0.110	0.50-0.60
45UH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=1990 (>=25)	342-366 (43-46)	0.09-0.110	0.50-0.60
48UH	1360-1400 (13.6-14.0)	>=1035 (>=13.0)	>=1990 (>=25)	358-390 (45-49)	0.09-0.110	0.50-0.60
N52UH	1440-1460 (14.4-14.6)	>=1120 (>=14.1)	>=2069 (>=26.0)	402-410 (50.5-51.5)	-0.115	-0.500
28EH	1040-1090 (10.4-10.9)	>=780 (>=9.8)	>=2388 (>=30)	207-231 (26-29)	0.09-0.110	0.45-0.55
30EH	1080-1140 (10.8-11.4)	>=827 (>=10.4)	>=2388 (>=30)	223-247 (28-31)	0.09-0.110	0.45-0.55
33EH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=2388 (>=30)	247-271 (31-34)	0.09-0.110	0.45-0.55
35EH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=2388 (>=30)	263-287 (33-36)	0.09-0.110	0.45-0.55
38EH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=2388 (>=30)	287-310 (36-39)	0.09-0.110	0.45-0.55
40EH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=2388 (>=30)	302-326 (38-41)	0.09-0.110	0.45-0.55
42EH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=2388 (>=30)	318-342 (40-43)	0.09-0.110	0.45-0.55
45EH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=2308 (>=29)	342-366 (43-46)	0.09-0.110	0.45-0.55
N45AH	1340-1350 (13.4-13.5)	>=1039 (>=13.1)	>=2865 (>=36.0)	342-350 (43.0-44.0)	-0.115	-0.400
N50EH	1410-1430 (14.1-14.3)	>=1097 (>=13.8)	>=2467 (>=31.0)	385-392 (48.5-49.2)	-0.115	-0.450
28TH	1040-1090 (10.4-10.9)	>=780 (>=9.8)	>=2786 (>=35)	207-231 (26-29)	0.09-0.110	0.40-0.50
30TH	1080-1140 (10.8-11.4)	>=827 (>=10.4)	>=2786 (>=35)	223-247 (28-31)	0.09-0.110	0.40-0.50
33TH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=2786 (>=35)	247-271 (31-34)	0.09-0.110	0.40-0.50
35TH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=2786 (>=35)	263-287 (33-36)	0.09-0.110	0.40-0.50
38TH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=2786 (>=35)	287-310 (36-39)	0.09-0.110	0.40-0.50
40TH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=2786 (>=35)	302-326 (38-41)	0.09-0.110	0.40-0.50
42TH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=2706 (>=34)	318-342 (40-43)	0.09-0.110	0.40-0.50
G-52H	1430-1460 (14.3-14.6)	>=1074 (>=13.5)	>=1353 (>=17)	398-422 (50-53)	0.11-0.13	0.60-0.70
G-55H	1460-1500 (14.6-15.0)	>=1098 (>=13.8)	>=1353 (>=17)	421-446 (53-56)	0.11-0.13	0.60-0.70
G-48SH	1370-1400 (13.7-14.0)	>=1035 (>=13.0)	>=1600 (>=20)	366-390 (46-49)	0.11-0.13	0.60-0.65
G-50SH	1400-1430 (14.0-14.3)	>=1058 (>=13.3)	>=1600 (>=20)	374-406 (47-51)	0.11-0.13	0.60-0.65
G-52SH	1430-1460 (14.3-14.6)	>=1074 (>=13.5)	>=1600 (>=20)	398-422 (50-53)	0.11-0.13	0.60-0.65

Grade	Br mT (kGs)	Hcb kA/m (kOe)	Hcj kA/m (kOe)	(BH)max kJ/m3 (MGOe)	alphaBr %/ deg C	betaHcj %/ deg C
G-55SH	1460-1500 (14.6-15.0)	>=1098 (>=13.8)	>=1600 (>=20)	421-446 (53-56)	0.11-0.13	0.60-0.65
G-42UH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=1990 (>=25)	318-342 (40-43)	0.11-0.12	0.50-0.60
G-45UH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=1990 (>=25)	342-366 (43-46)	0.11-0.12	0.50-0.60
G-48UH	1370-1400 (13.7-14.0)	>=1035 (>=13.0)	>=1990 (>=25)	366-390 (46-49)	0.11-0.12	0.50-0.60
G-50UH	1400-1430 (14.0-14.3)	>=1058 (>=13.3)	>=1990 (>=25)	374-406 (47-51)	0.11-0.12	0.50-0.60
G-52UH	1430-1460 (14.3-14.6)	>=1074 (>=13.5)	>=1990 (>=25)	398-422 (50-53)	0.11-0.12	0.50-0.60
G-33EH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=2388 (>=30)	247-271 (31-34)	0.10-0.12	0.45-0.55
G-35EH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=2388 (>=30)	263-287 (33-36)	0.10-0.12	0.45-0.55
G-38EH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=2388 (>=30)	287-310 (36-39)	0.10-0.12	0.45-0.55
G-40EH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=2388 (>=30)	302-326 (38-41)	0.10-0.12	0.45-0.55
G-42EH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=2388 (>=30)	318-342 (40-43)	0.10-0.12	0.45-0.55
G-45EH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=2388 (>=30)	342-366 (43-46)	0.10-0.12	0.45-0.55
G-48EH	1370-1400 (13.7-14.0)	>=1035 (>=13.0)	>=2388 (>=30)	366-390 (46-49)	0.10-0.12	0.45-0.55
G-50EH	1400-1430 (14.0-14.3)	>=1035 (>=13.0)	>=2388 (>=30)	374-406 (47-51)	0.10-0.12	0.45-0.55
G-33TH	1140-1180 (11.4-11.8)	>=860 (>=10.8)	>=2785 (>=35)	247-271 (31-34)	0.095-0.11	0.42-0.52
G-35TH	1180-1230 (11.8-12.3)	>=899 (>=11.3)	>=2785 (>=35)	263-287 (33-36)	0.095-0.11	0.42-0.52
G-38TH	1230-1260 (12.3-12.6)	>=923 (>=11.6)	>=2785 (>=35)	287-310 (36-39)	0.095-0.11	0.42-0.52
G-40TH	1260-1290 (12.6-12.9)	>=947 (>=11.9)	>=2785 (>=35)	302-326 (38-41)	0.095-0.11	0.42-0.52
G-42TH	1290-1330 (12.9-13.3)	>=971 (>=12.2)	>=2785 (>=35)	318-342 (40-43)	0.095-0.11	0.42-0.52
G-45TH	1330-1370 (13.3-13.7)	>=1003 (>=12.6)	>=2706 (>=34)	342-366 (43-46)	0.095-0.11	0.42-0.52
G-54H	1440-1470 (14.4-14.7)	>=1074 (>=13.5)	>=1353 (>=17)	398-422 (50-53)	0.09-0.12	0.55-0.70
G-56H	1460-1500 (14.6-15.0)	>=1074 (>=13.5)	>=1274 (>=16)	406-438 (51-55)	0.09-0.12	0.55-0.70
G-54SH	1440-1470 (14.4-14.7)	>=1074 (>=13.5)	>=1592 (>=20)	398-422 (50-53)	0.09-0.12	0.50-0.65
G-56SH	1460-1480 (14.6-14.8)	>=1035 (>=13.0)	>=1512 (>=19)	406-438 (51-55)	0.09-0.12	0.50-0.65
G-54UH	1430-1470 (14.3-14.7)	>=1035 (>=13.0)	>=1910 (>=24)	390-422 (49-53)	0.09-0.11	0.50-0.60

Technical Data 4

Process	Typical Tolerance	Notes
As-sintered	+/-0.1 mm	Most economical for non-critical faces
Sliced / profile-ground	+/-0.05 mm	Standard for blocks and arc dimensions
Centerless / surface ground	+/-0.02 mm	Mating faces and press-fit diameters
Parallelism / perpendicularity	Per drawing	Confirmed during DFM review

Technical Data 5

Coating	Typical Thickness	Reference Salt Spray	Typical Use
Ni-Cu-Ni	15-20 umm	48 h+	General indoor / protected applications
Epoxy	15-25 umm	72 h+	Humidity / marine-oriented protection
Zinc	8-12 umm	24 h+	Cost-sensitive dry environments
Parylene C	10-15 umm	240 h+	High-protection / specialty applications

Engineering note

Values are reference specifications unless explicitly stated as guaranteed on a quotation or approved drawing. Final grade, geometry, tolerance, coating, magnetization, operating temperature and validation requirements must be confirmed for the actual application.