Goudsmit NdFeB grade system

Introduction

This document provides magnetic, physical and mechanical data of all the Neodymium magnets Goudsmit sells and which are relevant for the selection of magnets and design of magnetic systems.

Grade quality code	Coercivity description	Maximum operating temperature
N	**N**ormal coercivity	80°C
M	**M**edium coercivity	100°C
H	**H**igh coercivity	120°C
SH	**S**uper-**H**igh coercivity	150°C
UH	**U**ltra-**H**igh coercivity	180°C
EH	**E**xtremely **H**igh coercivity	200°C
AH	**A**bsolutely **H**igh coercivity	220°C
VH	**V**irtually **H**igh coercivity	250°C

N- grades

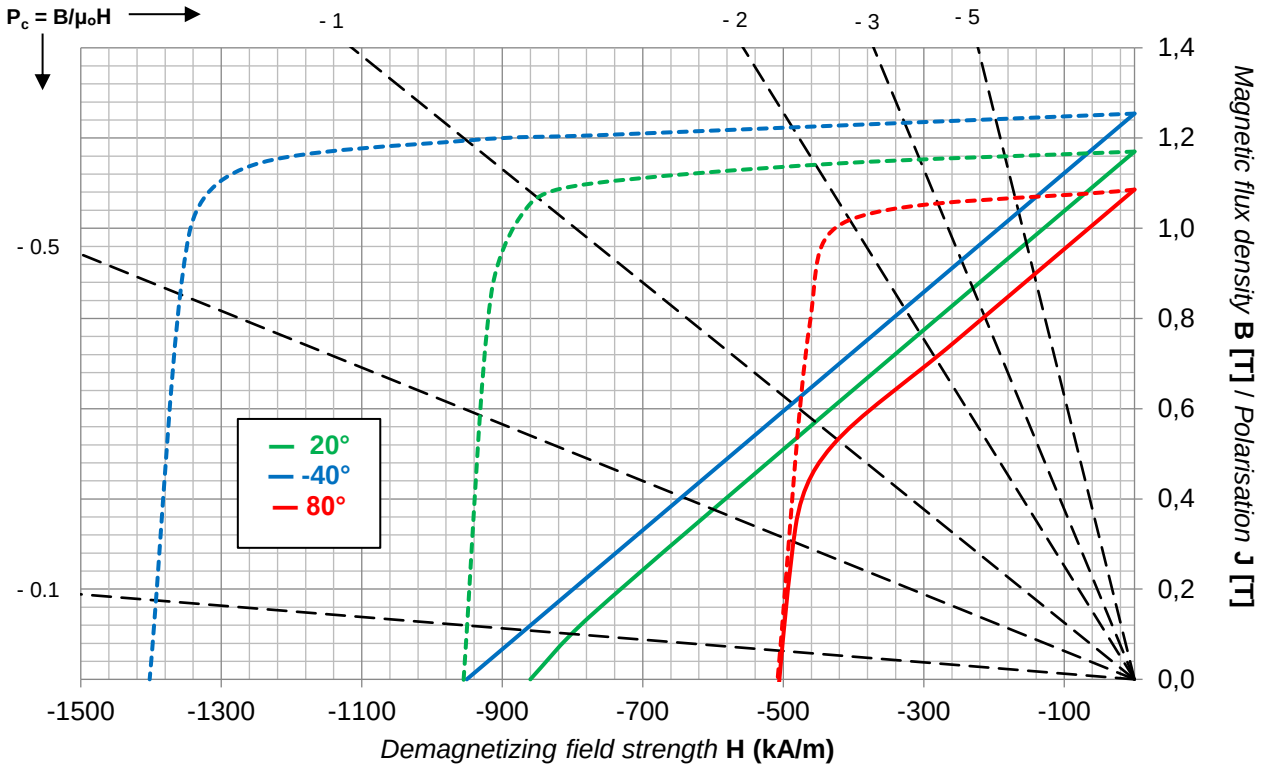
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N35	1170	860	955	259	-0.12	-0.78	80
N38	1220	860	955	281	-0.12	-0.78	80
N40	1250	860	955	300	-0.12	-0.78	80
N42	1280	860	955	318	-0.12	-0.78	80
N45	1320	860	955	338	-0.12	-0.78	80
N48	1370	836	955	358	-0.12	-0.78	80
N50	1390	836	955	376	-0.12	-0.78	80
N52	1420	836	876	390	-0.12	-0.78	80
N54	1440	836	875	406	-0.12	-0.78	70

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35** – Anisotropic sintered

Demagnetization curve **N35**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	860	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

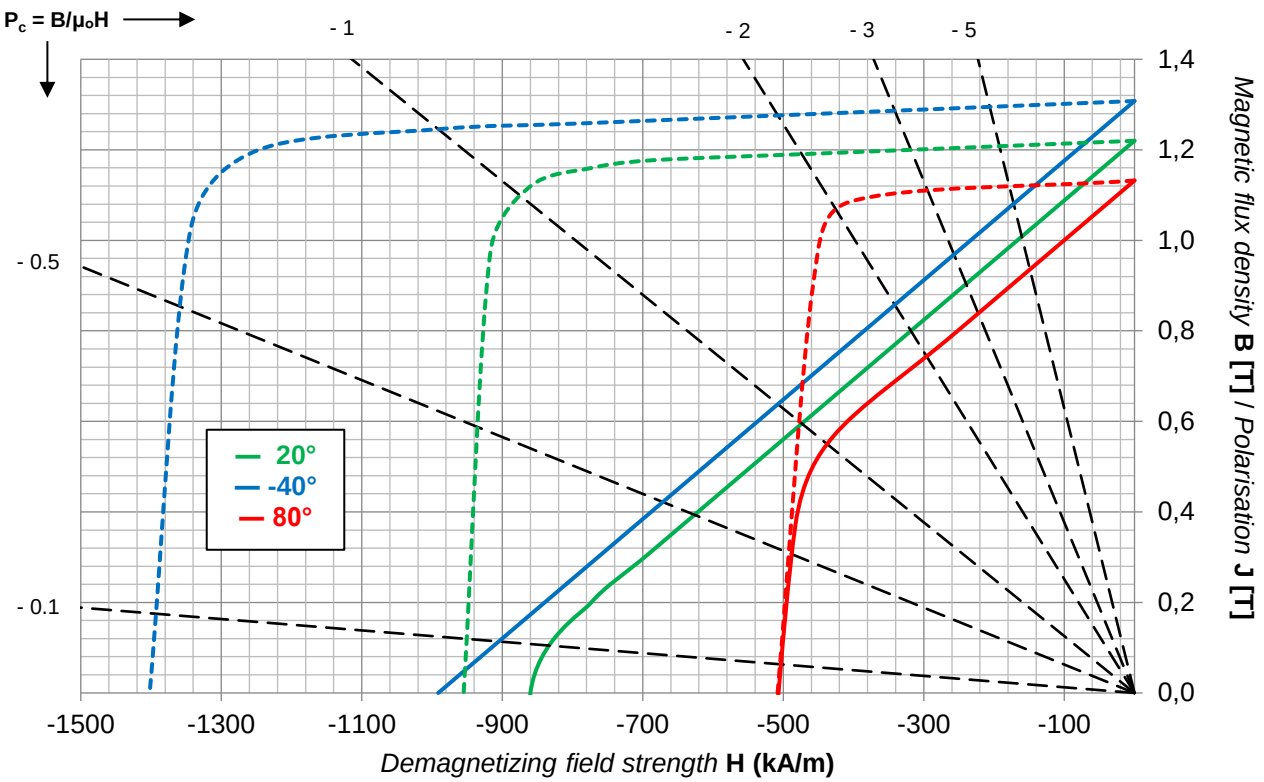
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38** – Anisotropic sintered

Demagnetization curve **N38**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	860	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

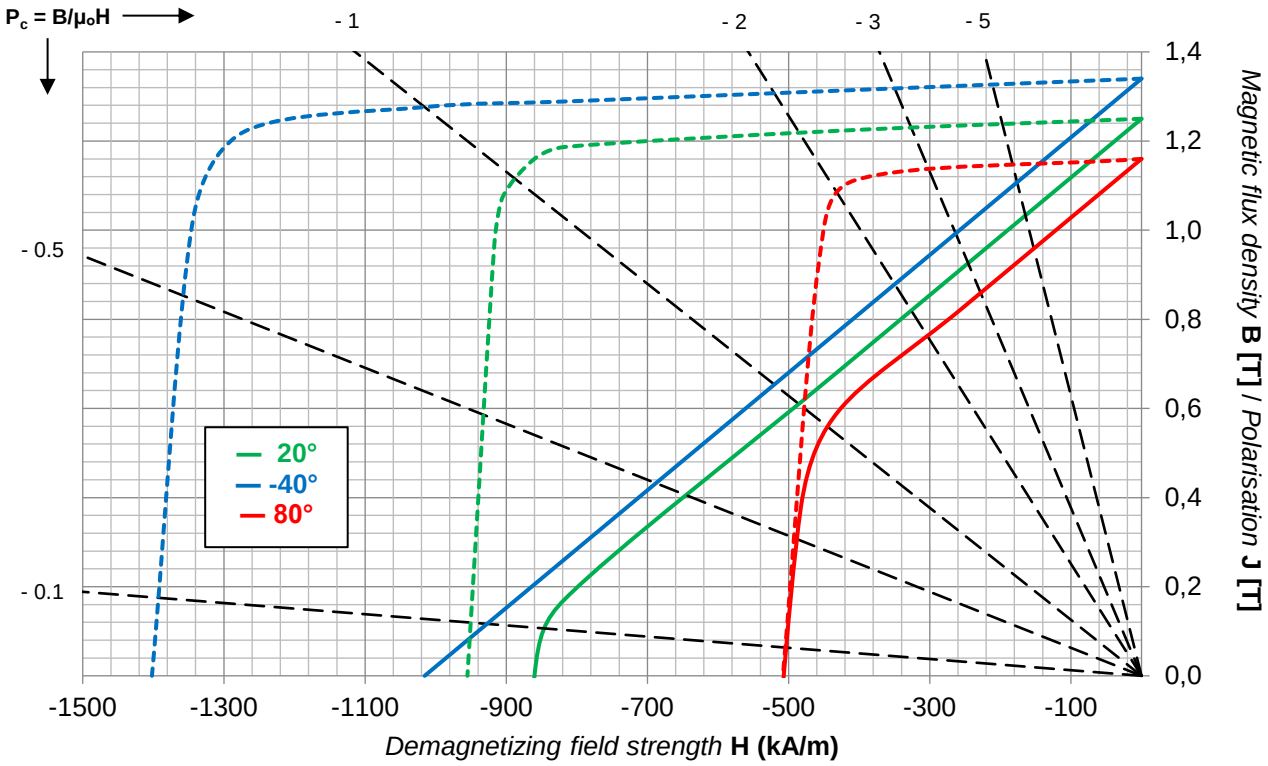
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40** – Anisotropic sintered

Demagnetization curve **N40**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	860	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

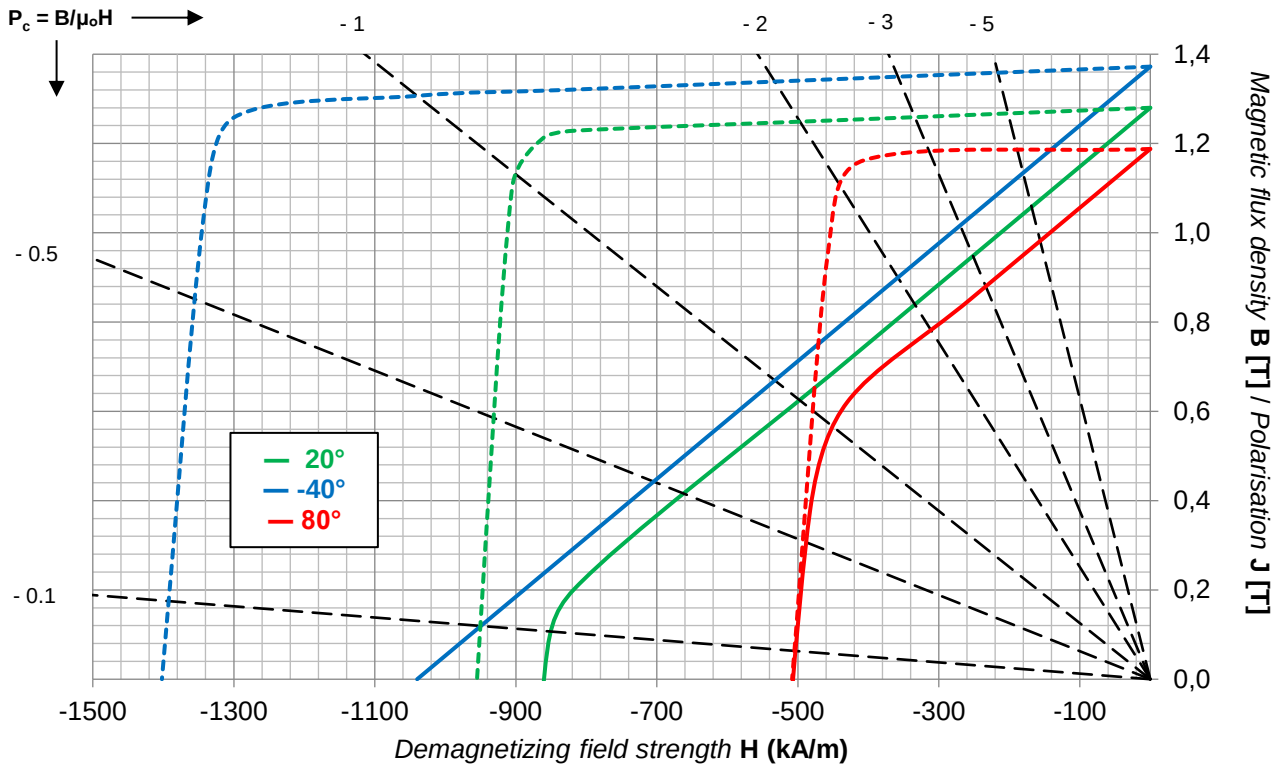
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42** – Anisotropic sintered

Demagnetization curve **N42**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.28	T
H_{cB}	min	860	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

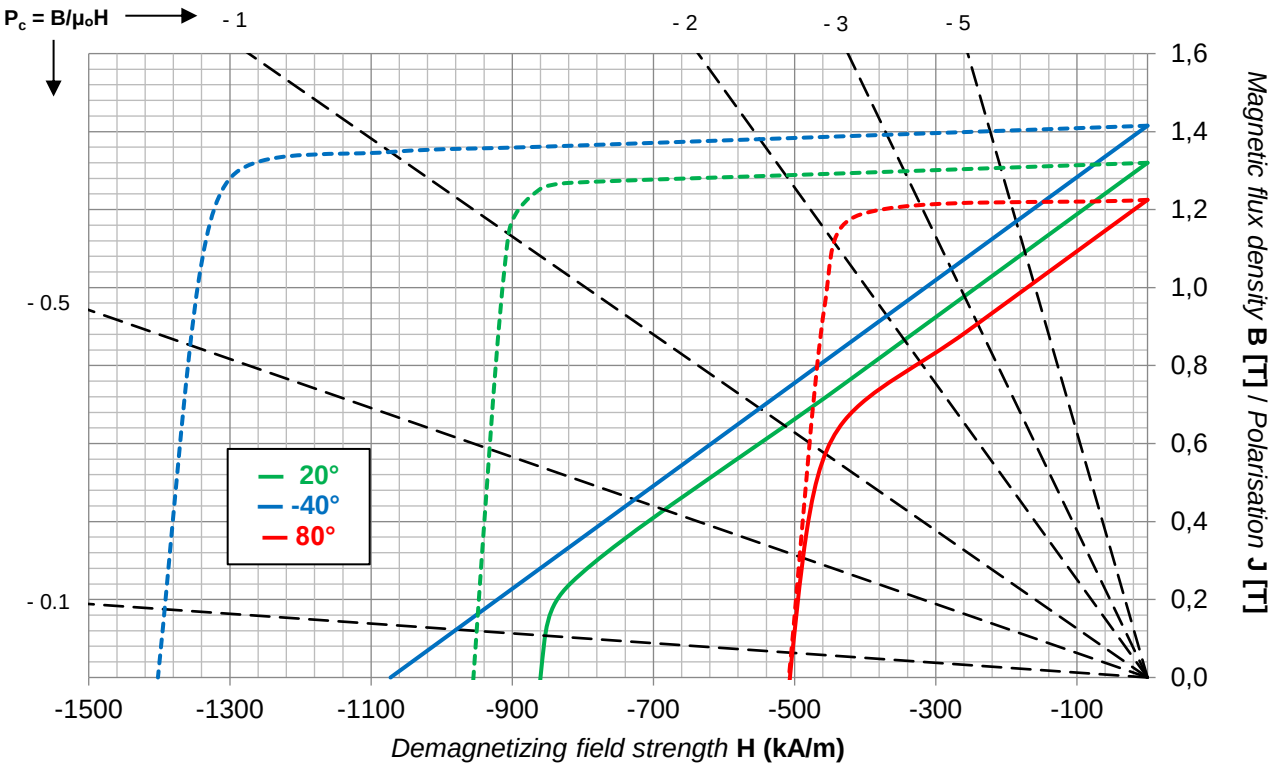
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N45** – Anisotropic sintered

Demagnetization curve **N45**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	860	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	338	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

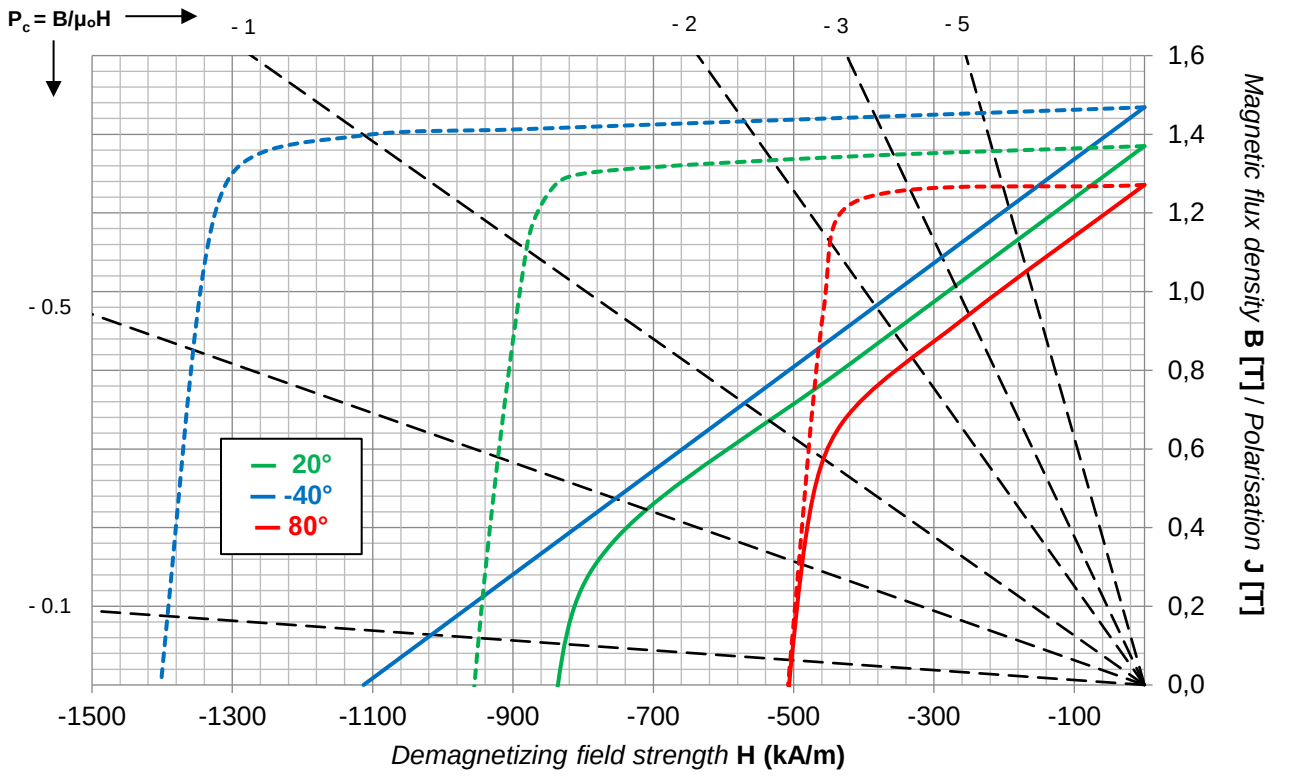
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N48** – Anisotropic sintered

Demagnetization curve **N48**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.37	T
H_{cB}	min	836	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	358	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

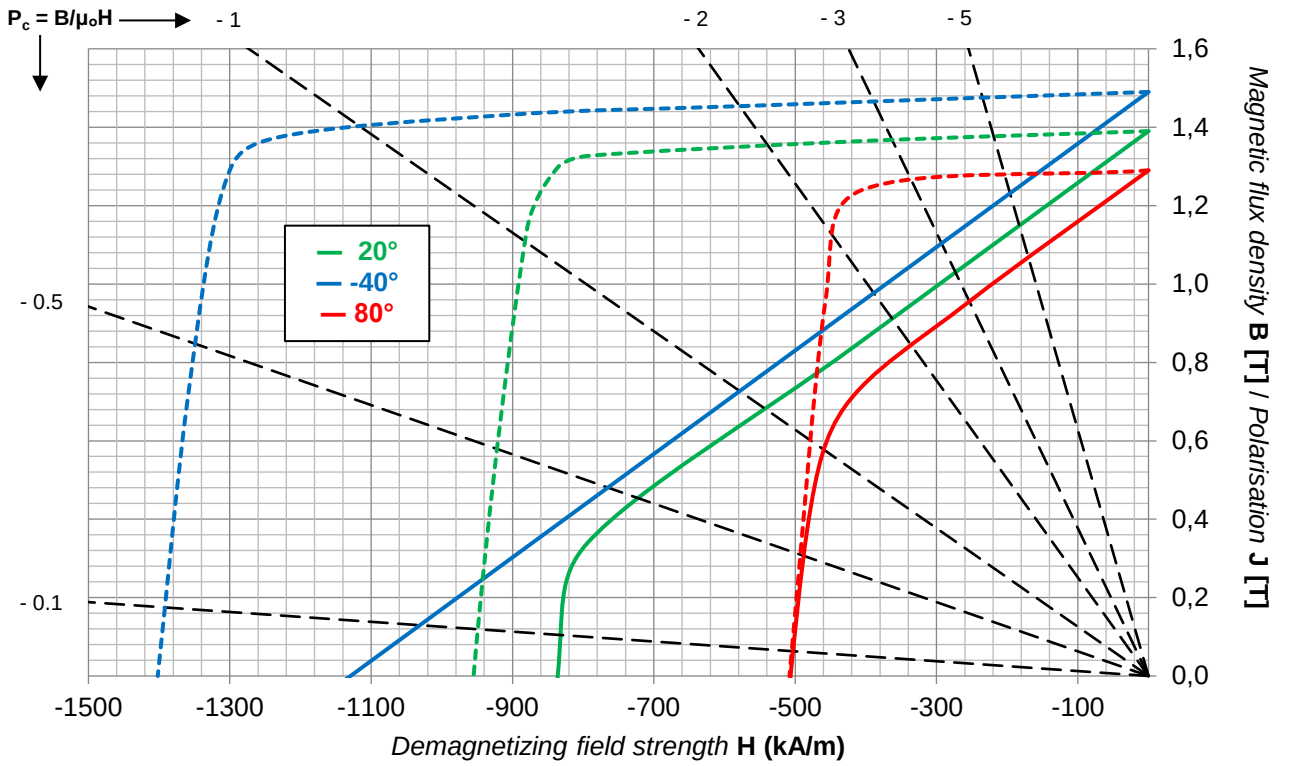
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N50** – Anisotropic sintered

Demagnetization curve **N50**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.39	T
H_{cB}	min	836	kA/m
H_{cJ}	min	955	kA/m
$(BH)_{max}$	min	376	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

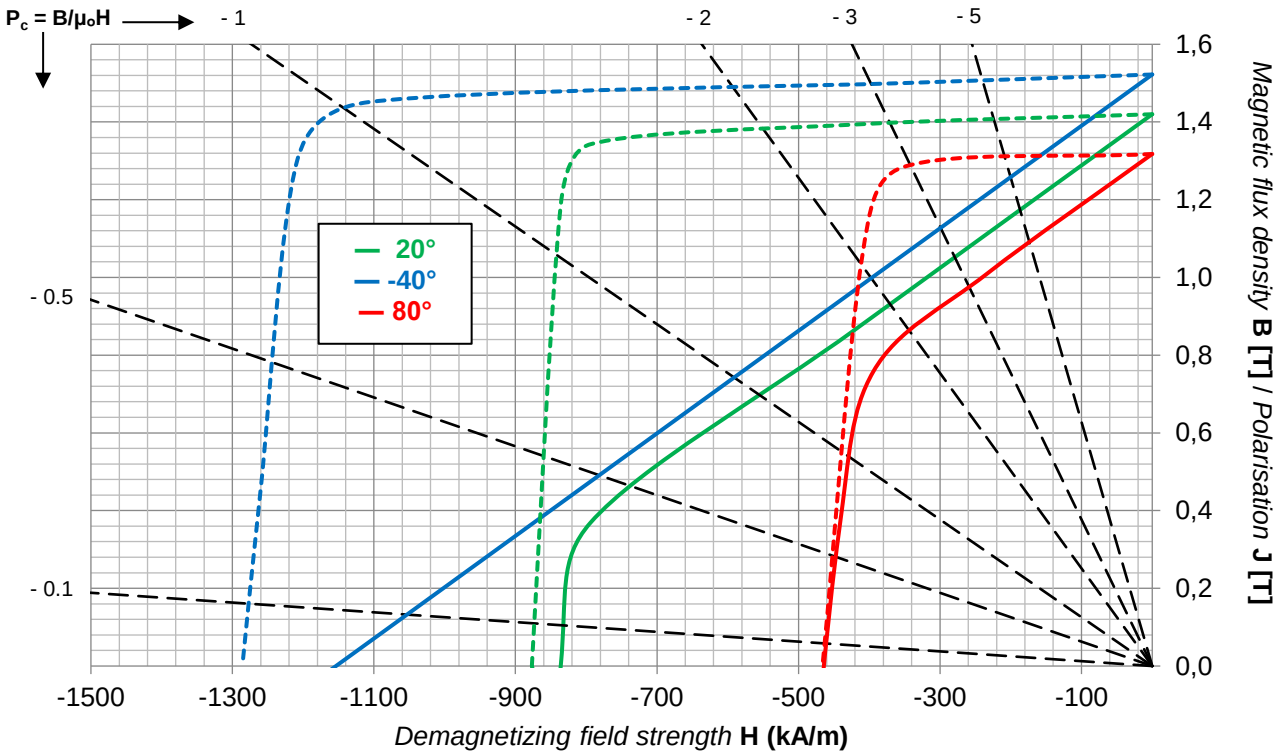
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N52** – Anisotropic sintered

Demagnetization curve **N52**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.42	T
H_{cB}	min	836	kA/m
H_{cJ}	min	876	kA/m
$(BH)_{max}$	min	390	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		80	°C
μ_r	typ	1.05	-

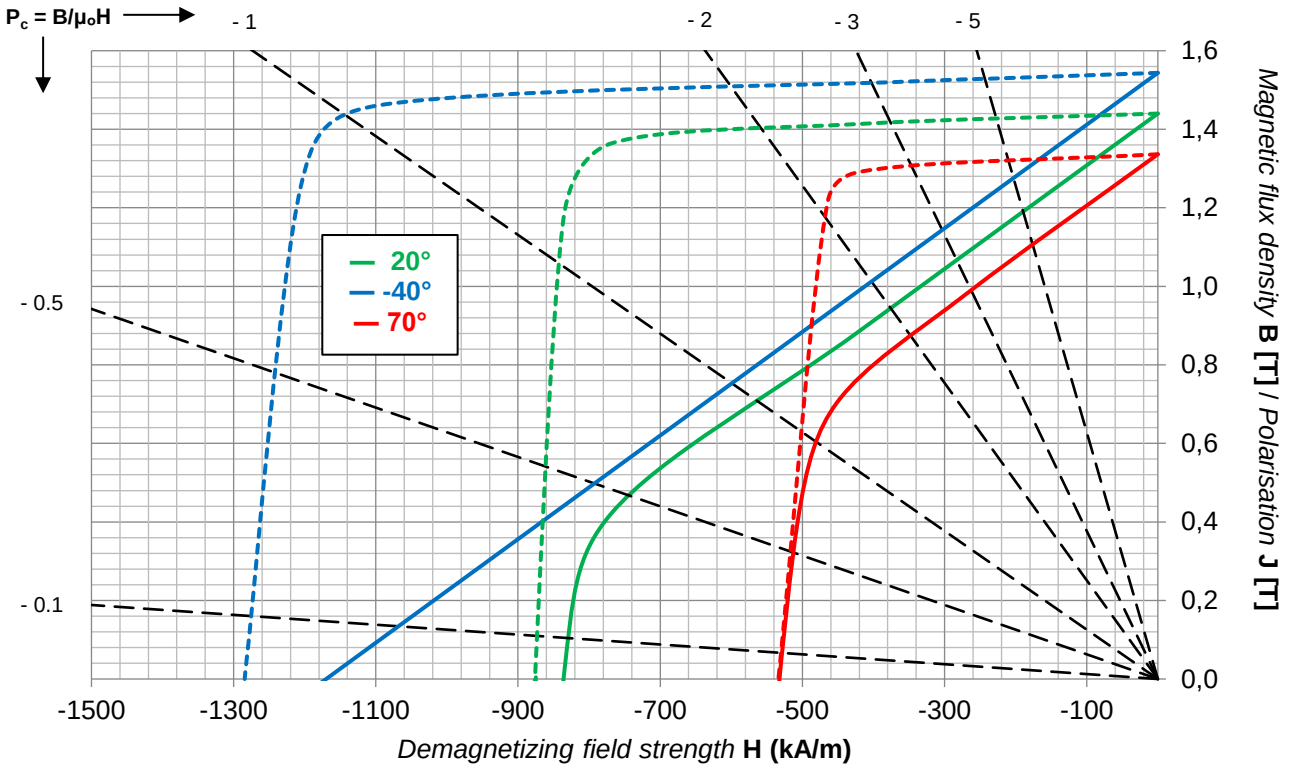
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N54** – Anisotropic sintered

Demagnetization curve **N54**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.44	T
H_{cB}	min	836	kA/m
H_{cJ}	min	875	kA/m
$(BH)_{max}$	min	406	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.78	%/°C
T_{max}		70	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

M- grades

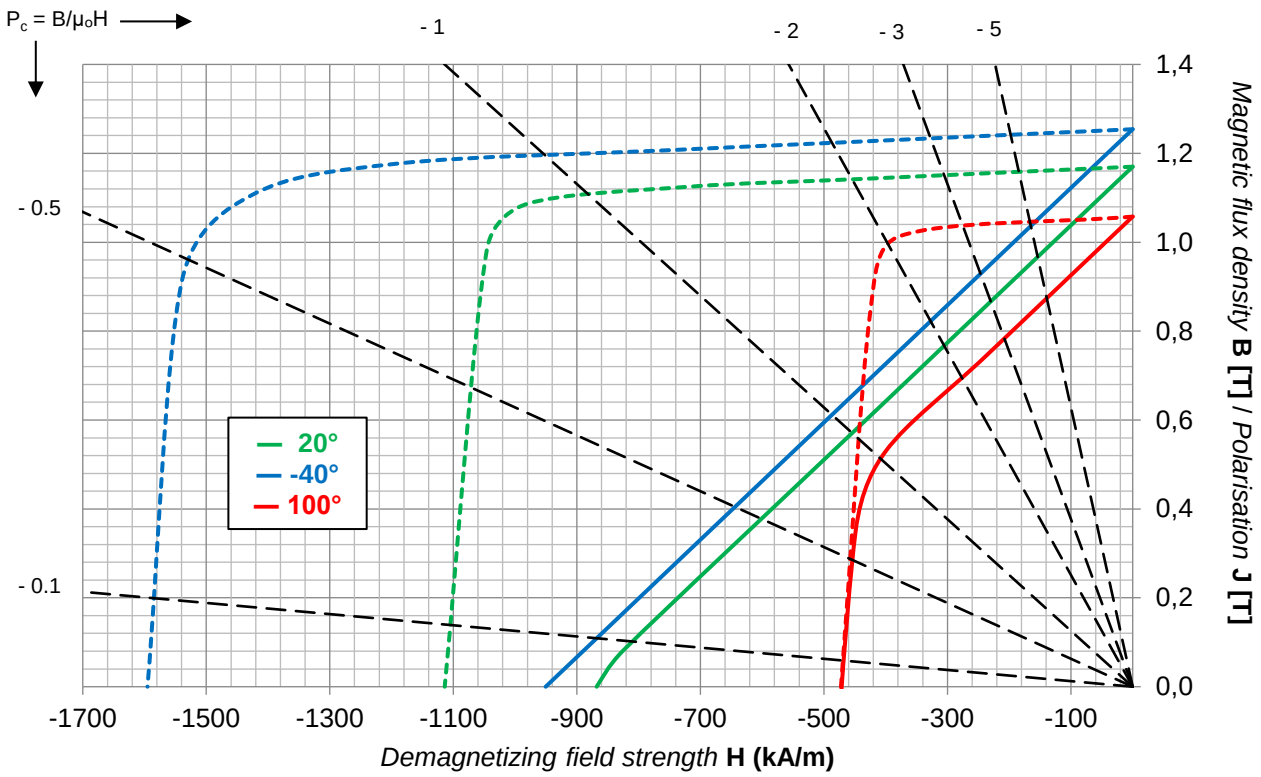
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N35M	1170	868	1114	259	-0.12	-0.72	100
N38M	1220	899	1114	281	-0.12	-0.72	100
N40M	1250	923	1114	300	-0.12	-0.72	100
N42M	1280	955	1114	318	-0.12	-0.72	100
N45M	1320	971	1114	338	-0.12	-0.72	100
N48M	1360	995	1114	358	-0.12	-0.72	100
N50M	1390	1035	1114	376	-0.12	-0.72	100
N52M	1420	1056	1114	390	-0.12	-0.72	100

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35M** – Anisotropic sintered

Demagnetization curve **N35M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	868	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

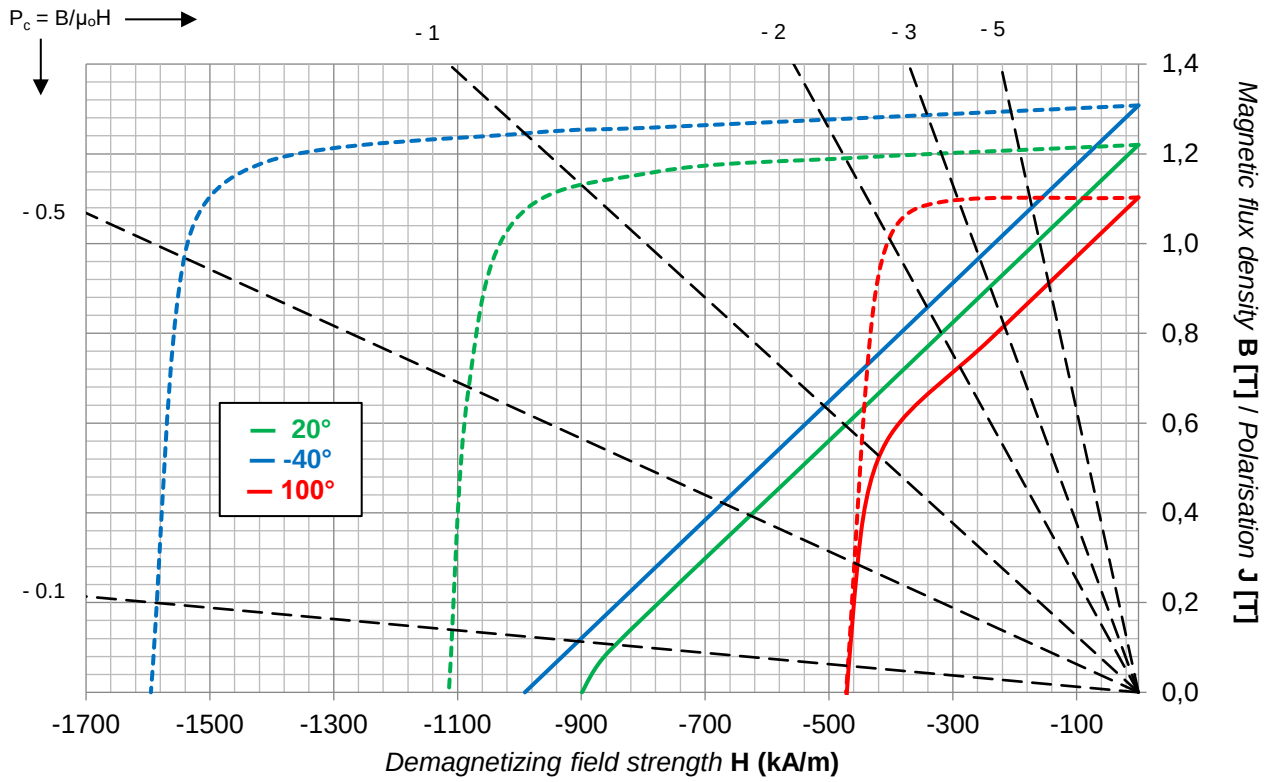
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38M** – Anisotropic sintered

Demagnetization curve **N38M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	899	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

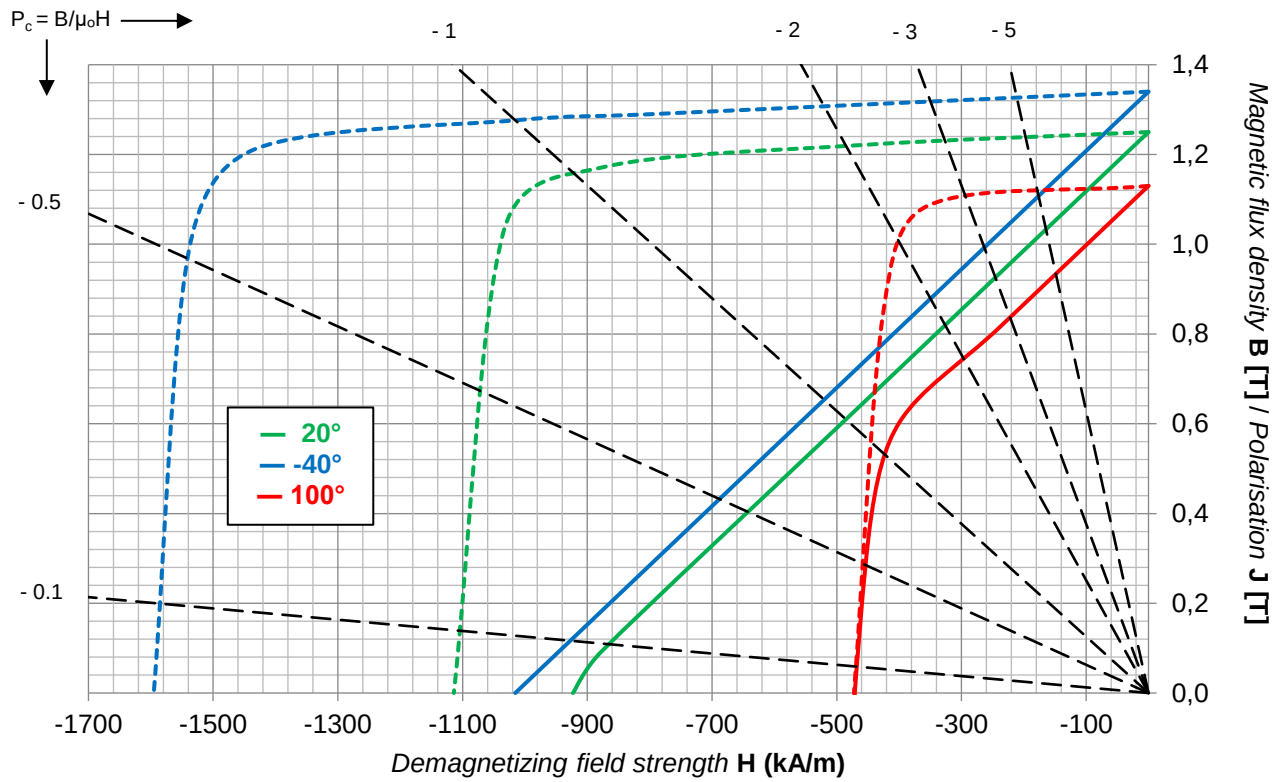
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40M** – Anisotropic sintered

Demagnetization curve **N40M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	923	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

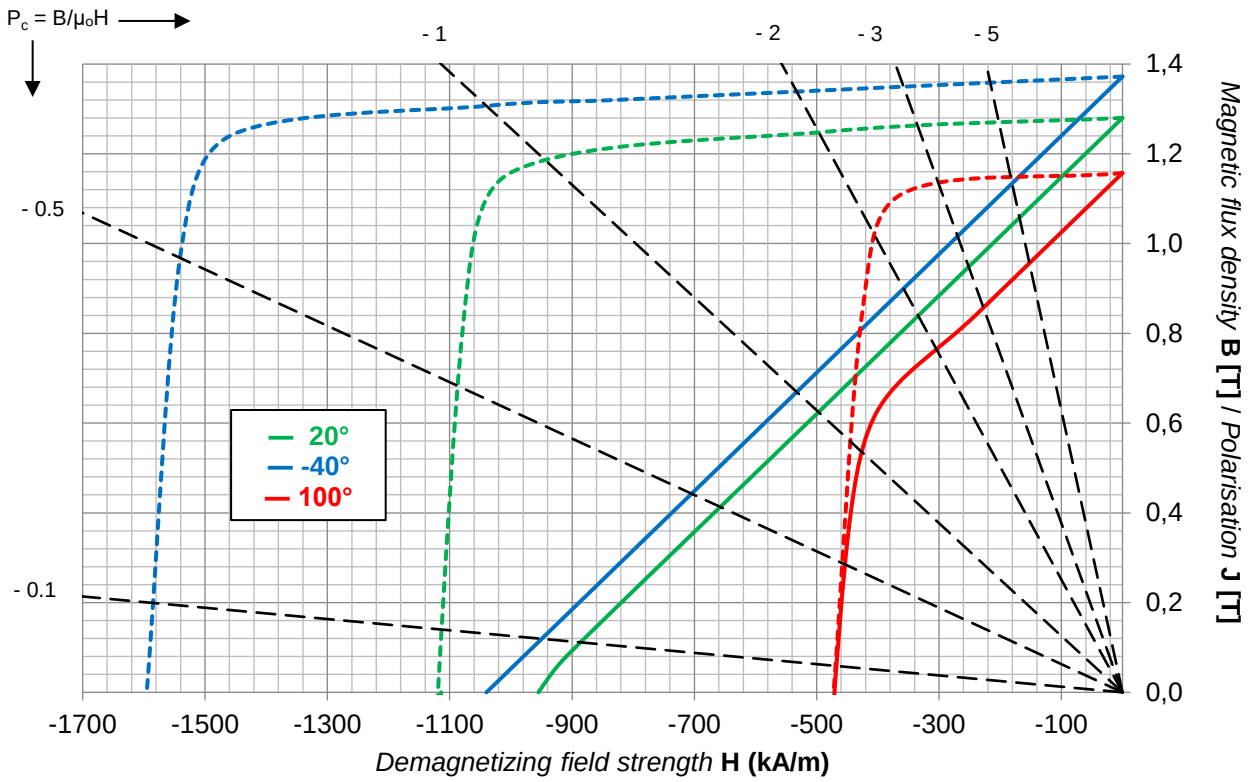
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42M** – Anisotropic sintered

Demagnetization curve **N42M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.28	T
H_{cB}	min	955	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

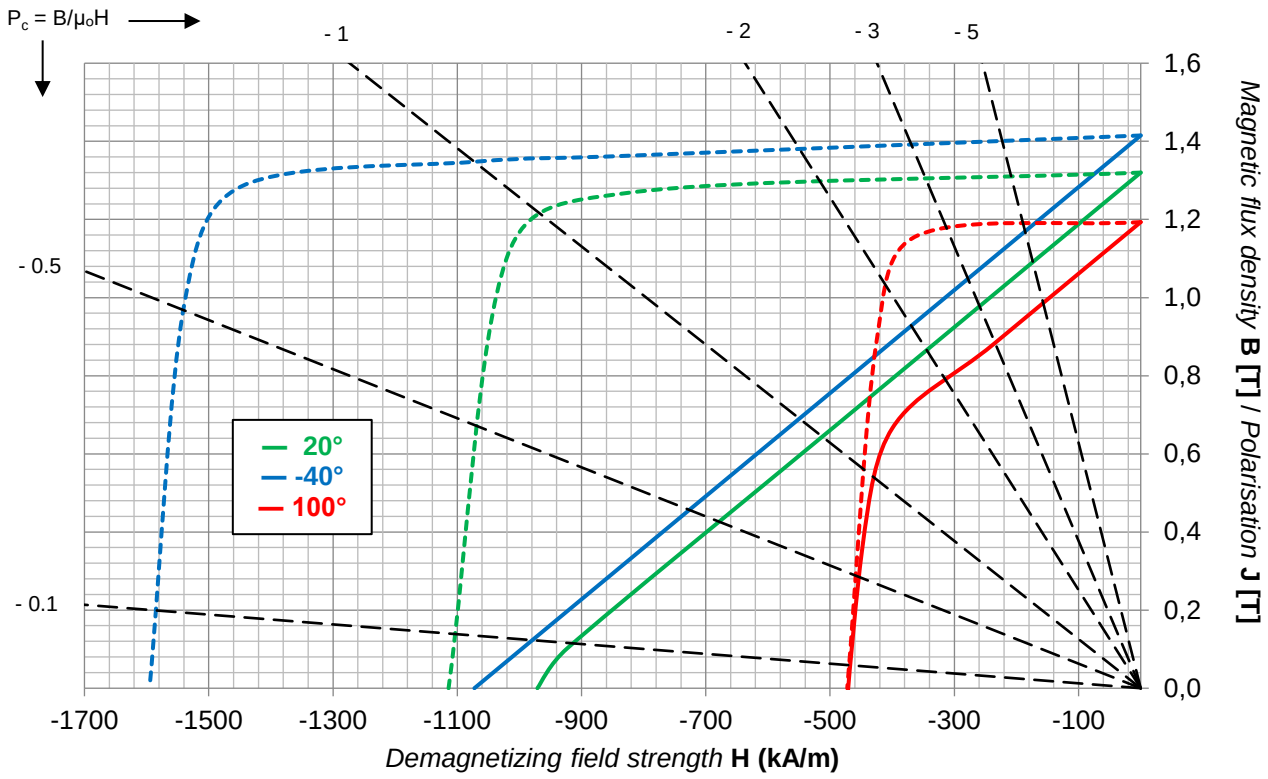
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N45M** – Anisotropic sintered

Demagnetization curve **N45M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	971	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	338	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

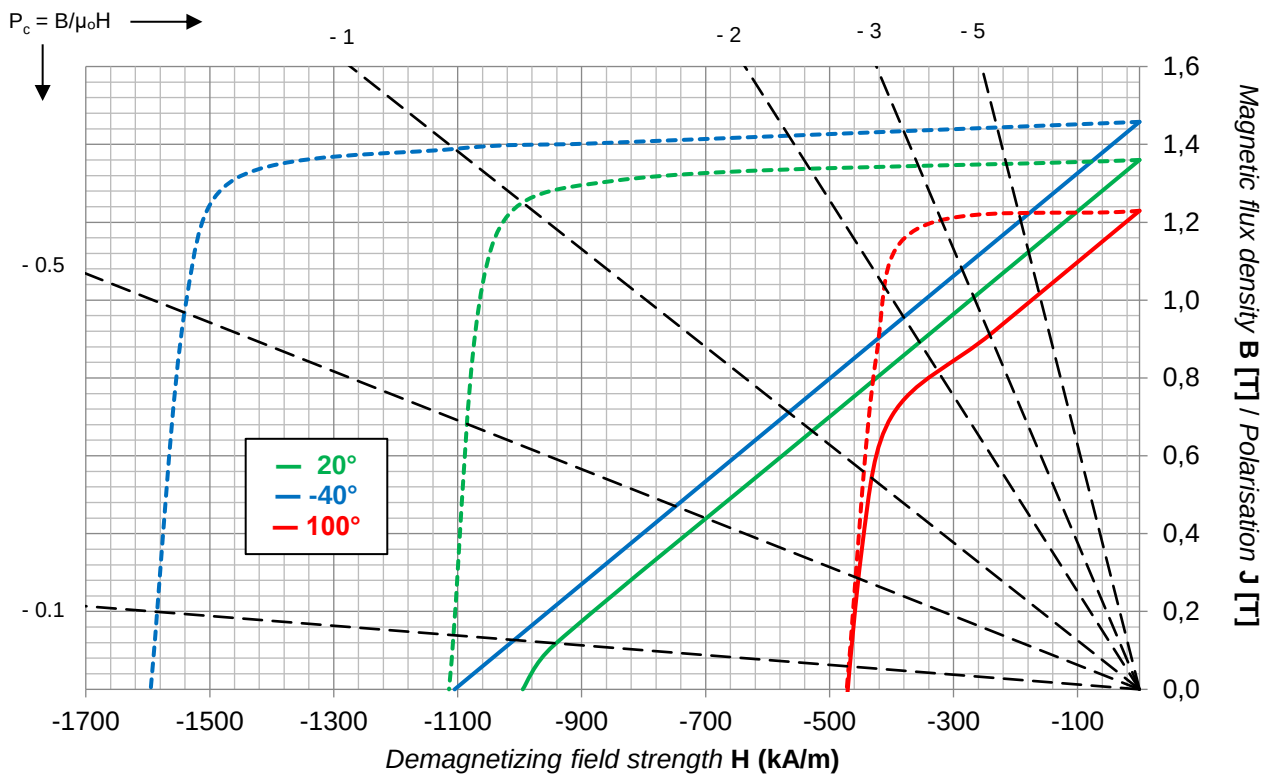
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N48M** – Anisotropic sintered

Demagnetization curve **N48M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.36	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	358	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

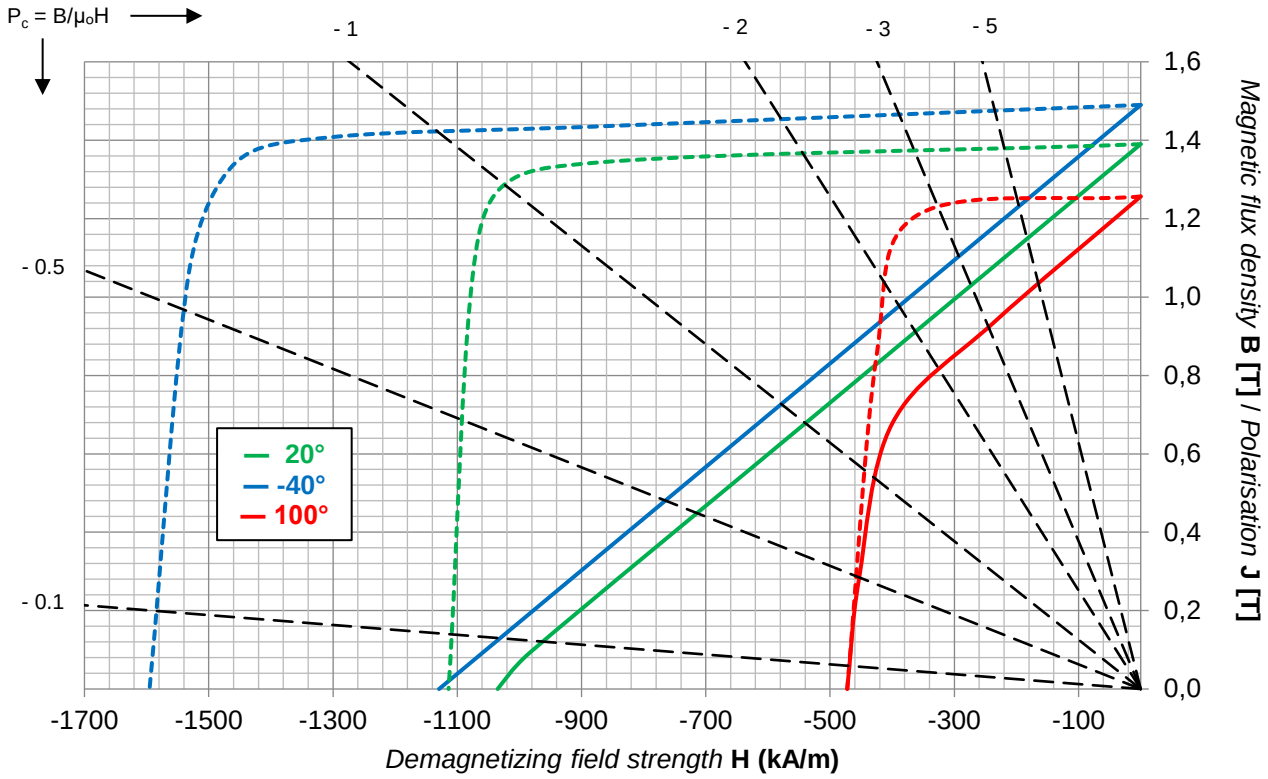
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N50M** – Anisotropic sintered

Demagnetization curve **N50M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.39	T
H_{cB}	min	1035	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	376	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

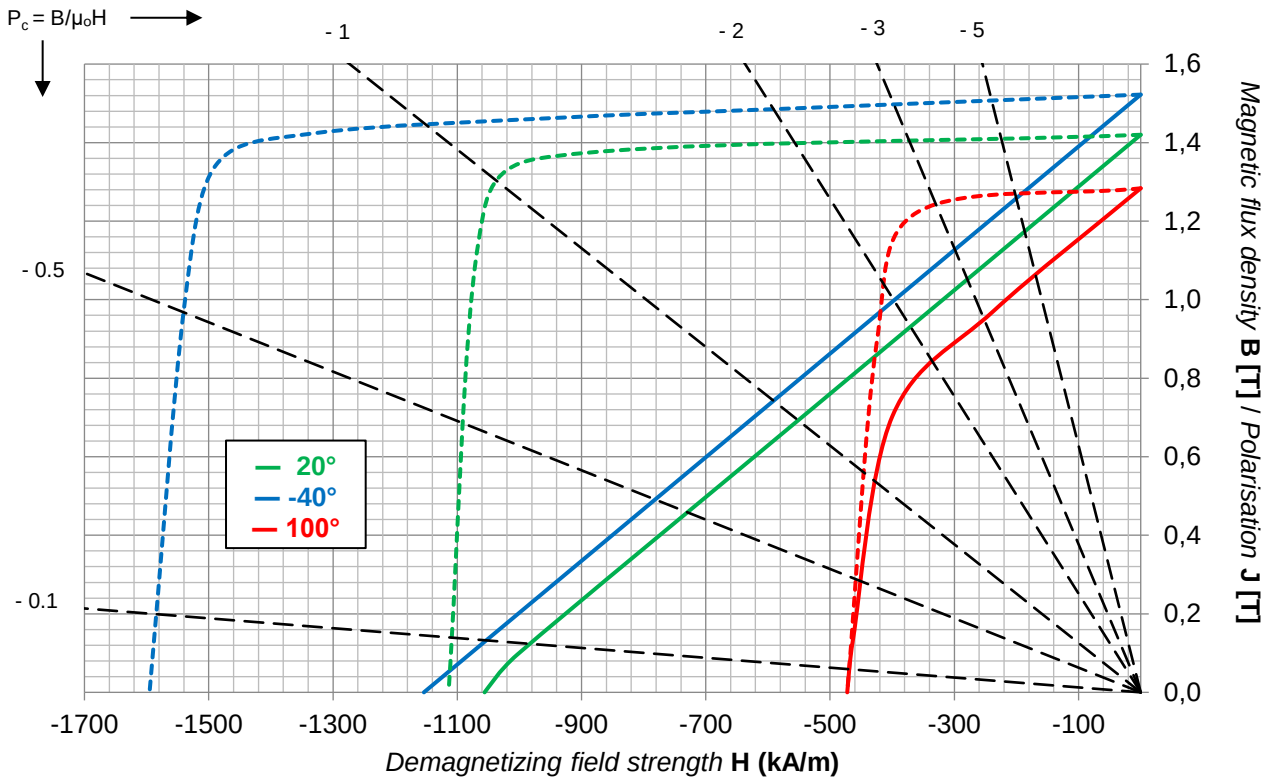
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N52M** – Anisotropic sintered

Demagnetization curve **N52M**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.42	T
H_{cB}	min	1056	kA/m
H_{cJ}	min	1114	kA/m
$(BH)_{max}$	min	390	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.72	%/°C
T_{max}		100	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

H- grades

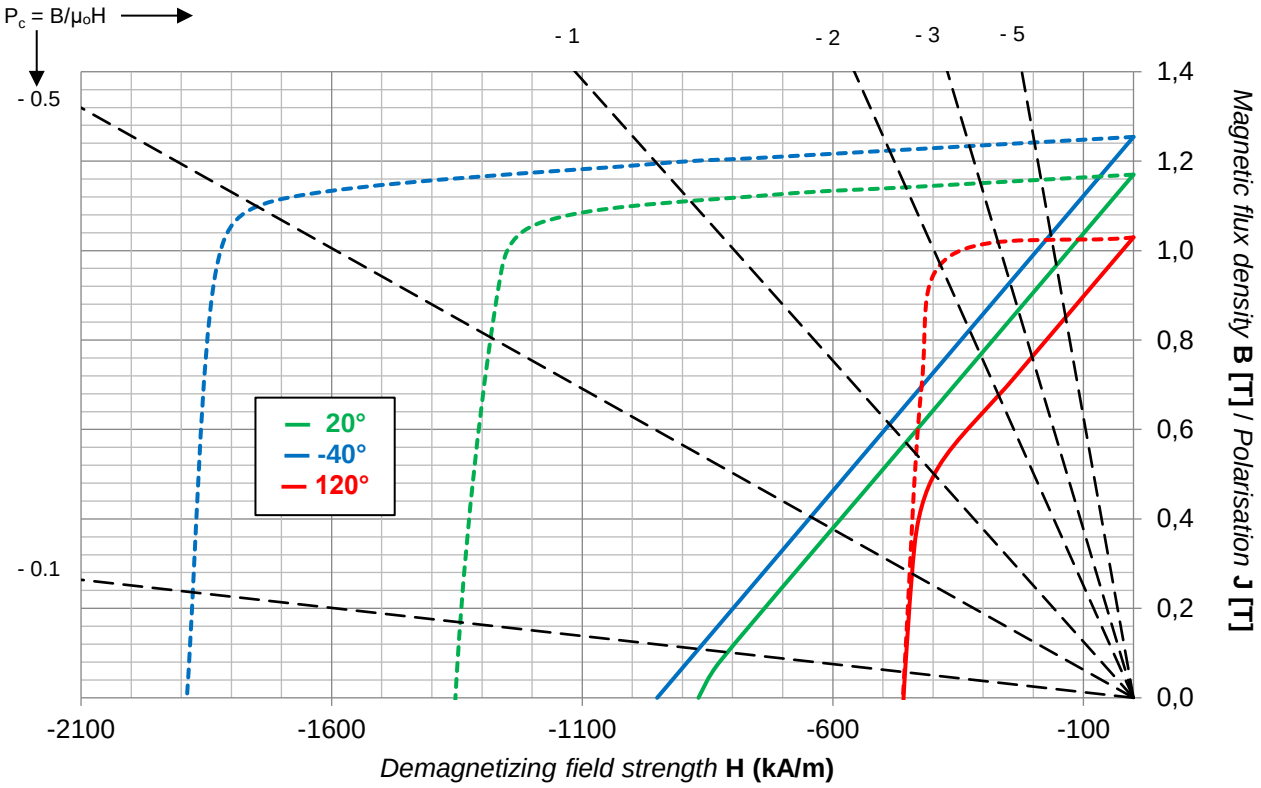
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N35H	1170	868	1353	259	-0.12	-0.66	120
N38H	1220	899	1353	281	-0.12	-0.66	120
N40H	1250	923	1353	300	-0.12	-0.66	120
N42H	1280	955	1353	318	-0.12	-0.66	120
N45H	1320	971	1353	333	-0.12	-0.66	120
N48H	1360	1011	1353	358	-0.12	-0.66	120
N50H	1390	1035	1353	374	-0.12	-0.66	120
N52H	1420	1035	1353	390	-0.12	-0.66	120

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35H** – Anisotropic sintered

Demagnetization curve **N35H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	868	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

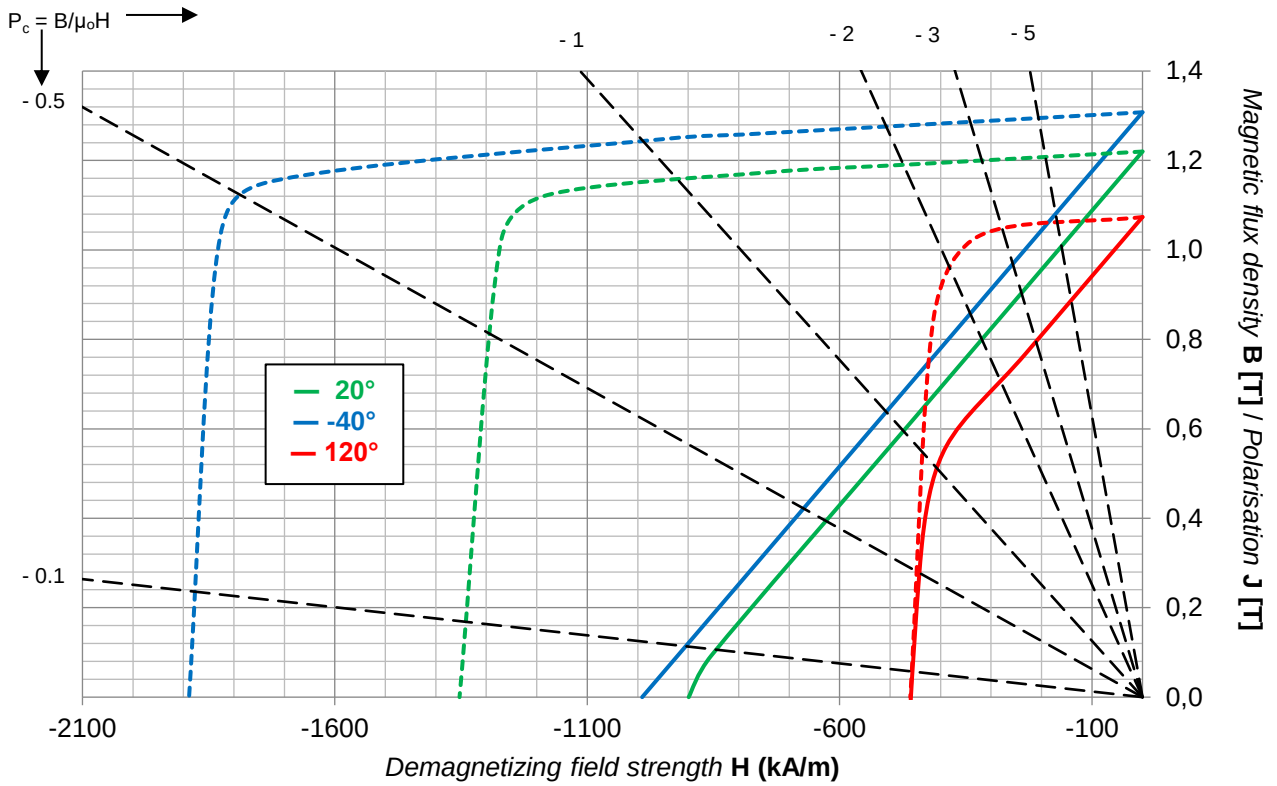
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38H** – Anisotropic sintered

Demagnetization curve **N38H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	899	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

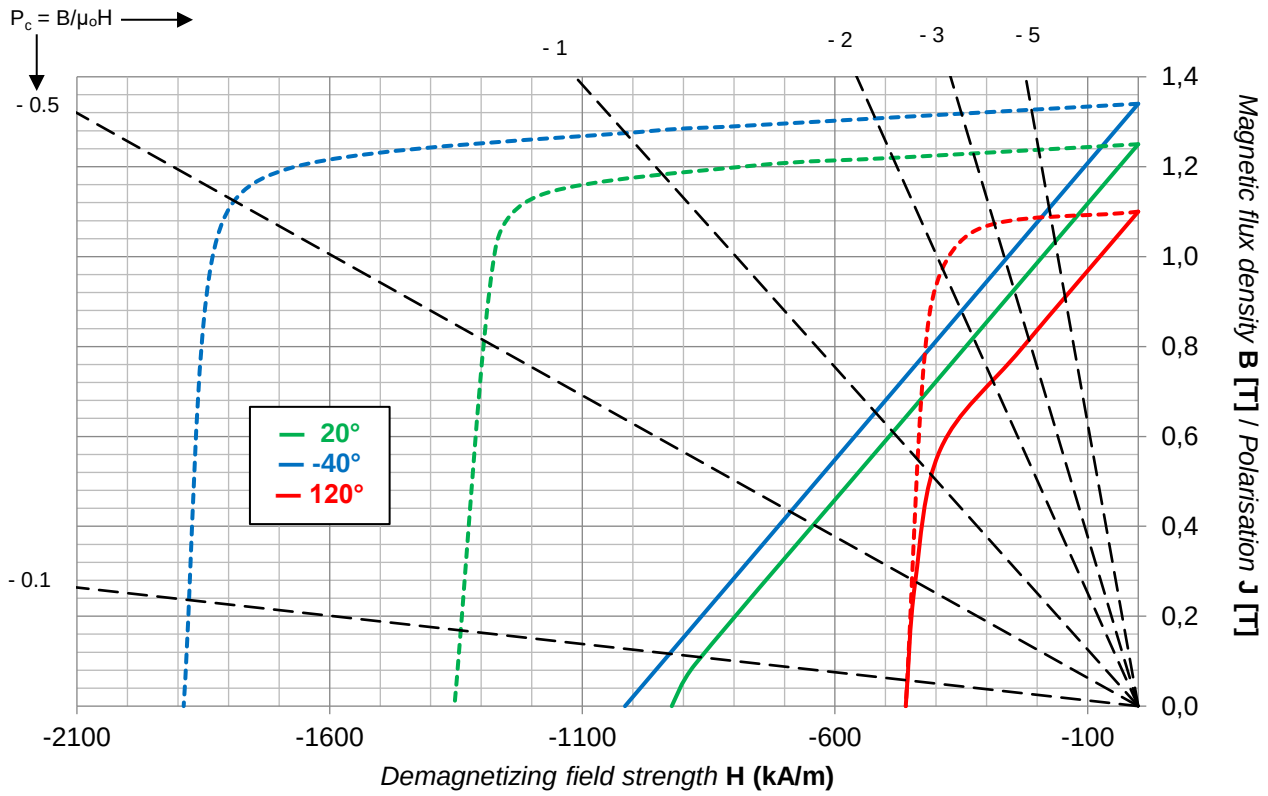
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40H** – Anisotropic sintered

Demagnetization curve **N40H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	923	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

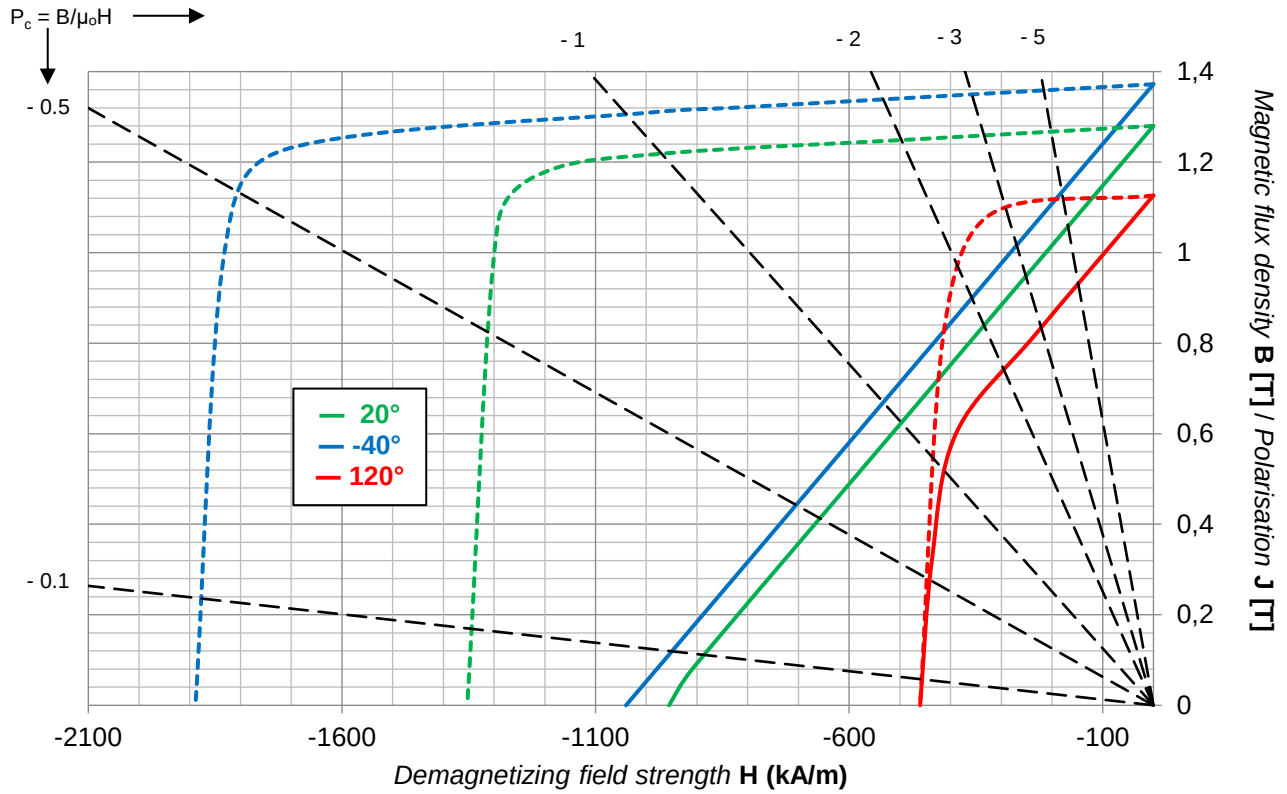
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42H** – Anisotropic sintered

Demagnetization curve **N42H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.28	T
H_{cB}	min	955	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

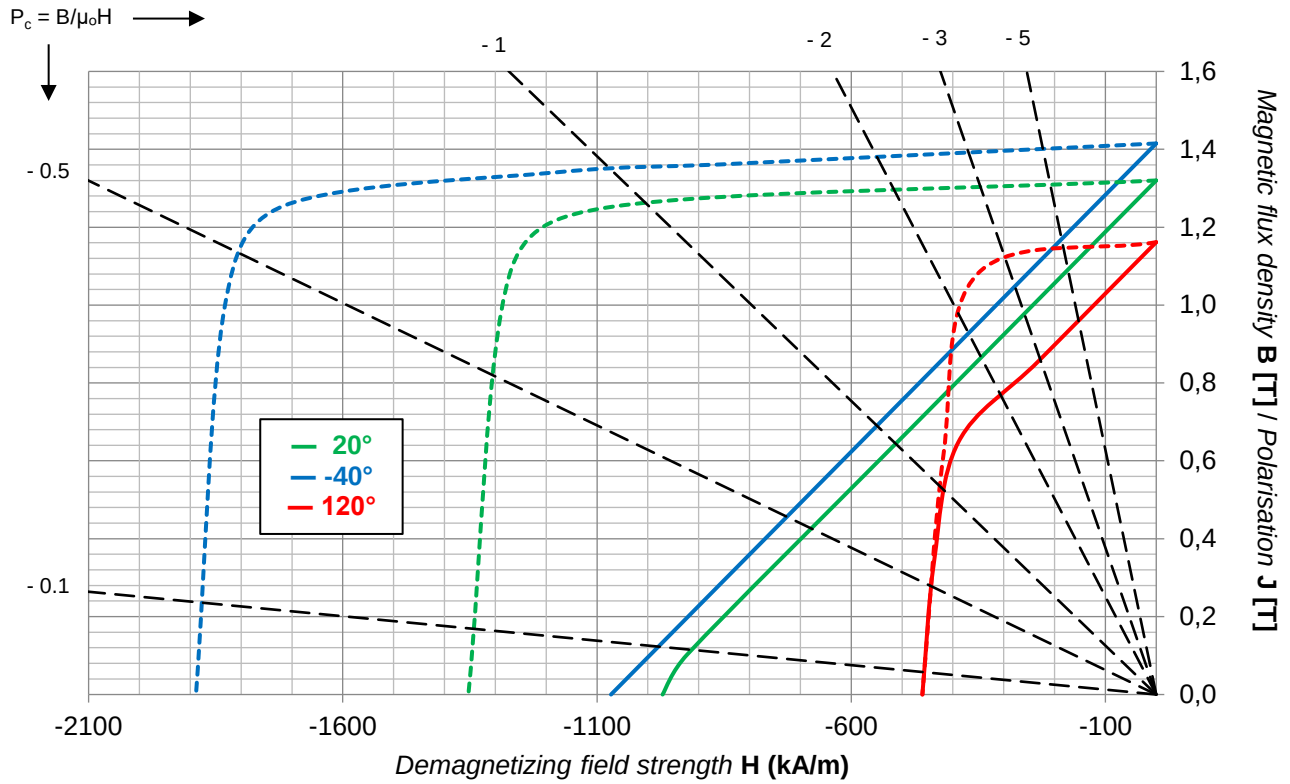
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N45H** – Anisotropic sintered

Demagnetization curve **N45H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	971	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	333	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

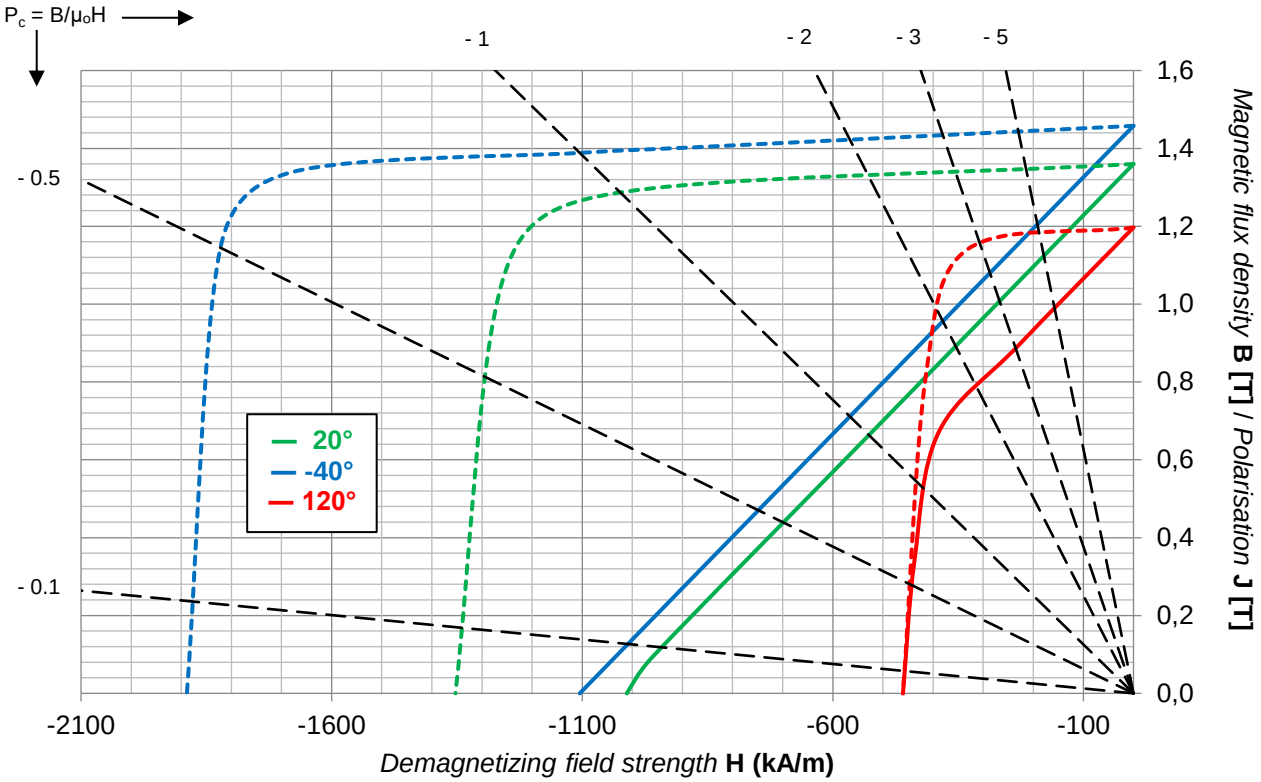
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N48H** – Anisotropic sintered

Demagnetization curve **N48H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.36	T
H_{cB}	min	1011	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	358	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

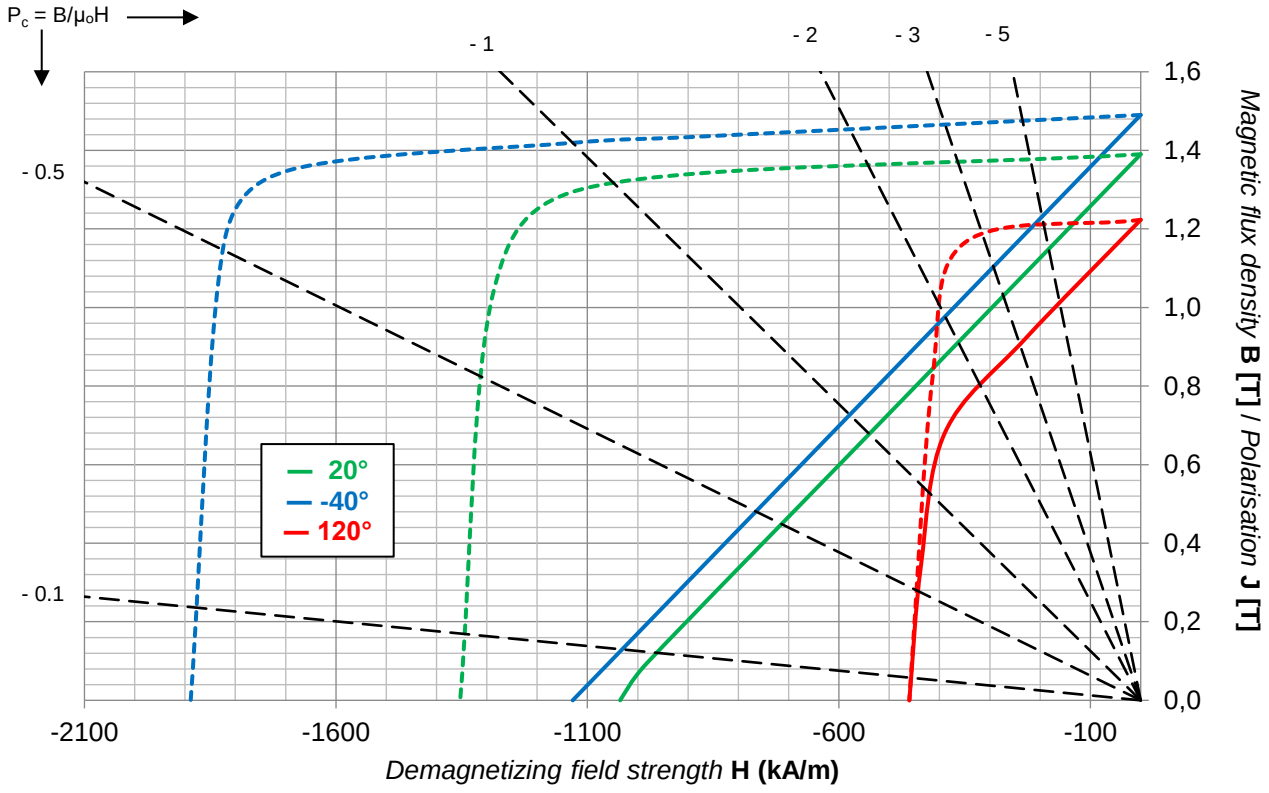
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N50H** – Anisotropic sintered

Demagnetization curve **N50H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.39	T
H_{cB}	min	1035	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	374	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

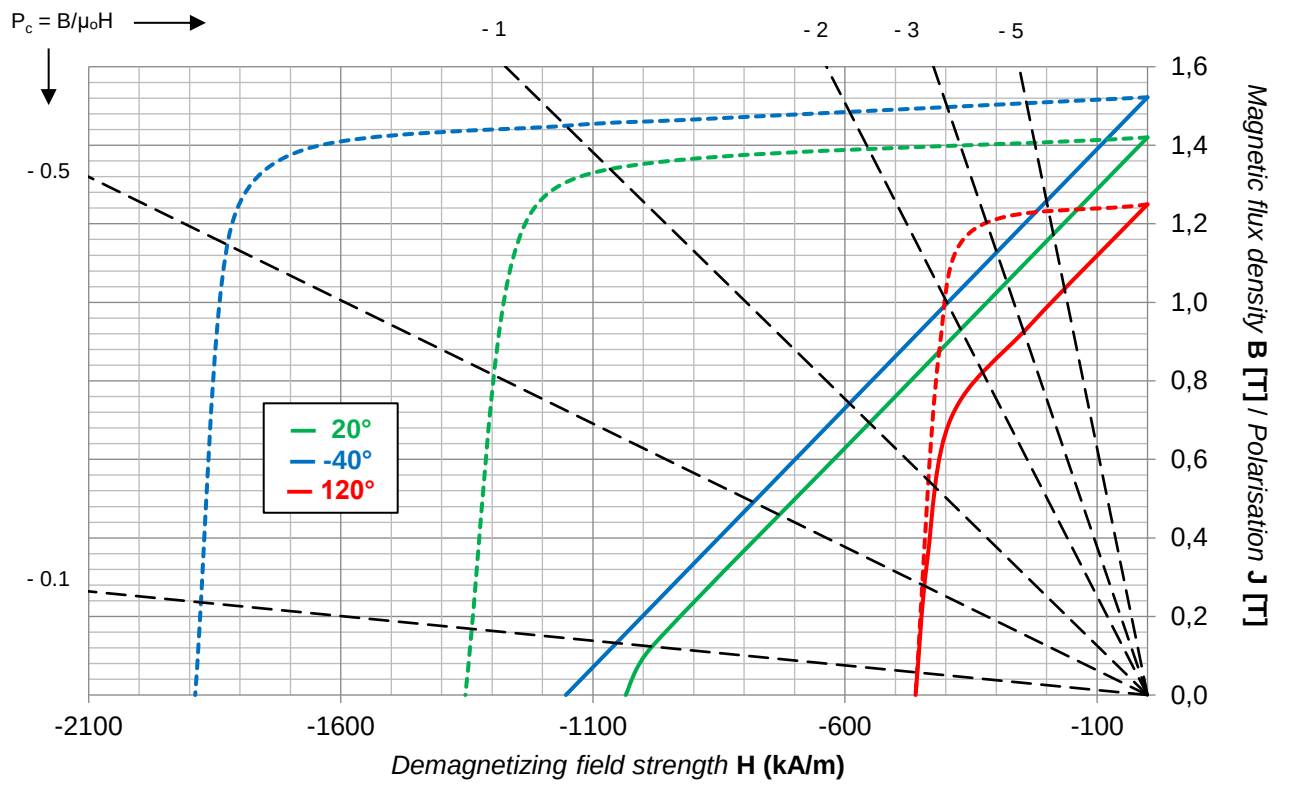
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N52H** – Anisotropic sintered

Demagnetization curve **N52H**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.42	T
H_{cB}	min	1035	kA/m
H_{cJ}	min	1353	kA/m
$(BH)_{max}$	min	390	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.66	%/°C
T_{max}		120	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

SH- grades

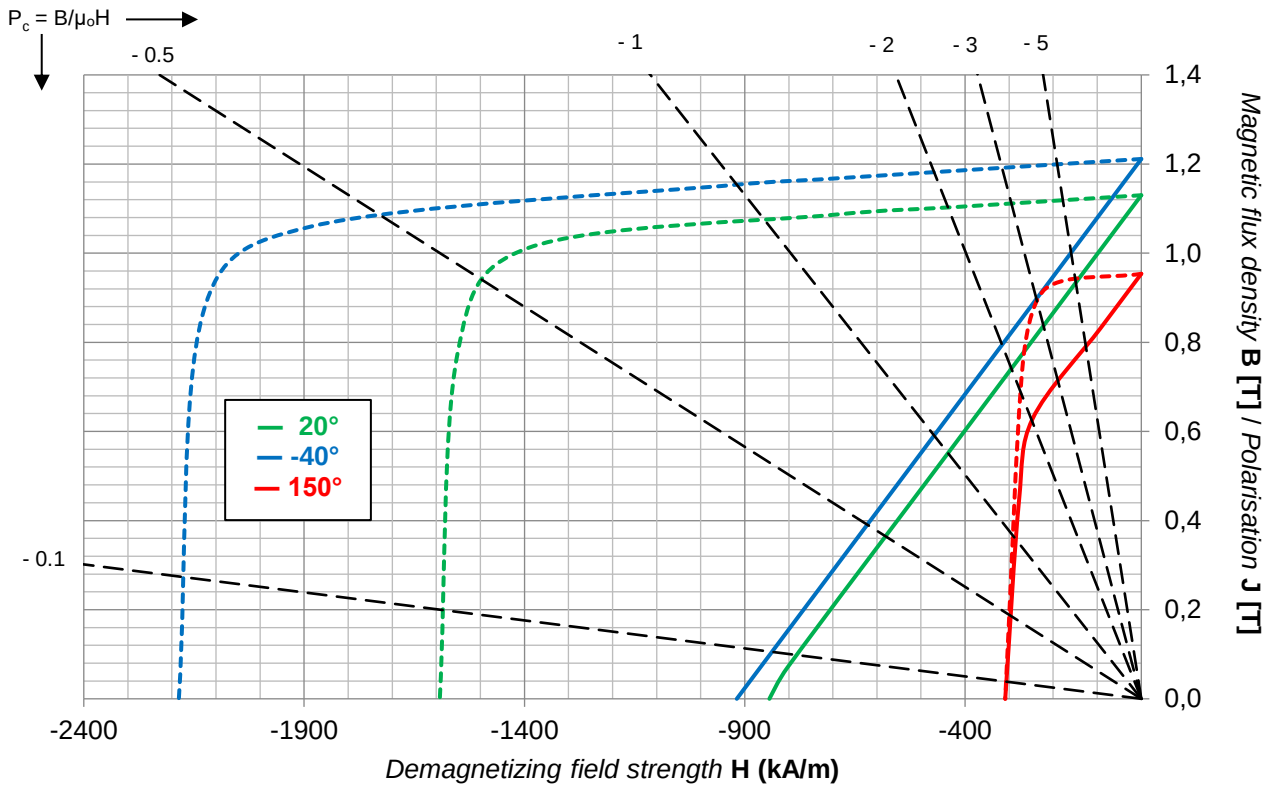
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N33SH	1130	844	1592	246	-0.12	-0.62	150
N35SH	1170	876	1592	259	-0.12	-0.62	150
N38SH	1220	907	1592	281	-0.12	-0.62	150
N40SH	1250	939	1592	300	-0.12	-0.62	150
N42SH	1280	955	1592	318	-0.12	-0.62	150
N45SH	1320	979	1592	333	-0.12	-0.62	150
N48SH	1360	995	1592	358	-0.12	-0.62	150
N50SH	1390	995	1592	374	-0.12	-0.62	150
N52SH	1420	995	1592	390	-0.12	-0.62	150

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N33SH** – Anisotropic sintered

Demagnetization curve **N33SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.13	T
H_{cB}	min	844	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	246	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

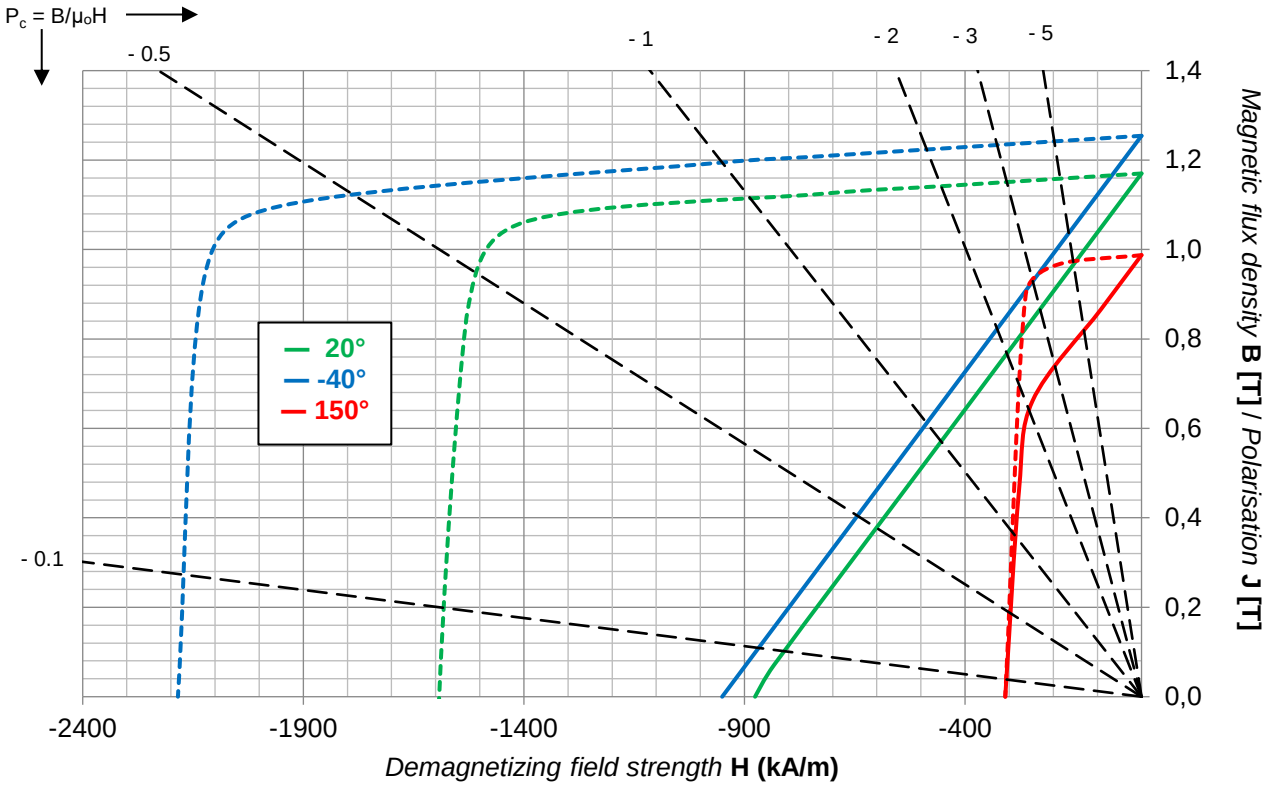
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35SH** – Anisotropic sintered

Demagnetization curve **N35SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	876	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

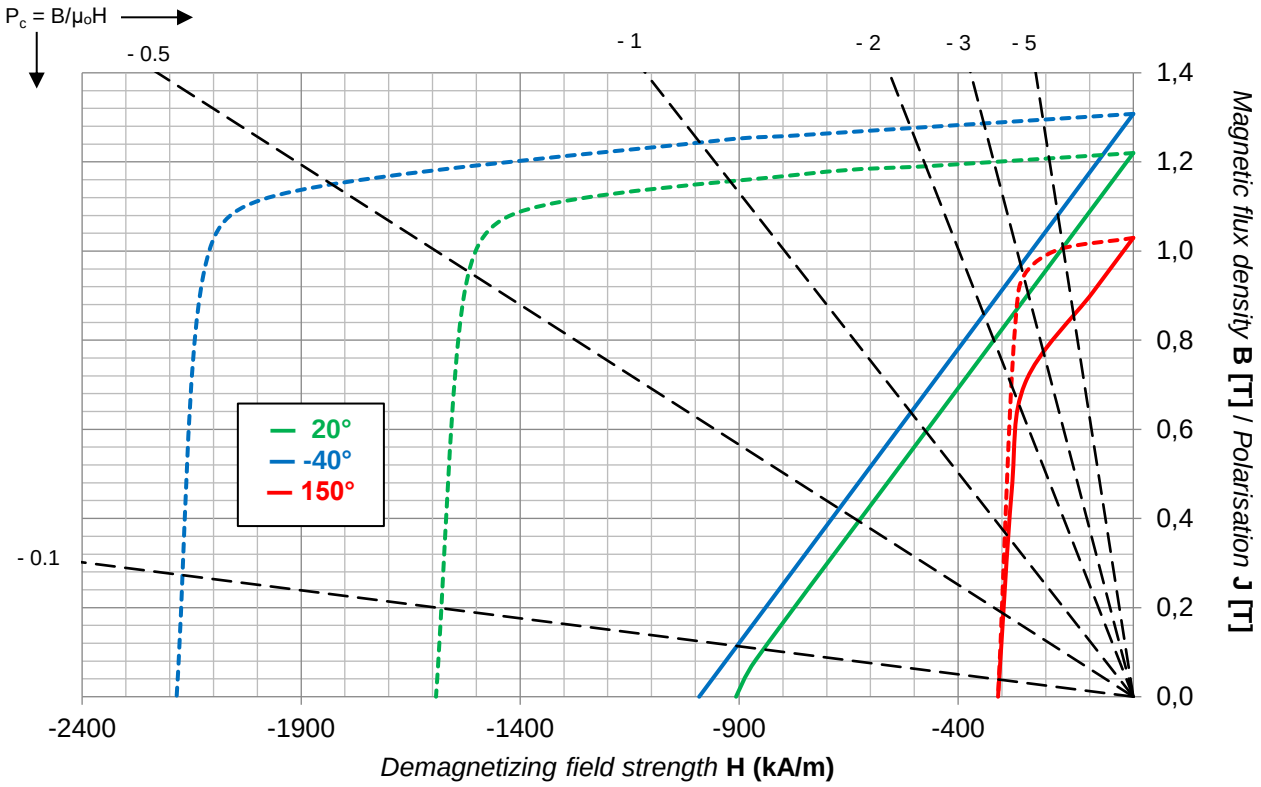
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38SH** – Anisotropic sintered

Demagnetization curve **N38SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

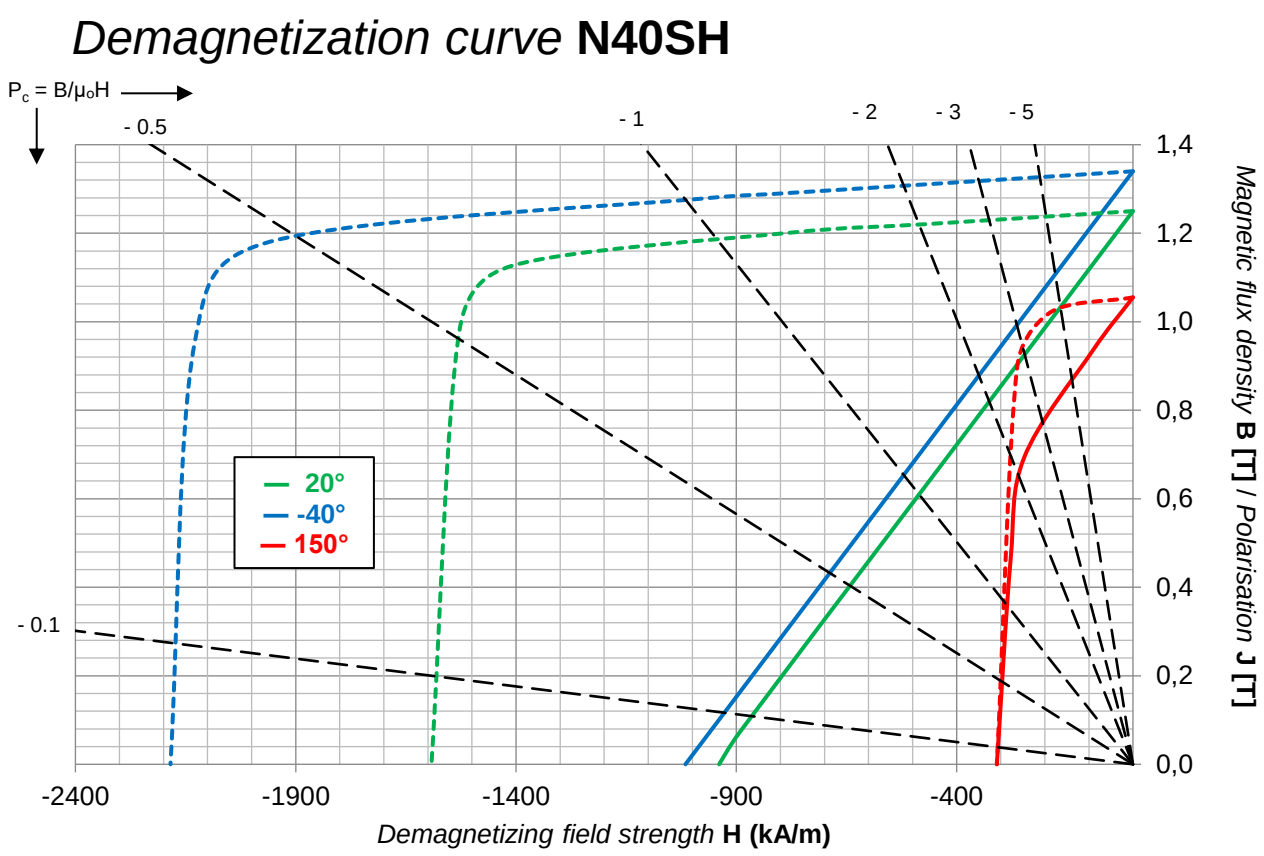
Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	907	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40SH** – Anisotropic sintered



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

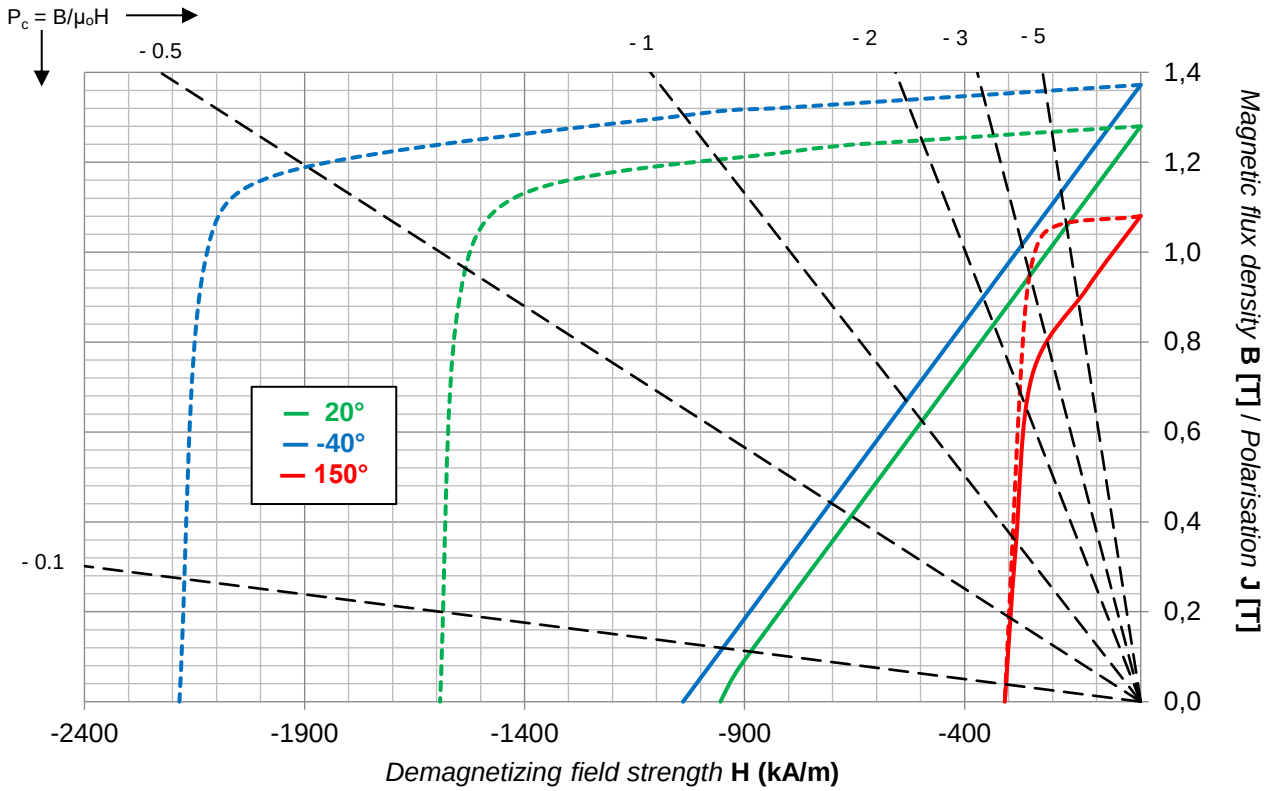
Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	939	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42SH** – Anisotropic sintered



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.28	T
H_{cB}	min	955	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

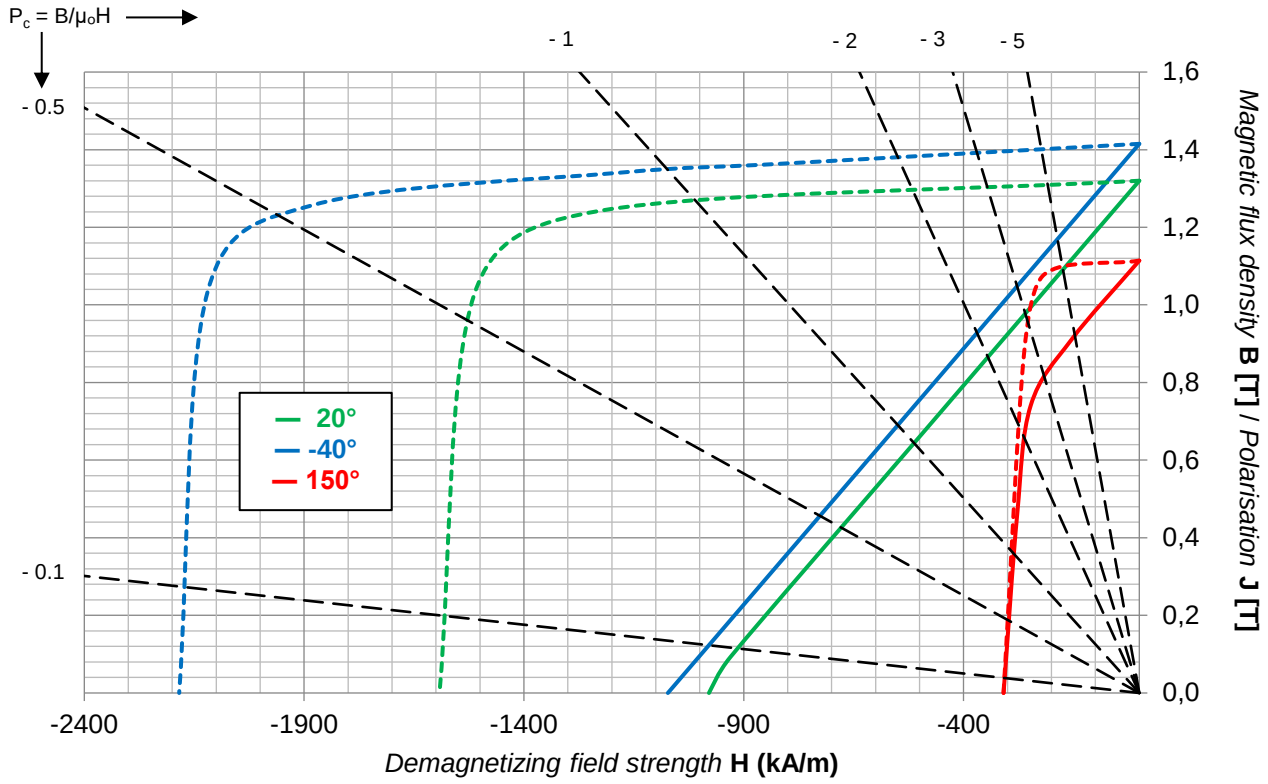
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N45SH** – Anisotropic sintered

Demagnetization curve **N45SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	979	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	333	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

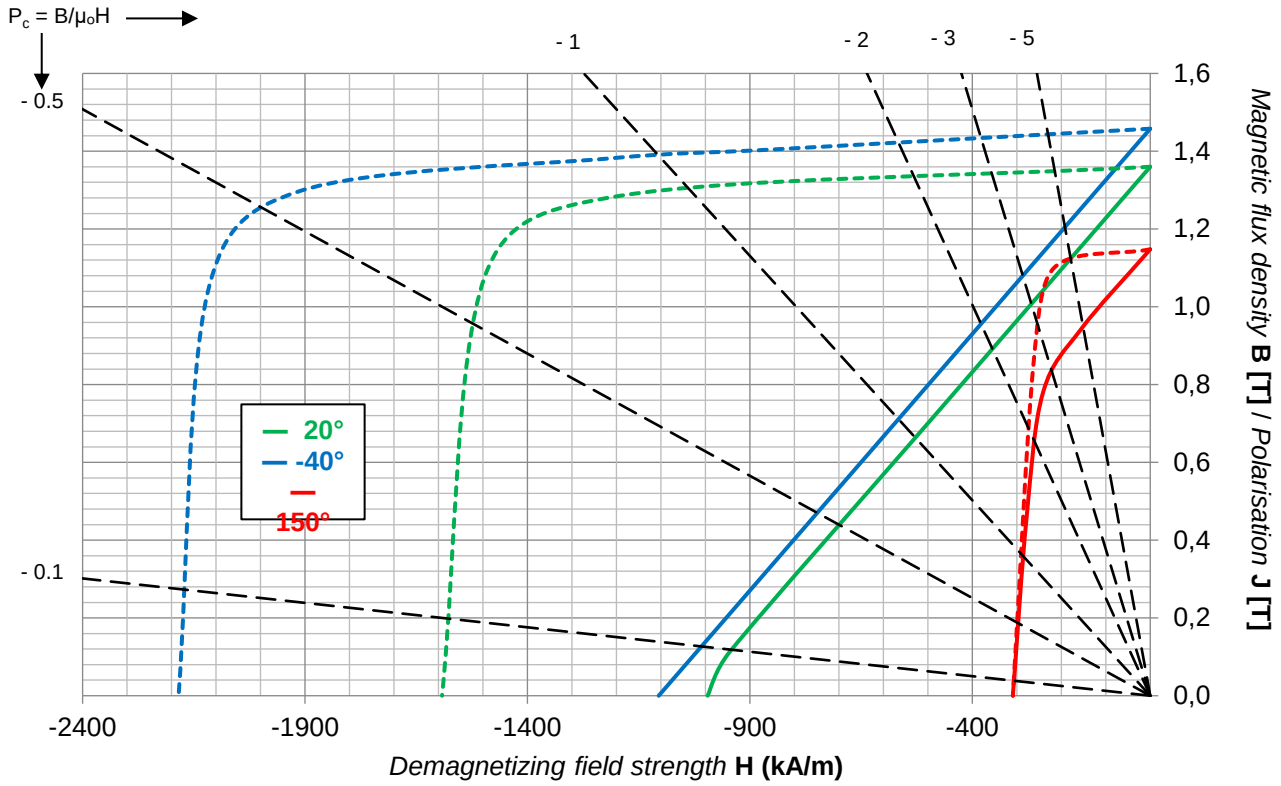
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N48SH** – Anisotropic sintered

Demagnetization curve **N48SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.36	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	358	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

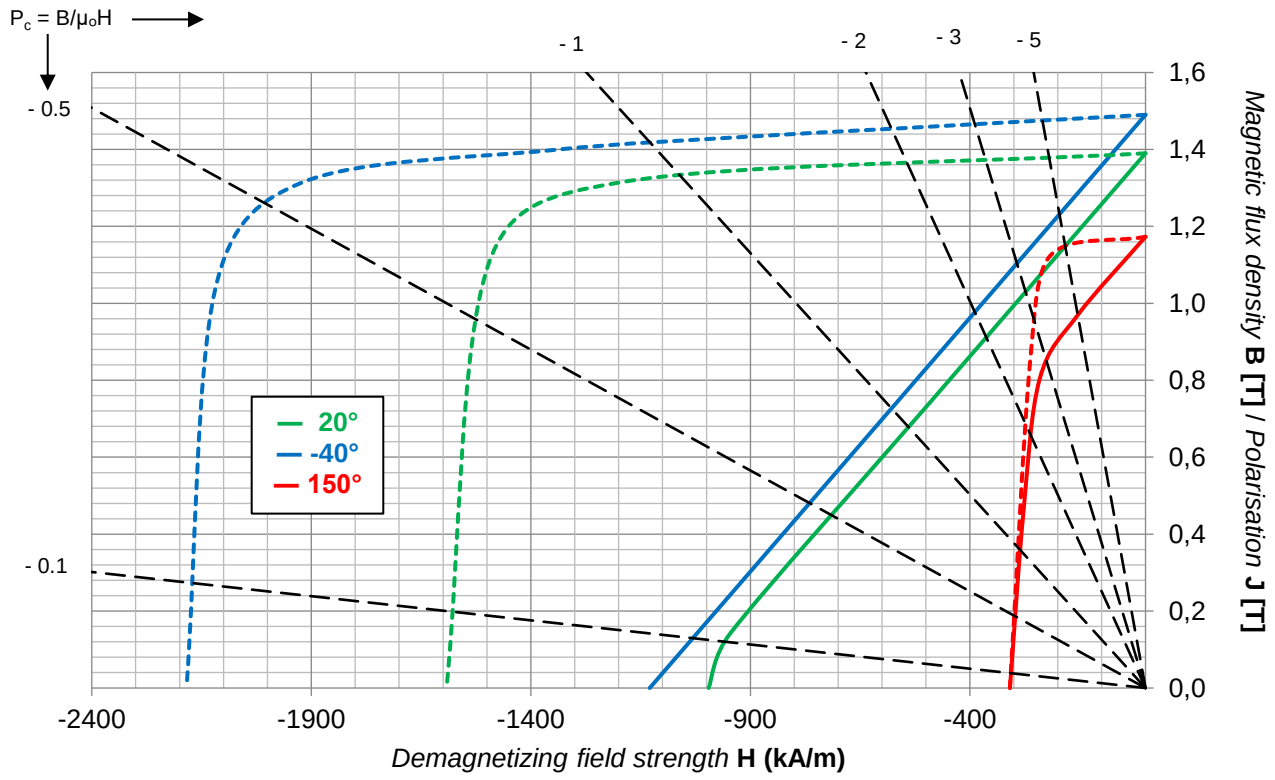
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N50SH** – Anisotropic sintered

Demagnetization curve **N50SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.39	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	374	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

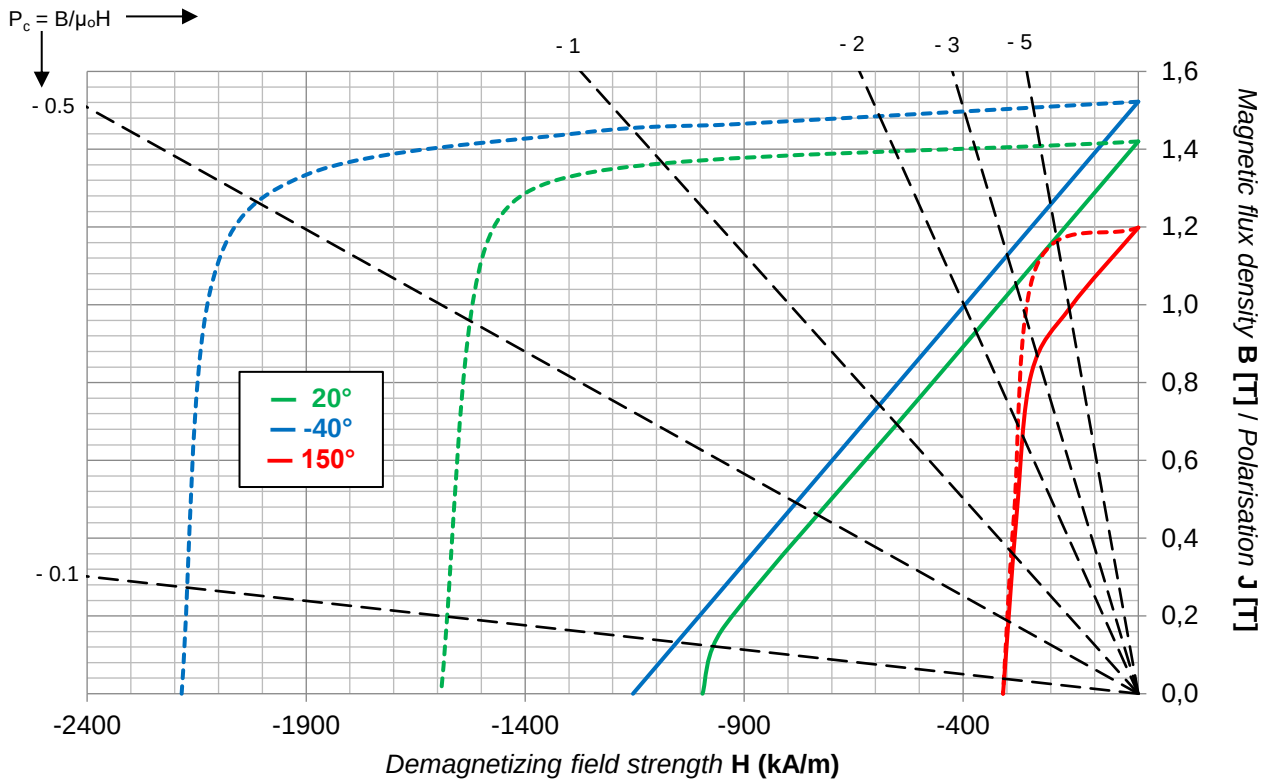
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N52SH** – Anisotropic sintered

Demagnetization curve **N52SH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.42	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1592	kA/m
$(BH)_{max}$	min	390	kJ/m^3
$\alpha(B_r)$	min typ	-0.12	%/°C
$\beta(H_{cJ})$	min typ	-0.62	%/°C
T_{max}		150	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

UH- grades

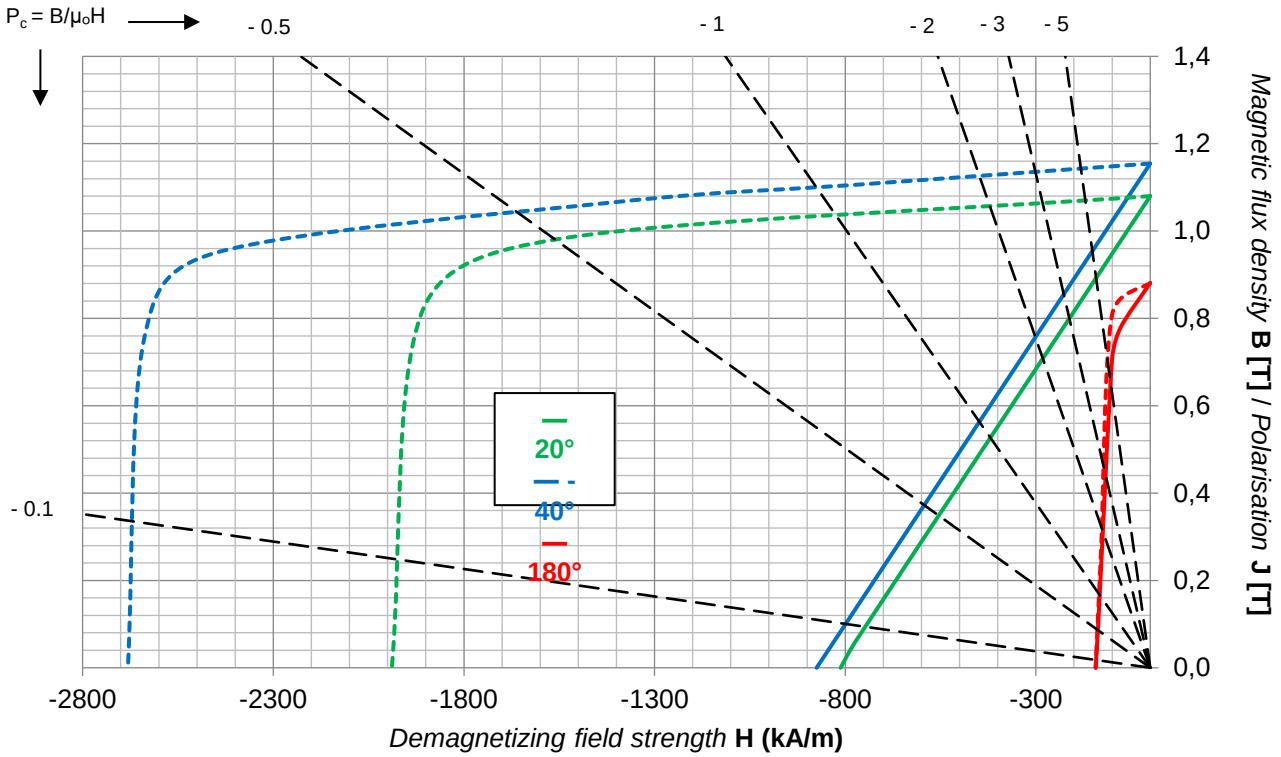
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N30UH	1080	812	1989	220	-0.115	-0.58	180
N33UH	1130	852	1989	246	-0.115	-0.58	180
N35UH	1170	860	1989	259	-0.115	-0.58	180
N38UH	1220	876	1989	281	-0.115	-0.58	180
N40UH	1250	915	1989	300	-0.115	-0.58	180
N42UH	1270	955	1989	318	-0.115	-0.58	180
N45UH	1320	995	1989	333	-0.115	-0.58	180
N48UH	1370	995	1989	358	-0.115	-0.58	180
N50UH	1390	995	1989	374	-0.115	-0.58	180

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N30UH** – Anisotropic sintered

Demagnetization curve **N30UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.08	T
H_{cB}	min	812	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	220	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

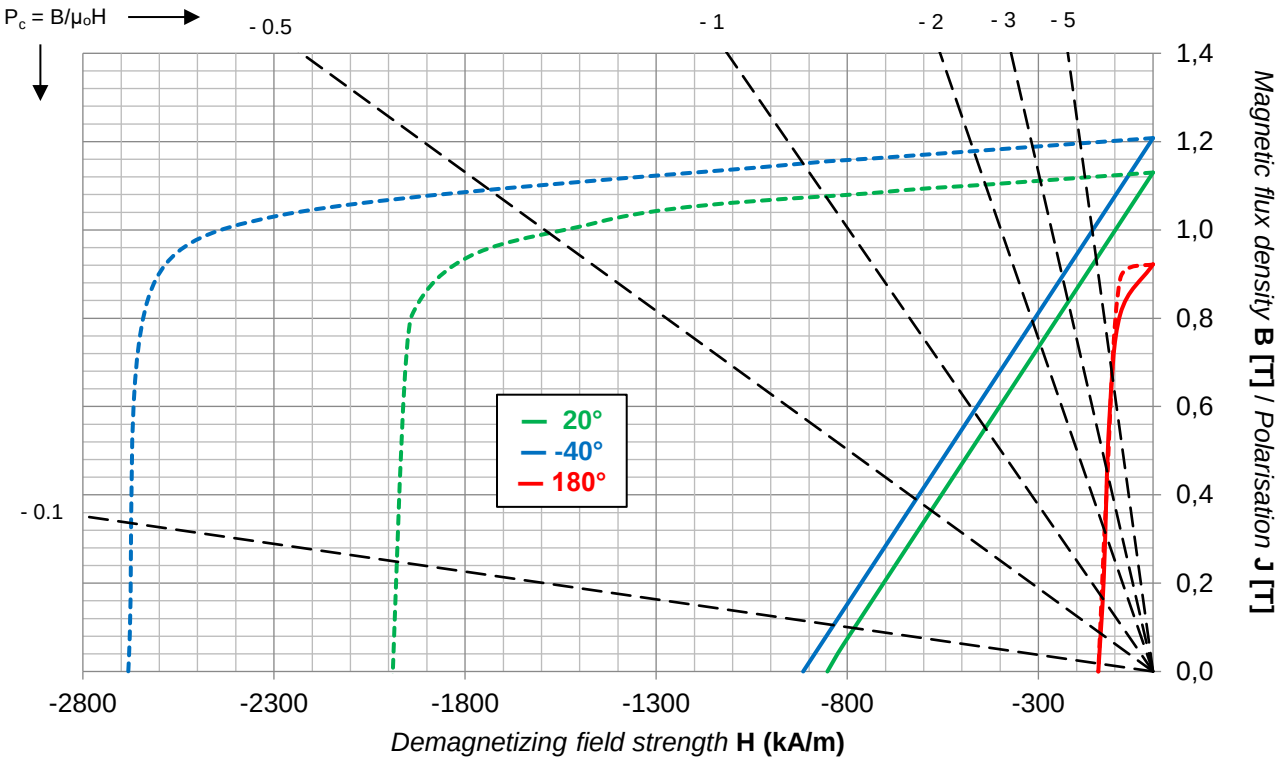
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N33UH** – Anisotropic sintered

Demagnetization curve **N33UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.13	T
H_{cB}	min	852	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	246	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

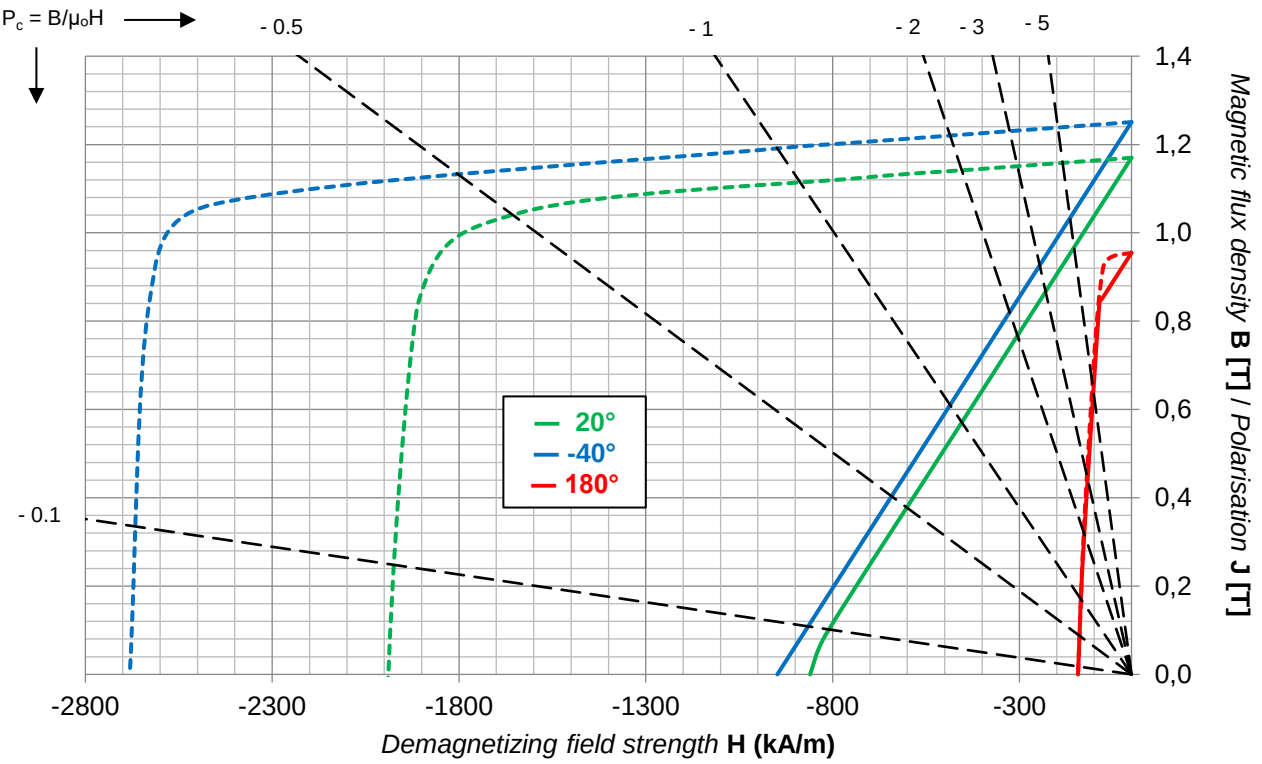
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35UH** – Anisotropic sintered

Demagnetization curve **N35UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	860	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

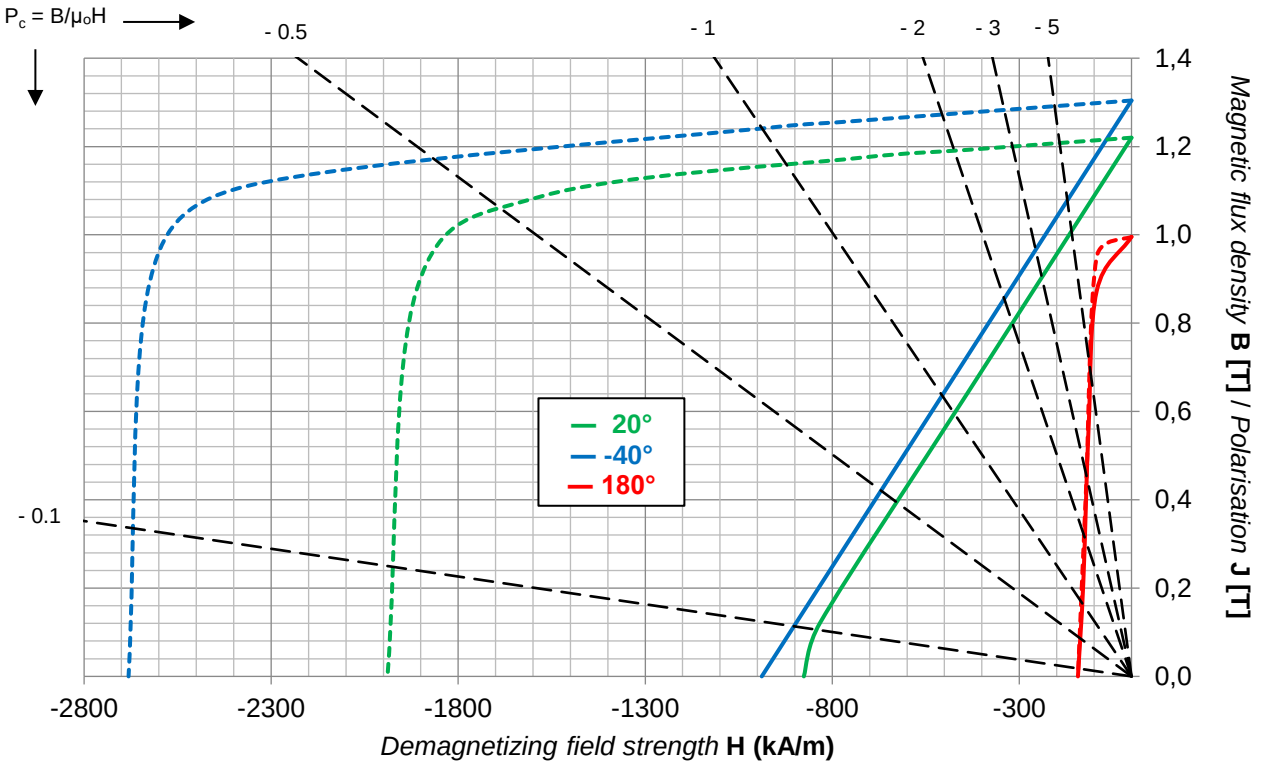
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38UH** – Anisotropic sintered

Demagnetization curve **N38UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	876	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

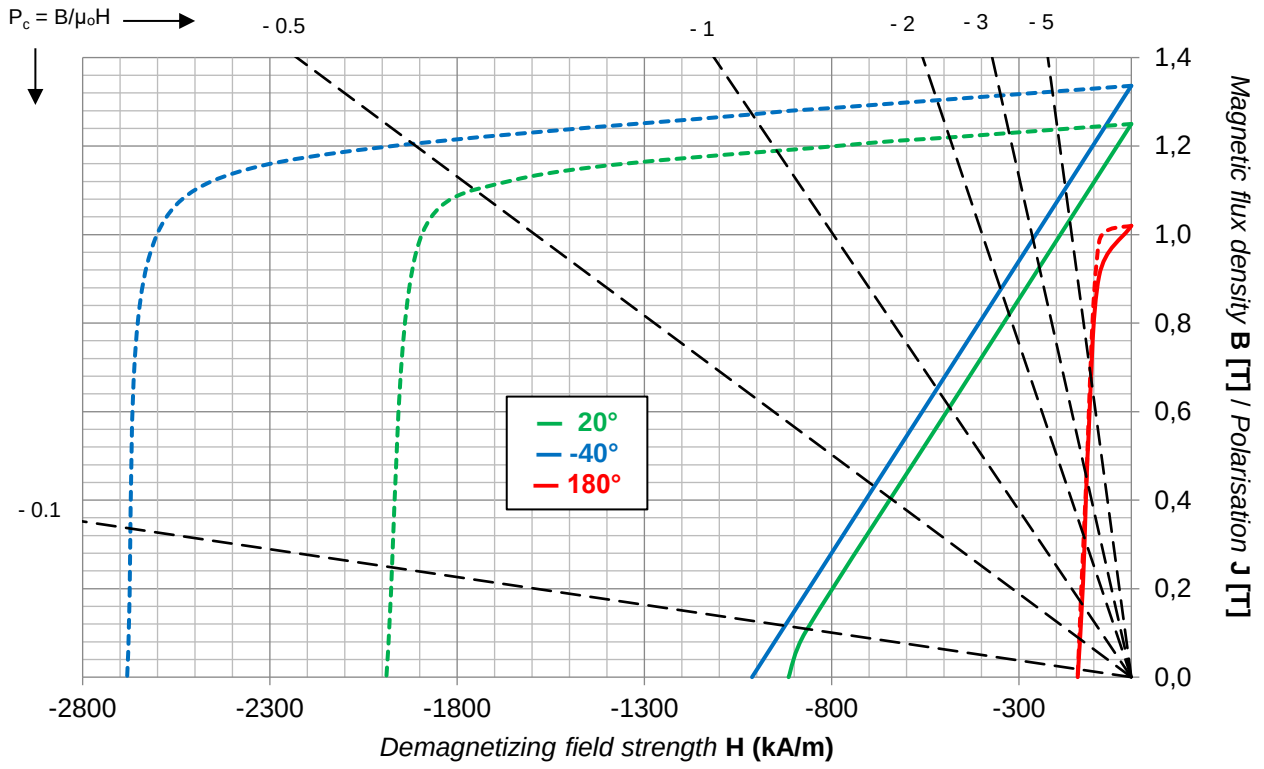
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40UH** – Anisotropic sintered

Demagnetization curve **N40UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	915	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

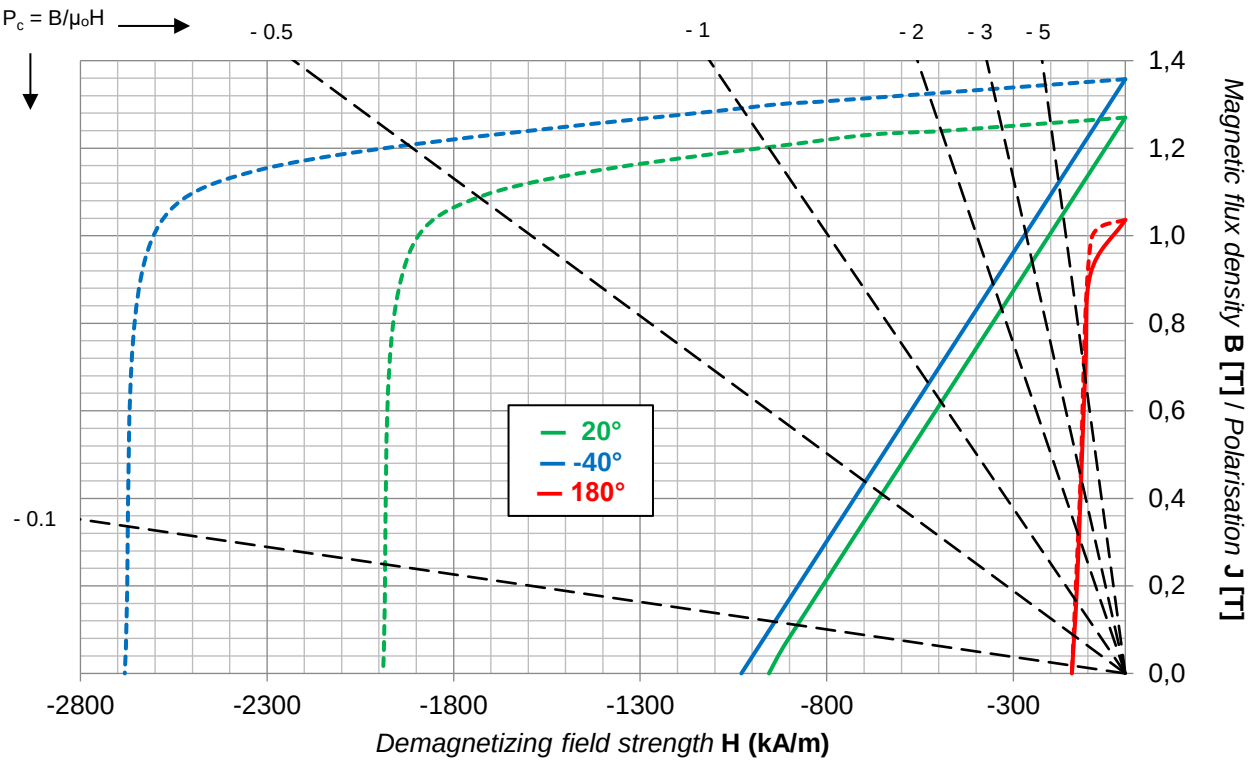
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42UH** – Anisotropic sintered

Demagnetization curve **N42UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.27	T
H_{cB}	min	955	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

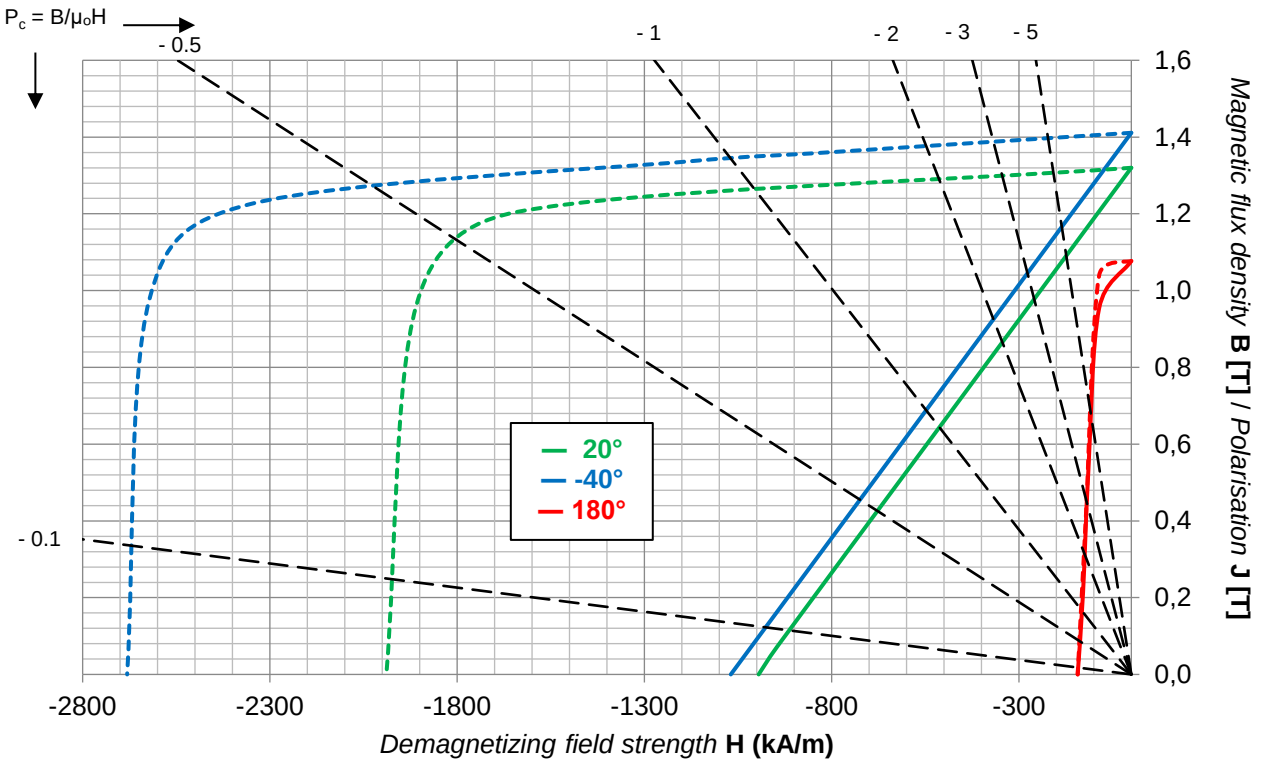
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

ssue date: 10-3-2023

Technical datasheet: Neodymium **N45UH** – Anisotropic sintered

Demagnetization curve **N45UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	333	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

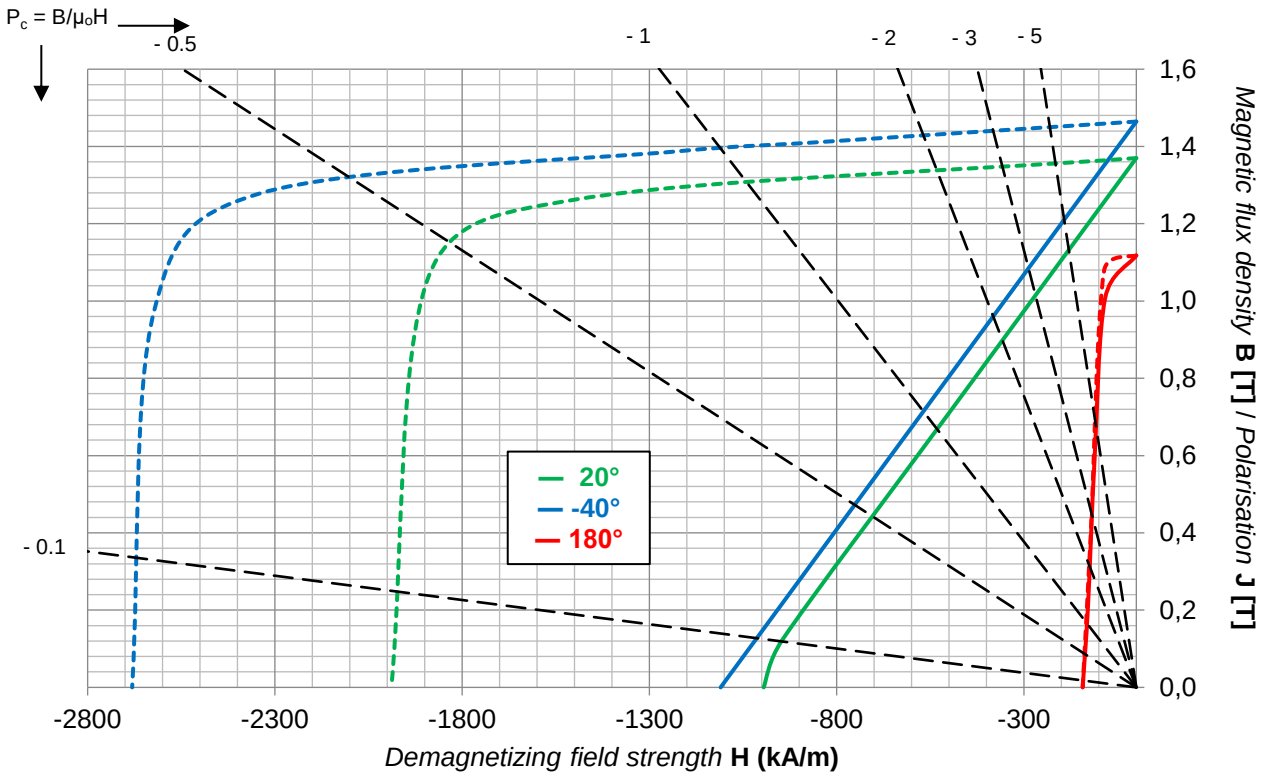
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N48UH** – Anisotropic sintered

Demagnetization curve **N48UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.37	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	358	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

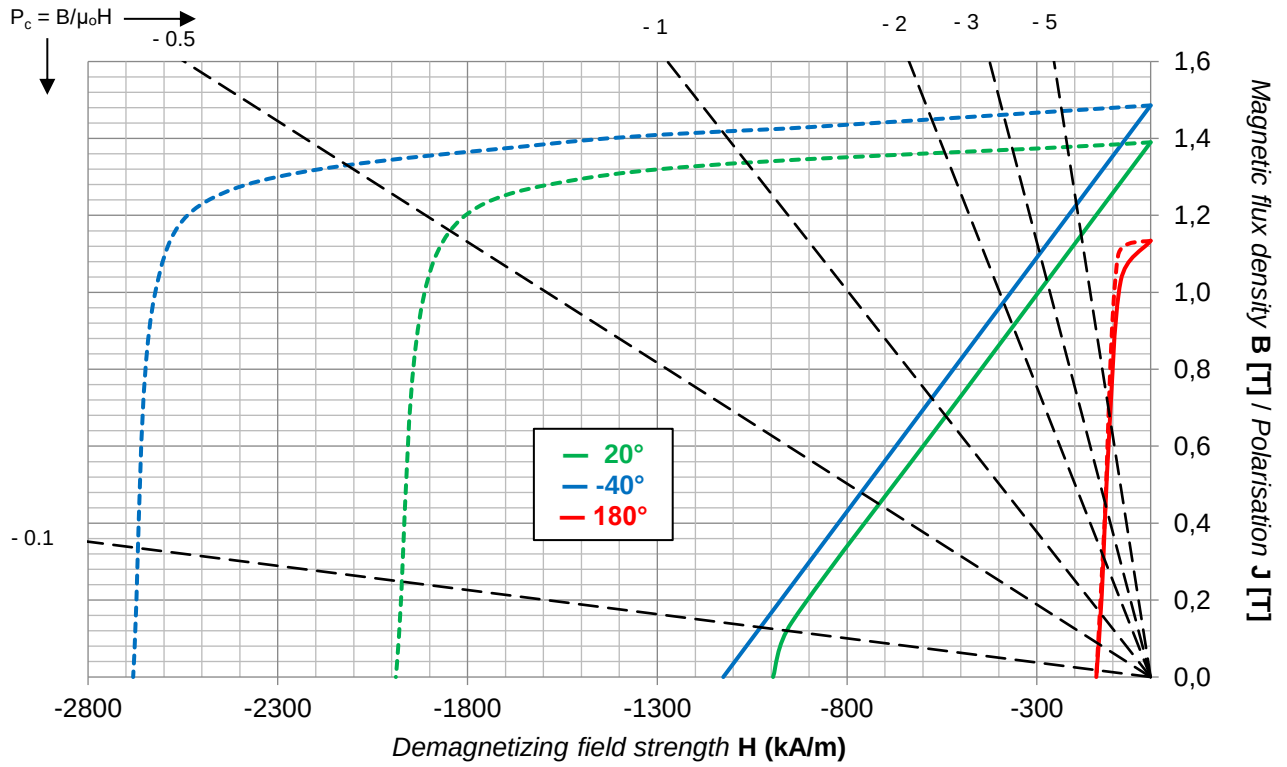
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N50UH** – Anisotropic sintered

Demagnetization curve **N50UH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.39	T
H_{cB}	min	995	kA/m
H_{cJ}	min	1989	kA/m
$(BH)_{max}$	min	374	kJ/m^3
$\alpha(B_r)$	min typ	-0.115	%/°C
$\beta(H_{cJ})$	min typ	-0.58	%/°C
T_{max}		180	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

EH- grades

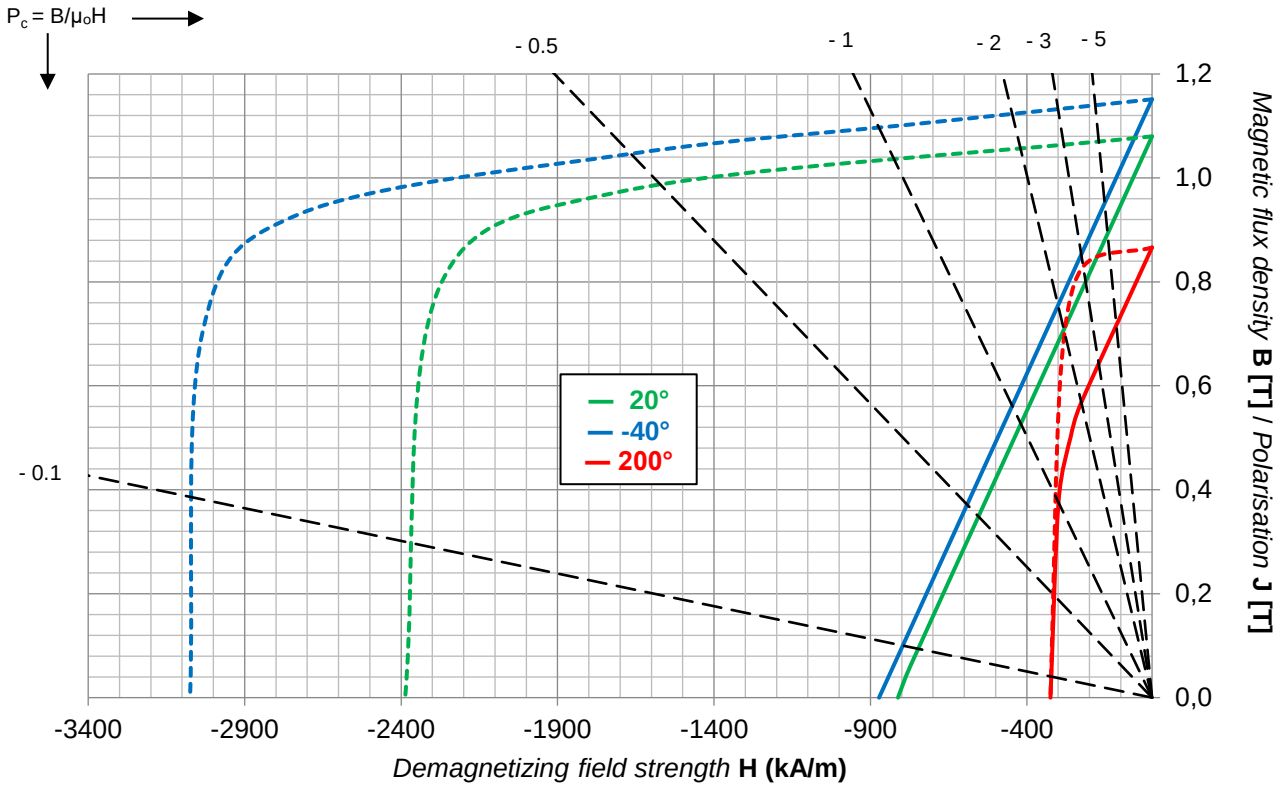
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N30EH	1080	812	2387	220	-0.11	-0.48	200
N33EH	1130	820	2387	246	-0.11	-0.48	200
N35EH	1170	836	2387	259	-0.11	-0.48	200
N38EH	1200	899	2387	281	-0.11	-0.48	200
N40EH	1250	915	2387	300	-0.11	-0.48	200
N42EH	1270	971	2387	318	-0.11	-0.48	200
N45EH	1320	971	2387	333	-0.11	-0.48	200

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N30EH** – Anisotropic sintered

Demagnetization curve **N30EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.08	T
H_{cB}	min	812	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	220	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

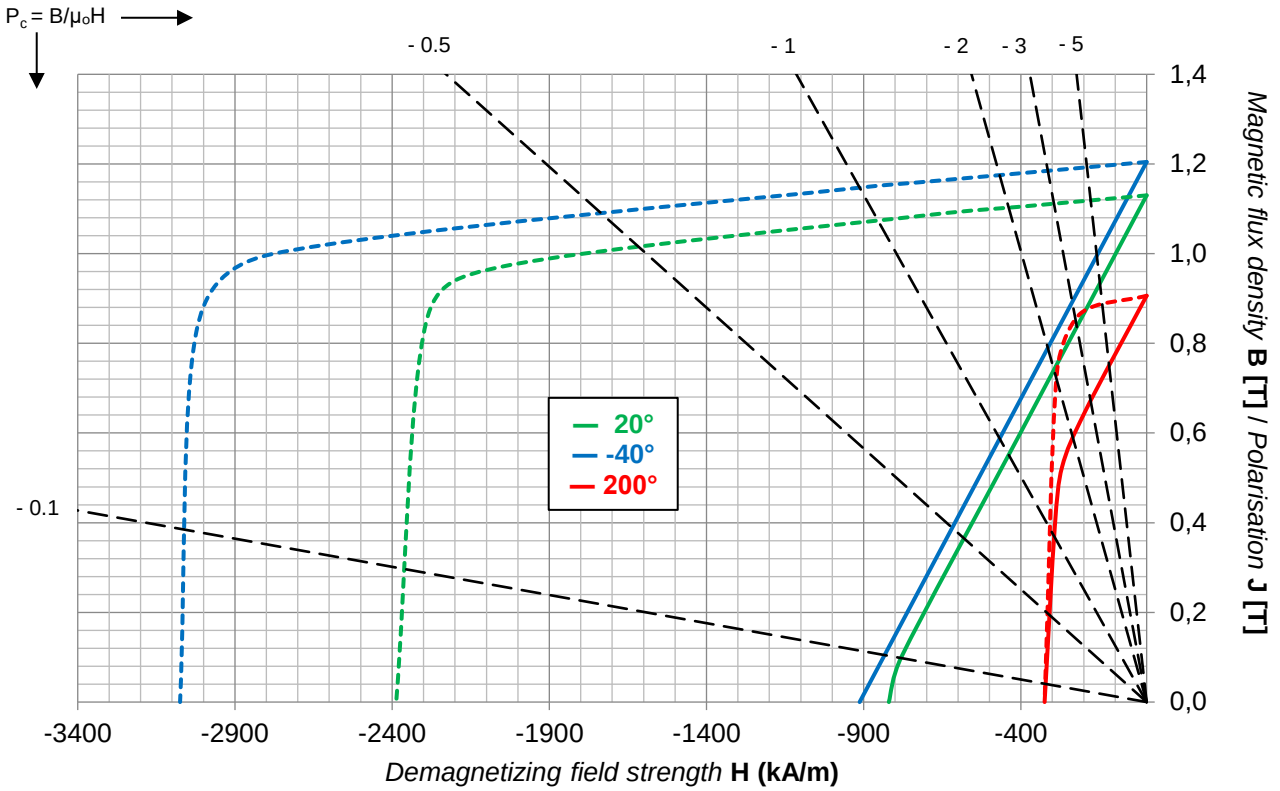
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N33EH** – Anisotropic sintered

Demagnetization curve **N33EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.13	T
H_{cB}	min	820	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	246	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

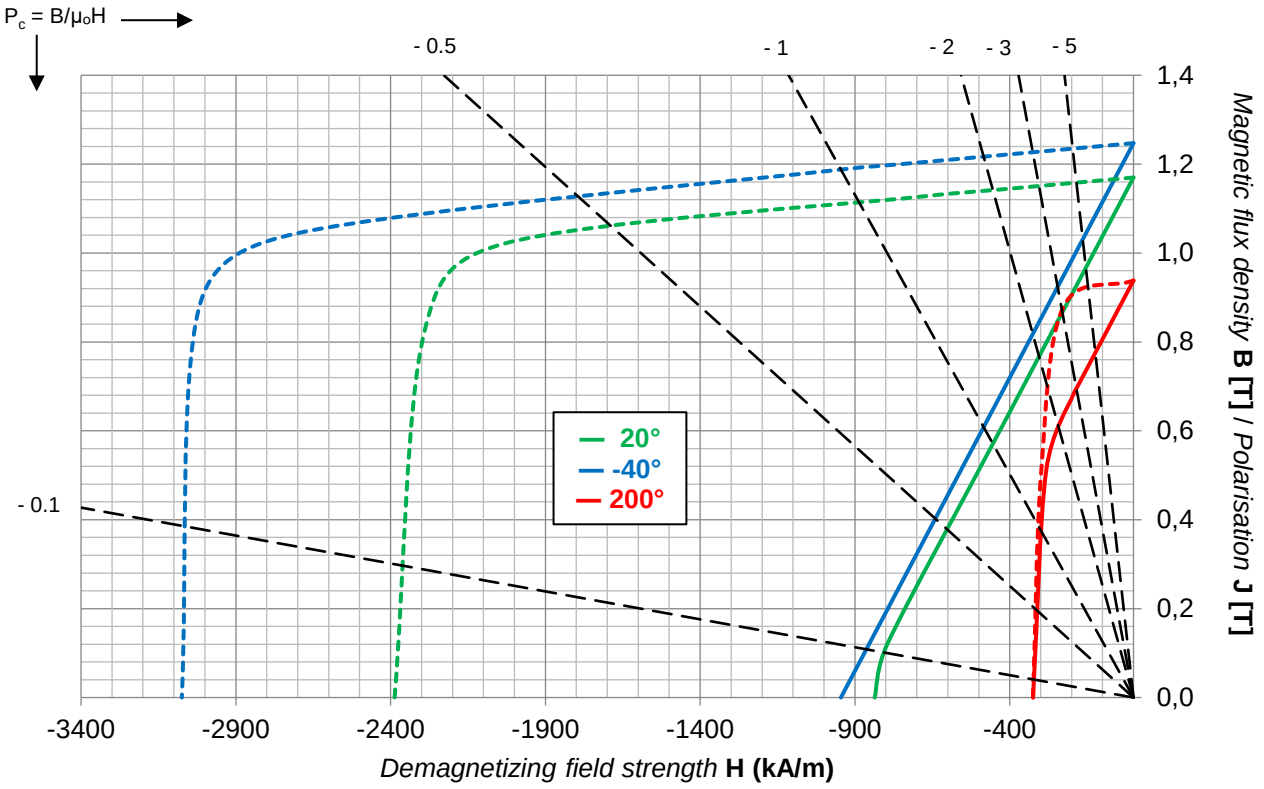
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35EH** – Anisotropic sintered

Demagnetization curve **N35EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	836	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

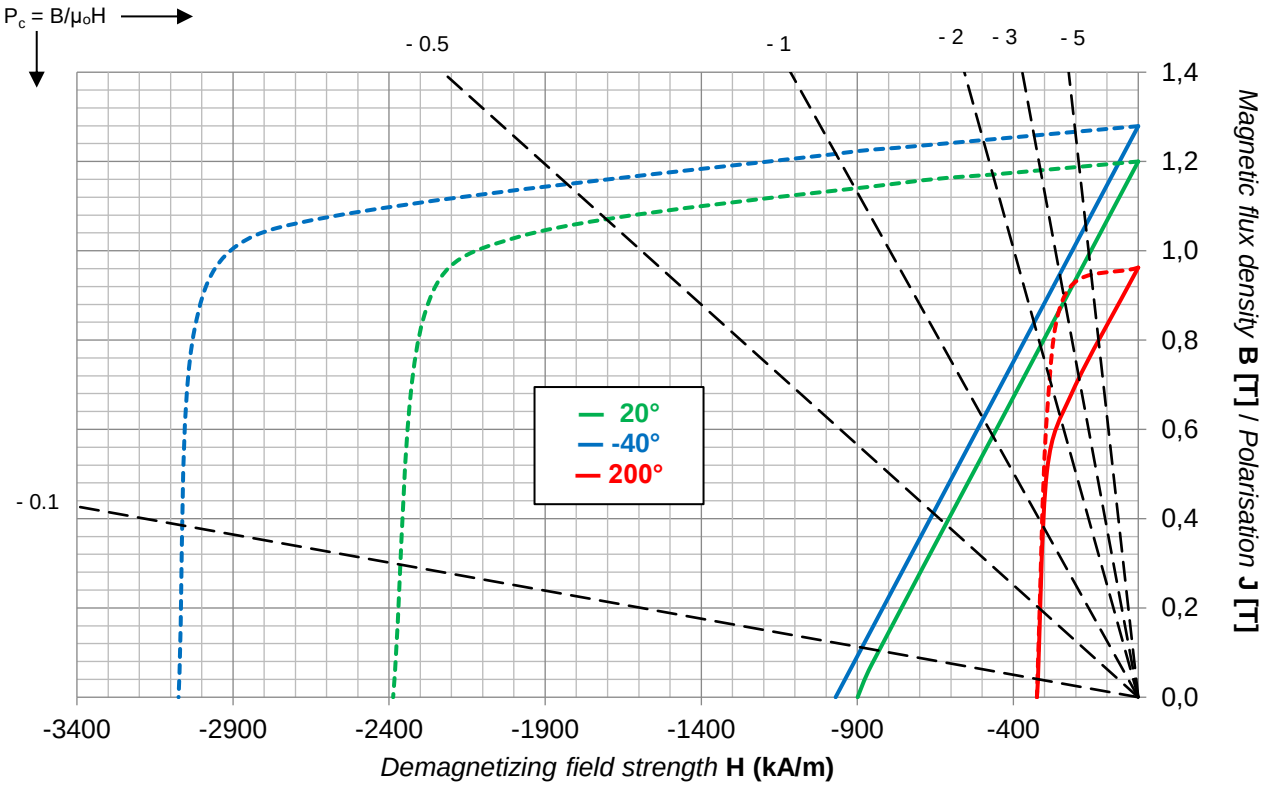
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38EH** – Anisotropic sintered

Demagnetization curve **N38EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.20	T
H_{cB}	min	899	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

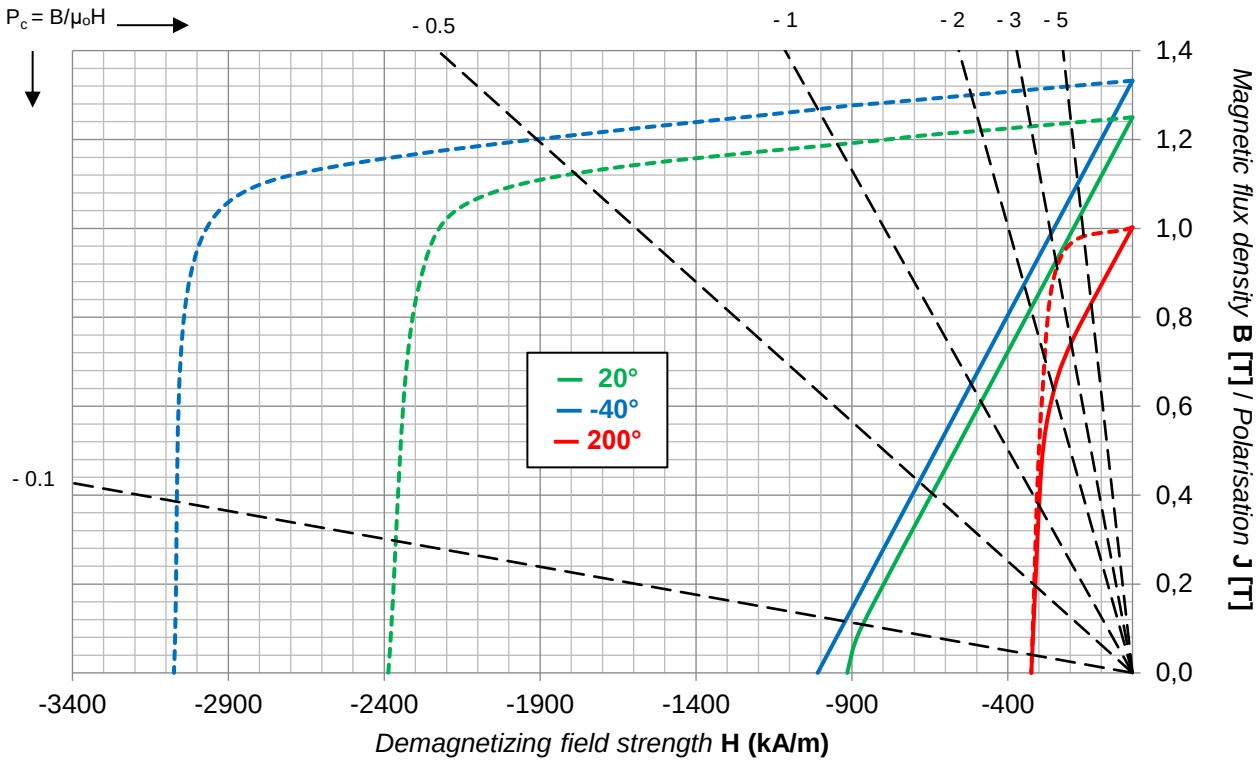
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40EH** – Anisotropic sintered

Demagnetization curve **N40EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	915	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

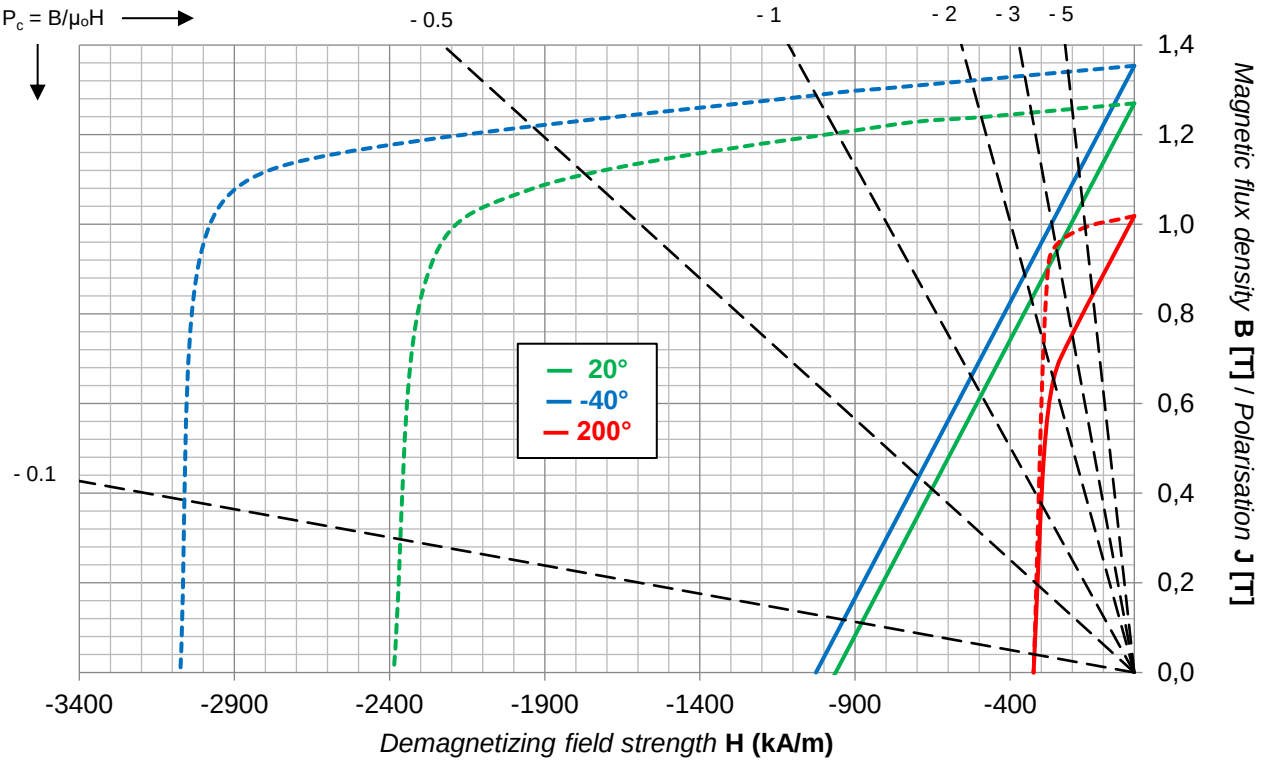
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42EH** – Anisotropic sintered

Demagnetization curve **N42EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.27	T
H_{cB}	min	971	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

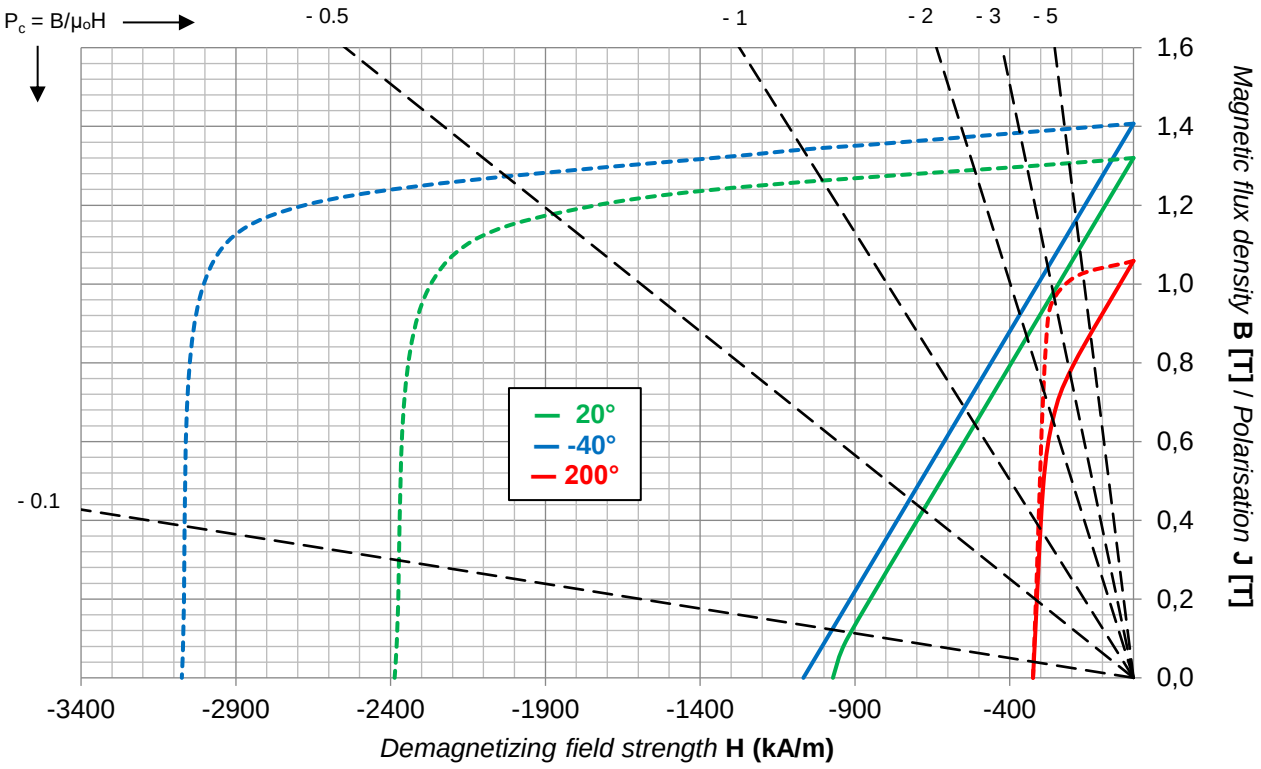
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N45EH** – Anisotropic sintered

Demagnetization curve **N45EH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.32	T
H_{cB}	min	971	kA/m
H_{cJ}	min	2387	kA/m
$(BH)_{max}$	min	333	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.48	%/°C
T_{max}		200	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

AH-grades

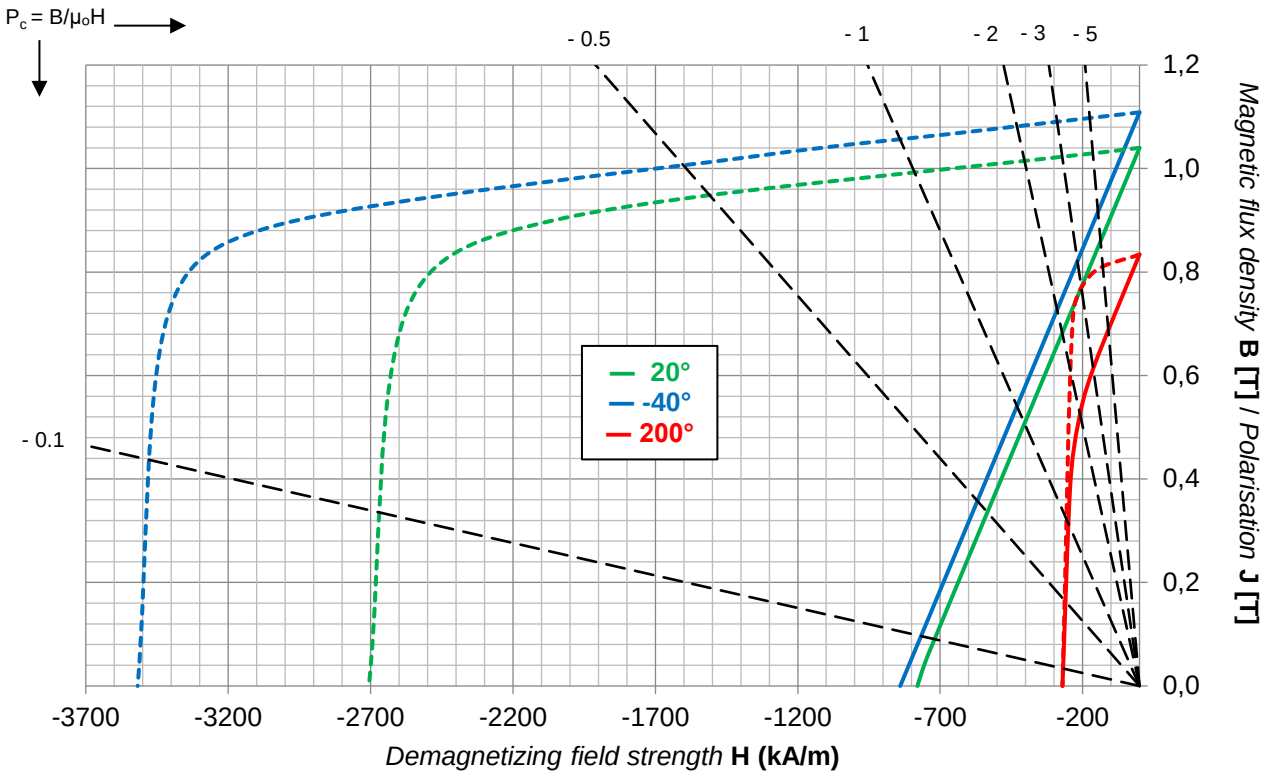
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N28AH	1040	780	2706	204	-0.11	-0.50	220
N30AH	1080	812	2706	220	-0.11	-0.50	220
N33AH	1140	812	2706	246	-0.11	-0.50	220
N35AH	1170	883	2706	259	-0.11	-0.50	220
N38AH	1200	923	2706	281	-0.11	-0.50	220
N40AH	1250	923	2706	300	-0.11	-0.50	220
N42AH	1280	923	2706	318	-0.11	-0.50	220

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N28AH** – Anisotropic sintered

Demagnetization curve **N28AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.04	T
H_{cB}	min	780	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	204	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

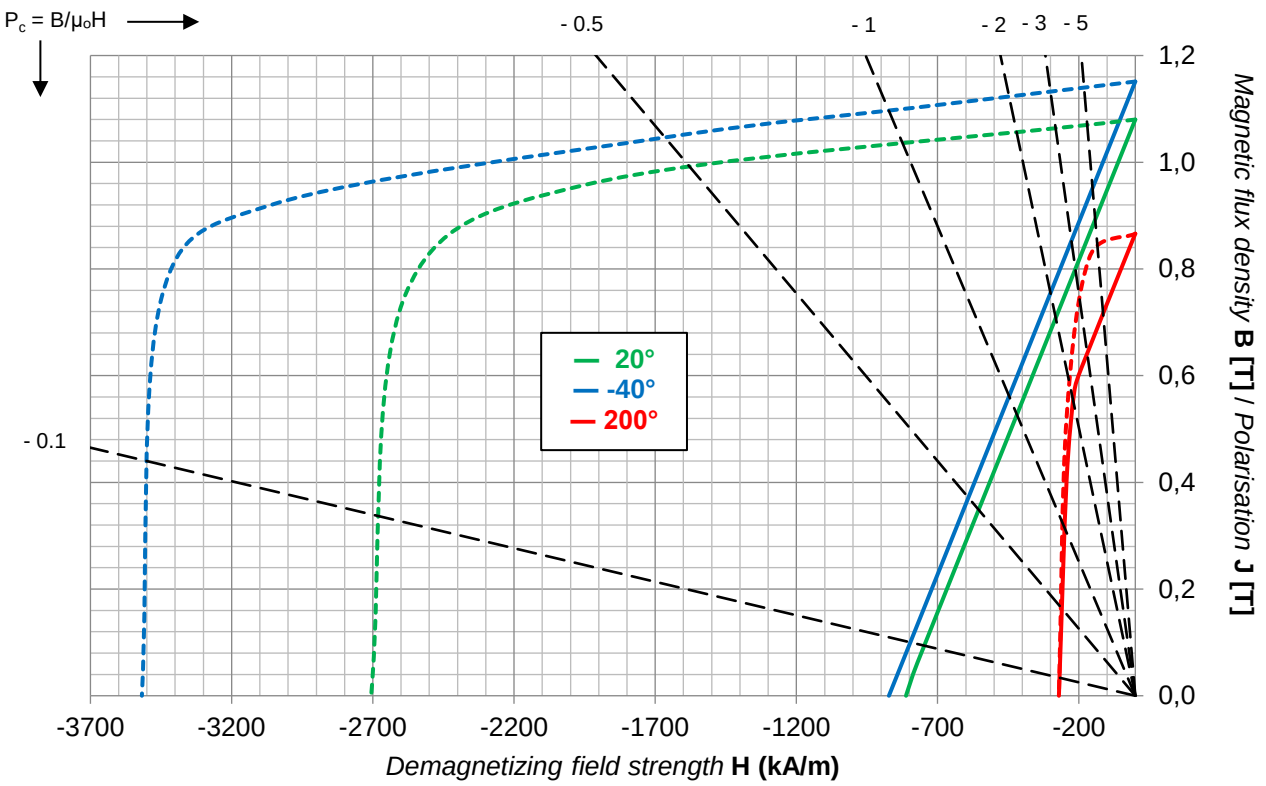
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N30AH** – Anisotropic sintered

Demagnetization curve **N30AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.08	T
H_{cB}	min	812	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	220	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

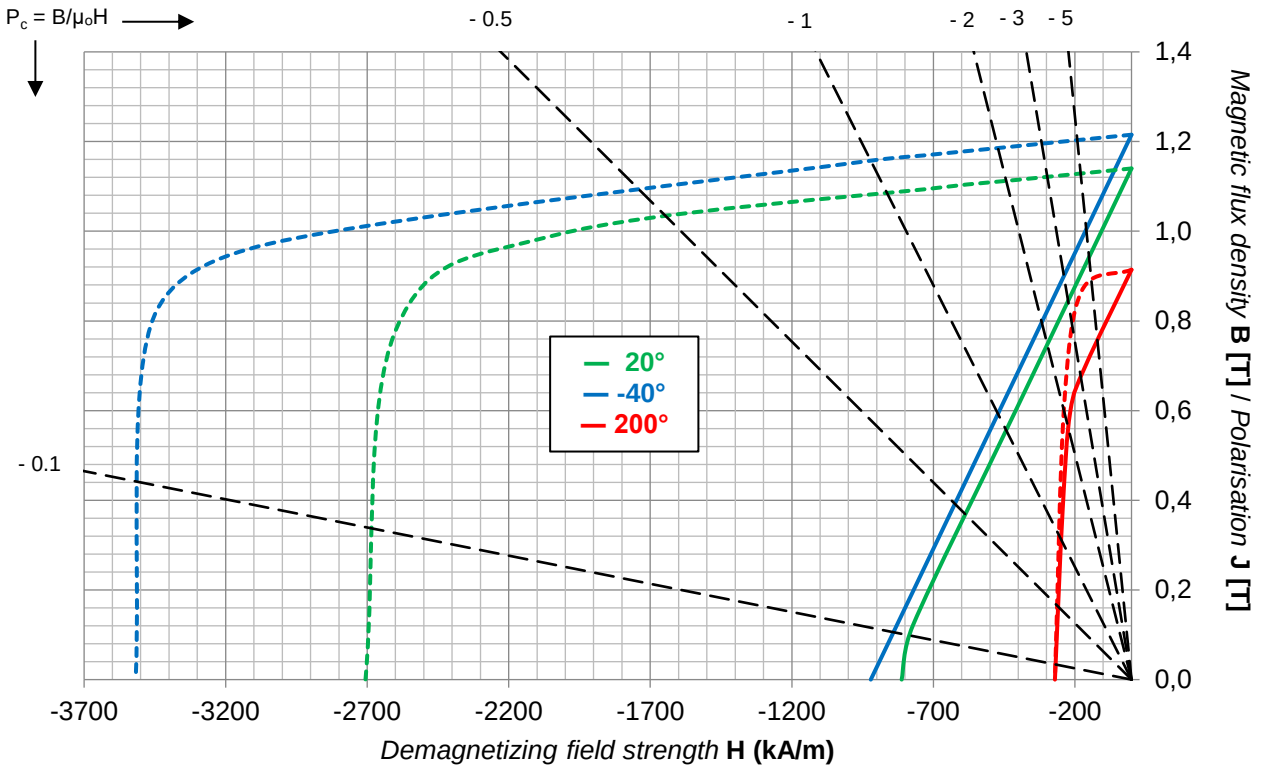
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N33AH** – Anisotropic sintered

Demagnetization curve **N33AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.14	T
H_{cB}	min	812	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	246	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

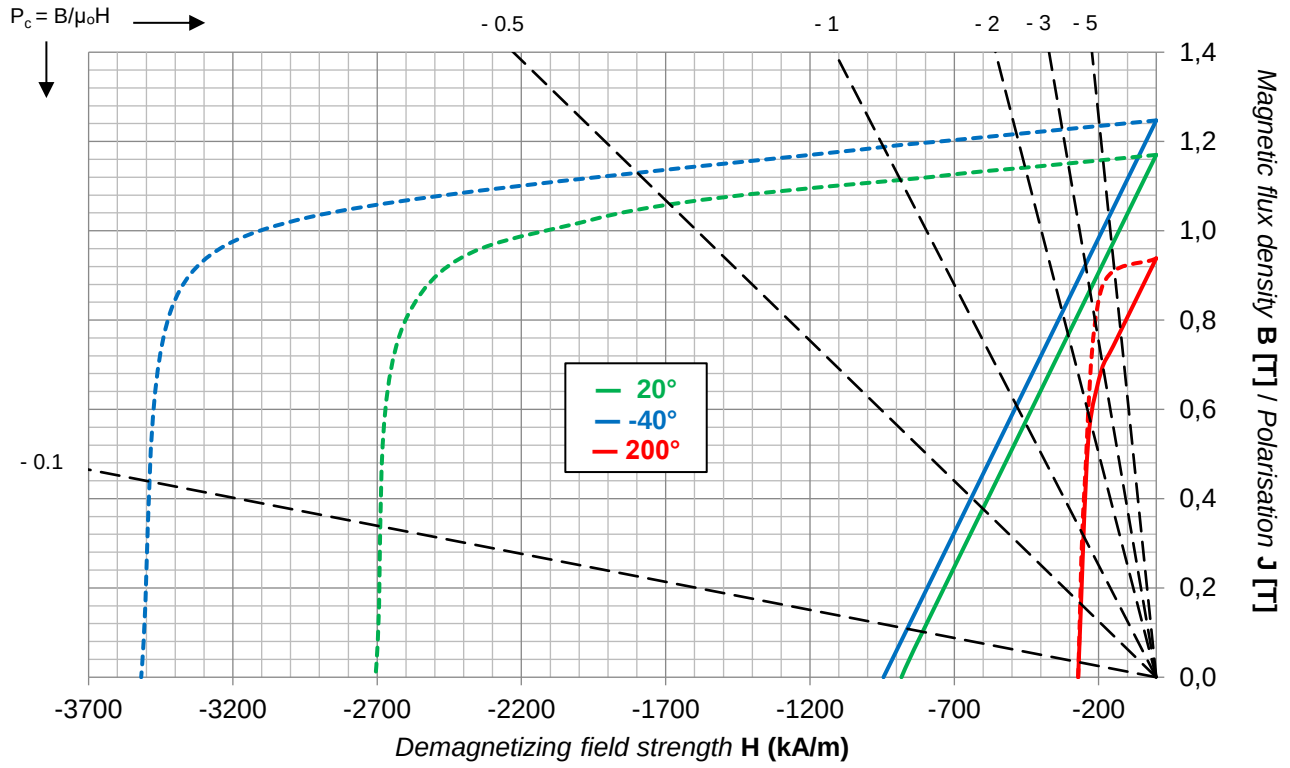
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35AH** – Anisotropic sintered

Demagnetization curve **N35AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	883	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	259	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

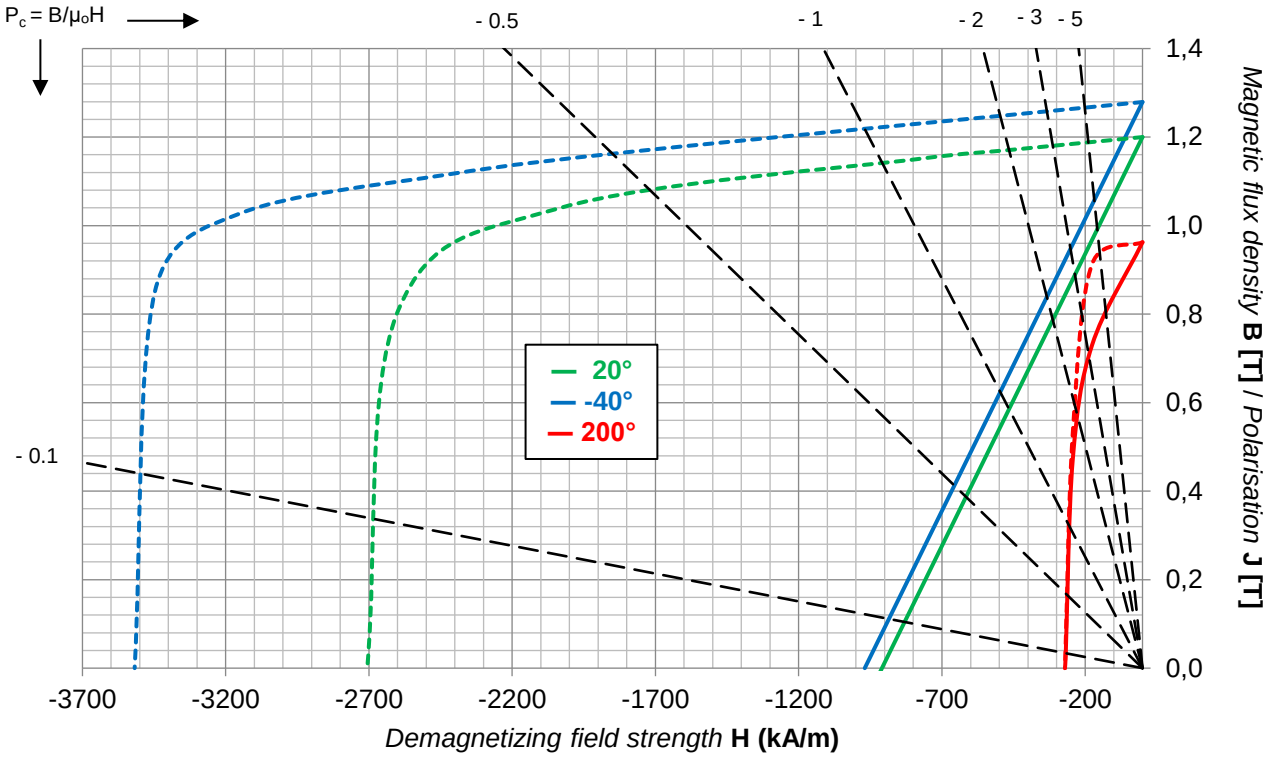
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38AH** – Anisotropic sintered

Demagnetization curve **N38AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.20	T
H_{cB}	min	923	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	281	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

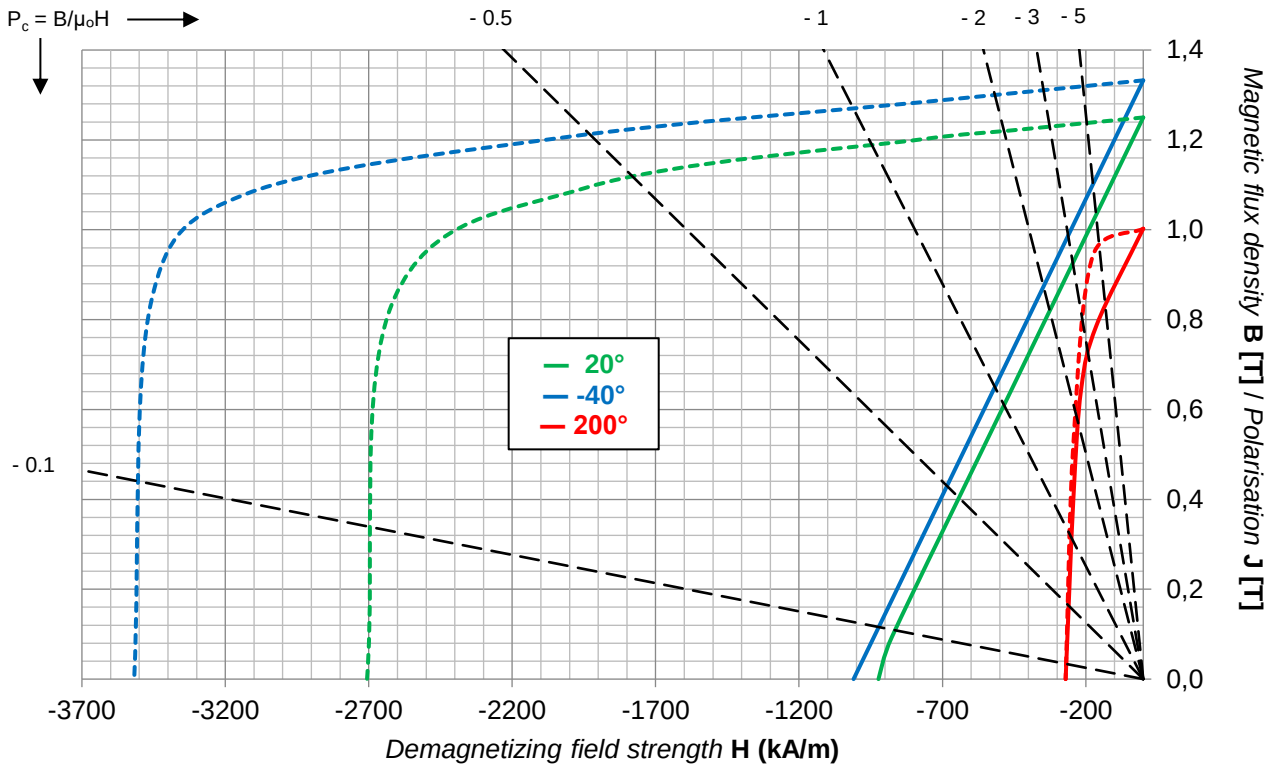
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N40AH** – Anisotropic sintered

Demagnetization curve **N40AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.25	T
H_{cB}	min	923	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	300	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

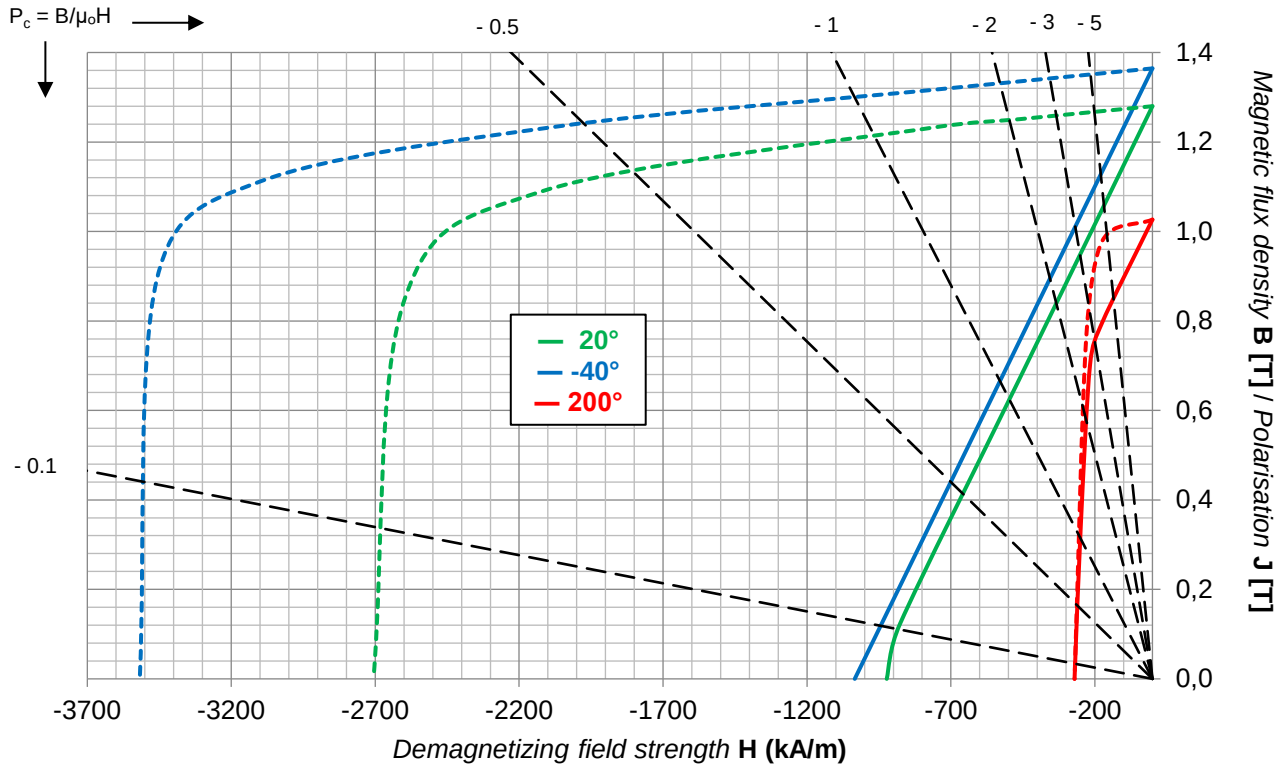
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N42AH** – Anisotropic sintered

Demagnetization curve **N42AH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.28	T
H_{cB}	min	923	kA/m
H_{cJ}	min	2706	kA/m
$(BH)_{max}$	min	318	kJ/m^3
$\alpha(B_r)$	min typ	-0.11	%/°C
$\beta(H_{cJ})$	min typ	-0.50	%/°C
T_{max}		220	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

VH- grades

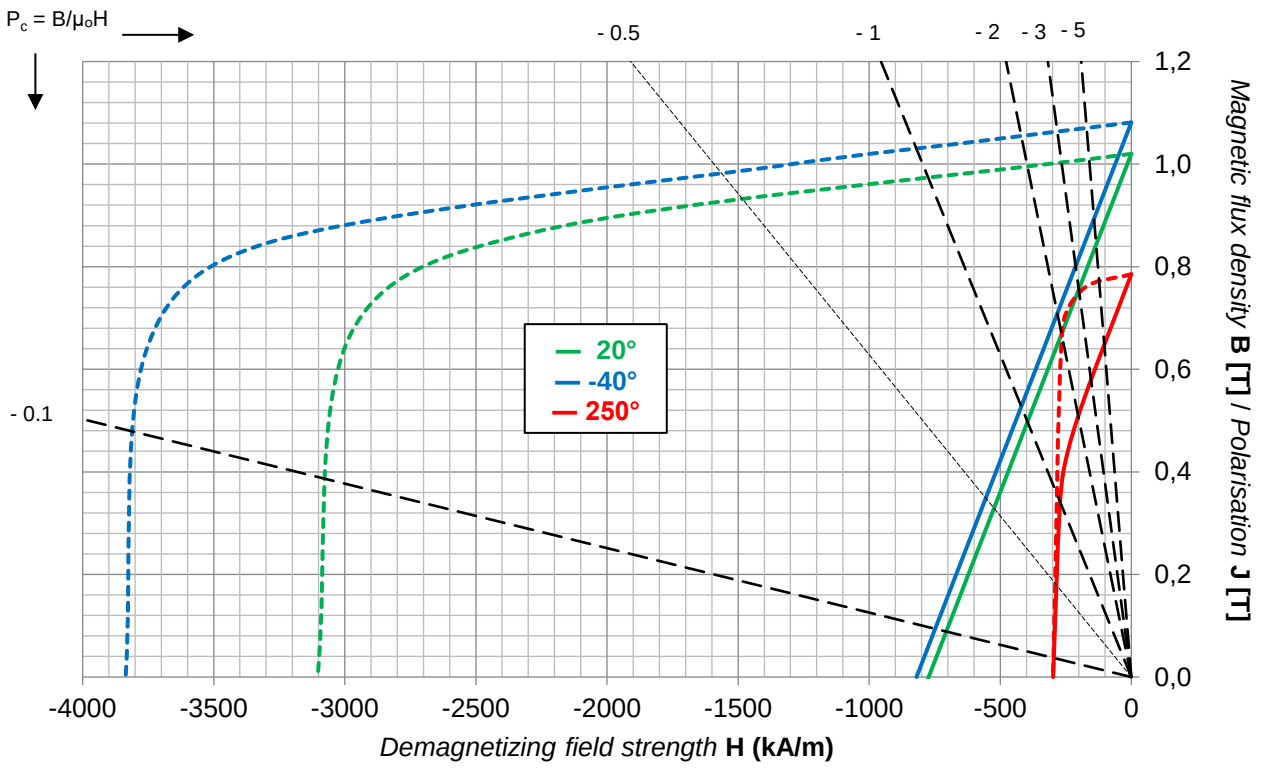
Goudsmit grade code	Remanence B_r	Normal coercivity H_{cB}	Intrinsic coercivity H_{cJ}	Maximum energy product $(BH)_{max}$	Remanence temperature coefficient $\alpha(B_r)$	Intrinsic coercivity temperature coefficient $\beta(H_{cJ})$	Maximum operating temperature T_{max}
	minimum value	minimum value	minimum value	minimum value	minimum typical value	minimum typical value	maximum value
	[mT]	[kA/m]	[kA/m]	[kJ/m³]	[%/°C]	[%/°C]	[°C]
N28VH	1020	780	3104	207	-0.10	-0.393	250
N30VH	1080	812	3104	223	-0.10	-0.393	250
N33VH	1130	812	3104	247	-0.10	-0.393	250
N35VH	1170	883	3104	263	-0.10	-0.393	250
N38VH	1220	923	3104	287	-0.10	-0.393	250

These are the most common grades. Please contact Goudsmit for questions on other grades available at Goudsmit.

Issue date: 10-3-2023

Technical datasheet: Neodymium **N28VH** – Anisotropic sintered

Demagnetization curve **N28VH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.02	T
H_{cB}	min	780	kA/m
H_{cJ}	min	3104	kA/m
$(BH)_{max}$	min	207	kJ/m^3
$\alpha(B_r)$	min typ	-0.10	%/°C
$\beta(H_{cJ})$	min typ	-0.393	%/°C
T_{max}		250	°C
μ_r	typ	1.05	-

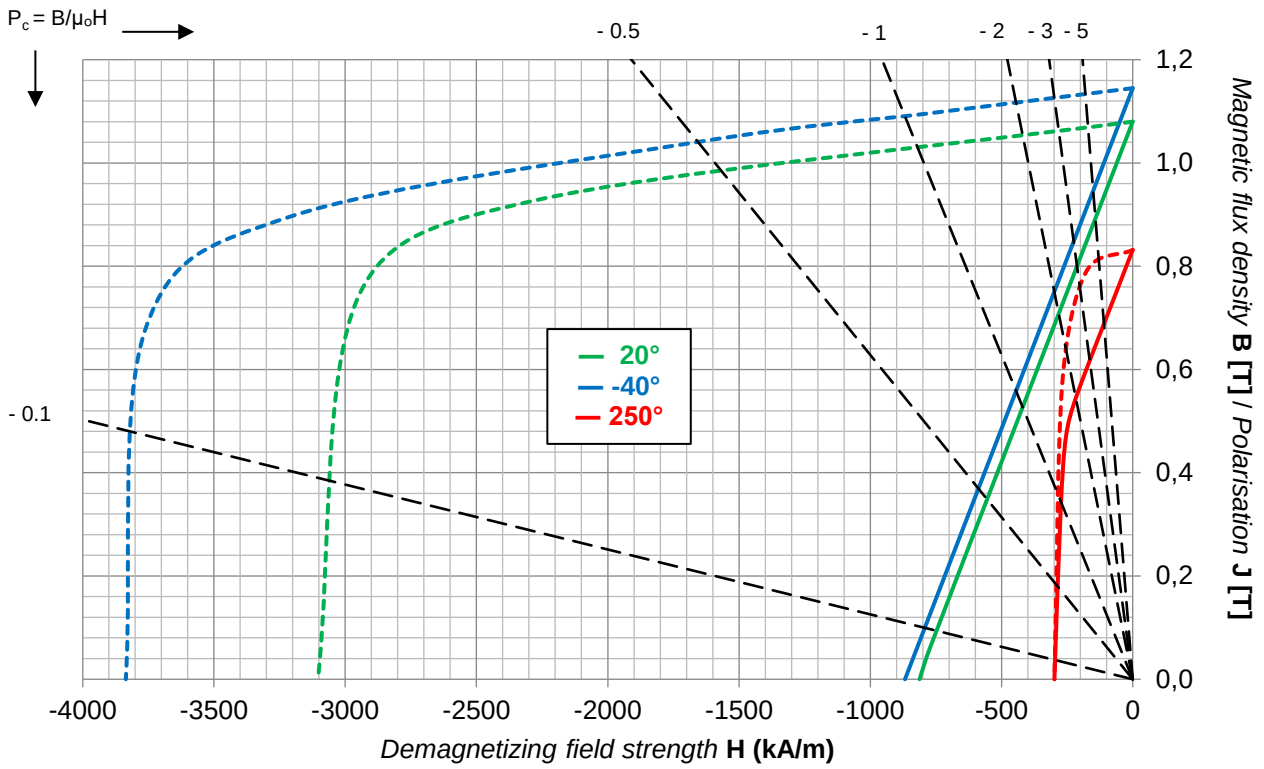
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N30VH** – Anisotropic sintered

Demagnetization curve **N30VH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.08	T
H_{cB}	min	812	kA/m
H_{cJ}	min	3104	kA/m
$(BH)_{max}$	min	223	kJ/m^3
$\alpha(B_r)$	min typ	-0.10	%/°C
$\beta(H_{cJ})$	min typ	-0.393	%/°C
T_{max}		250	°C
μ_r	typ	1.05	-

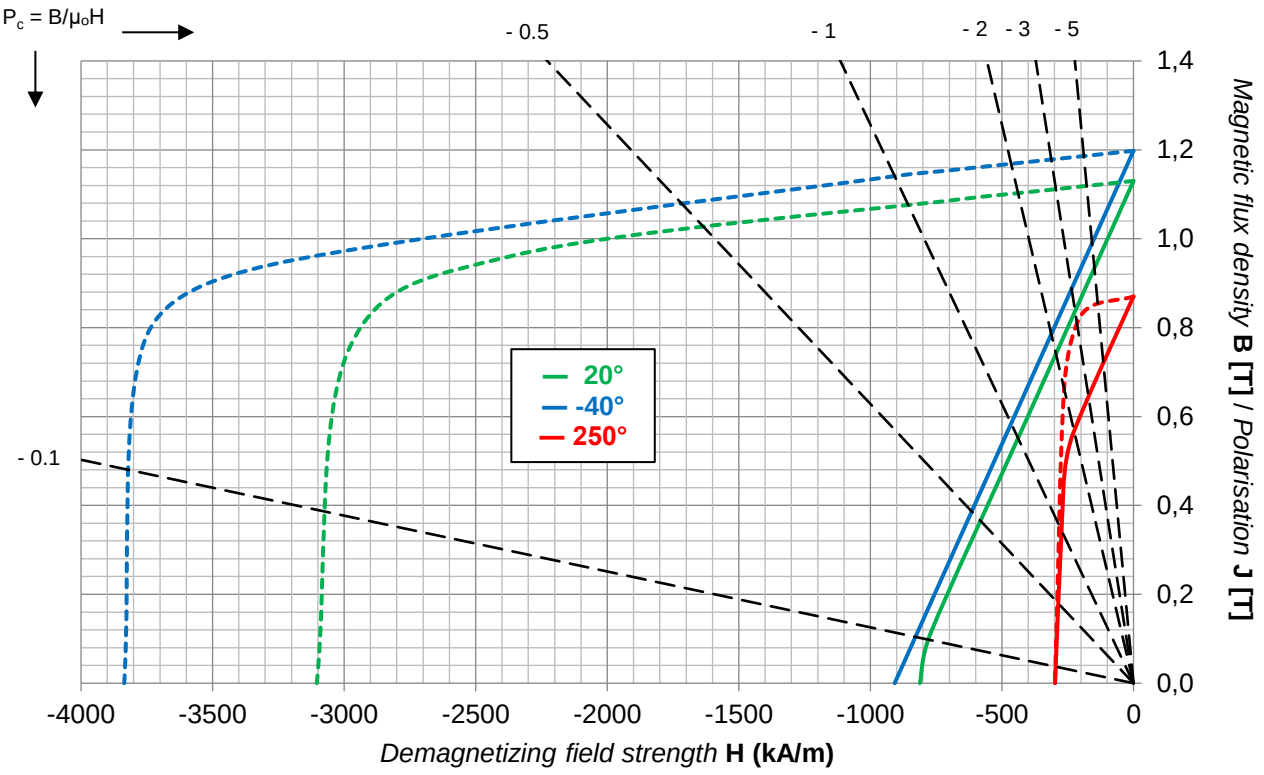
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N33VH** – Anisotropic sintered

Demagnetization curve **N33VH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.13	T
H_{cB}	min	812	kA/m
H_{cJ}	min	3104	kA/m
$(BH)_{max}$	min	247	kJ/m^3
$\alpha(B_r)$	min typ	-0.10	%/°C
$\beta(H_{cJ})$	min typ	-0.393	%/°C
T_{max}		250	°C
μ_r	typ	1.05	-

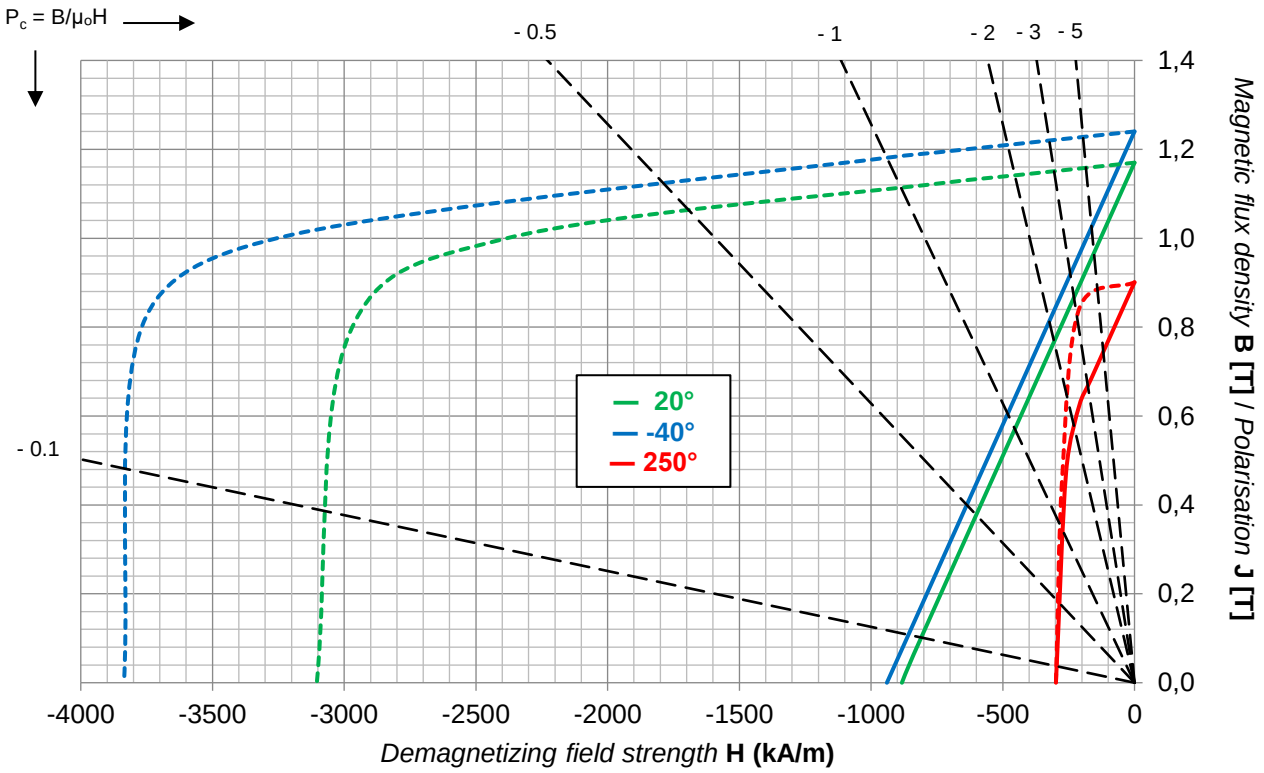
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N35VH** – Anisotropic sintered

Demagnetization curve **N35VH**



Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.17	T
H_{cB}	min	883	kA/m
H_{cJ}	min	3104	kA/m
$(BH)_{max}$	min	263	kJ/m^3
$\alpha(B_r)$	min typ	-0.10	%/°C
$\beta(H_{cJ})$	min typ	-0.393	%/°C
T_{max}		250	°C
μ_r	typ	1.05	-

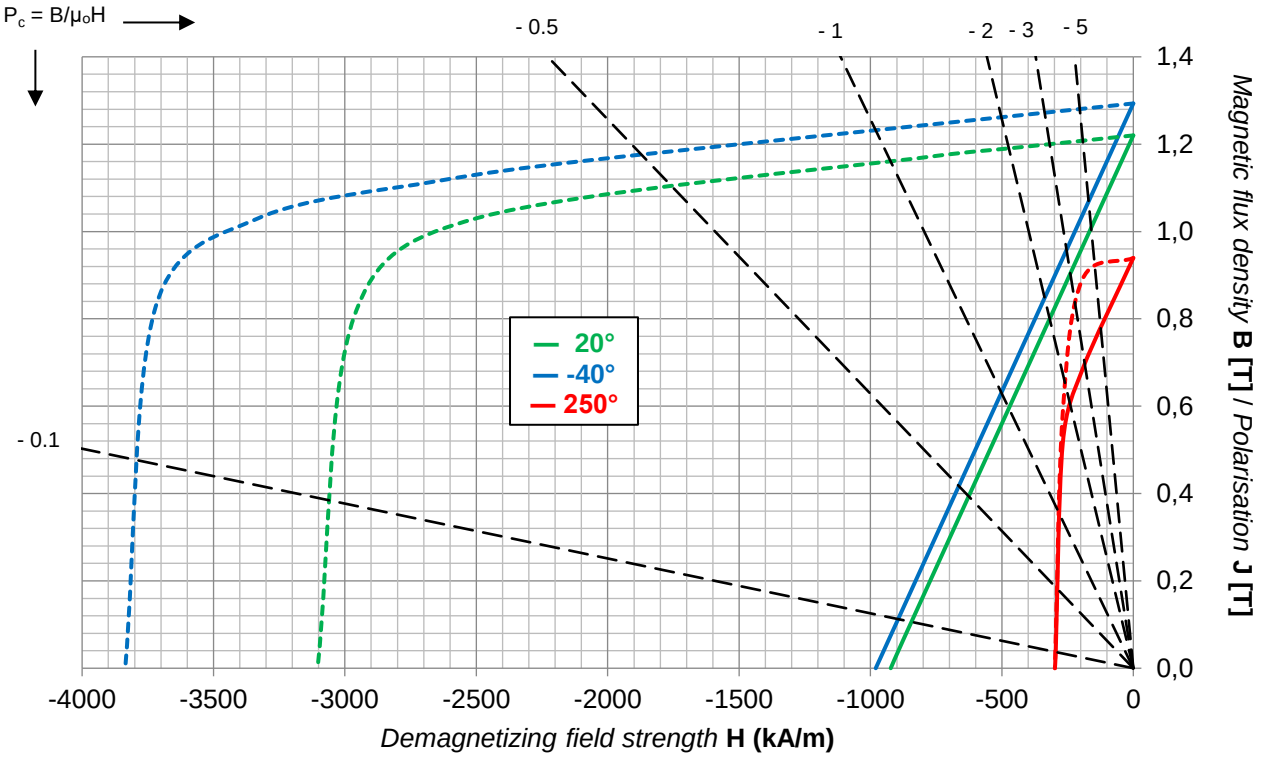
Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization

Issue date: 10-3-2023

Technical datasheet: Neodymium **N38VH** – Anisotropic sintered

Demagnetization curve **N38VH**

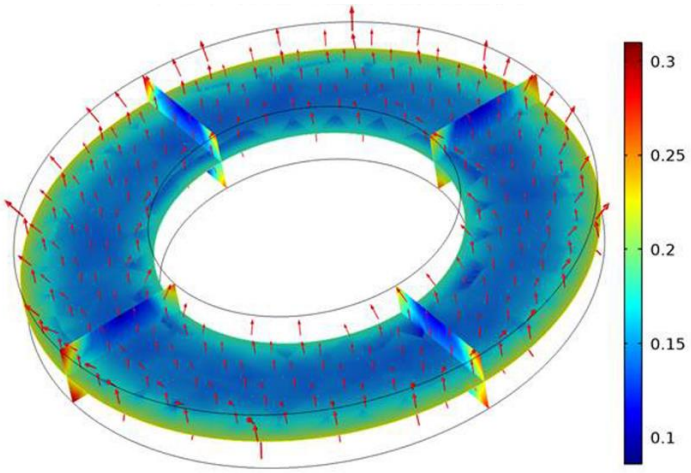


Solid lines represent magnetic flux densities. Dashed lines represent polarisations. The curves here are estimates obtained from data available from the current Goudsmit grade system (Available on the website. See also the magnetic properties below). On request, actual measurements of demagnetization curves can be obtained. For that, contact us on the address below.

Magnetic properties @20°C			
B_r	min	1.22	T
H_{cB}	min	923	kA/m
H_{cJ}	min	3104	kA/m
$(BH)_{max}$	min	287	kJ/m^3
$\alpha(B_r)$	min typ	-0.10	%/°C
$\beta(H_{cJ})$	min typ	-0.393	%/°C
T_{max}		250	°C
μ_r	typ	1.05	-

Physical & Mechanical properties @20°C			
Density	typ	7400 - 7800	kg/m^3
Vickers Hardness	typ	500 - 700	HV
Modulus of Elasticity / Young's modulus	typ	140 - 200	GPa
Flexural / bending strength	typ	100 - 400	MPa
Compressive strength	typ	600 - 1100	MPa
Tensile strength / ultimate strength	typ	74 - 90	MPa
Electrical resistivity	typ	1.1 - 1.7	μΩm
Specific heat capacity	typ	350 - 550	J/(kg K)
Thermal conductivity	typ	5 - 15	W/(m K)
Coefficient of linear thermal expansion, || DOM*	typ	3 - 9	10^{-6}/K
Coefficient of linear thermal expansion, ⊥ DOM*	typ	-3 - 0	10^{-6}/K

* DOM = Direction Of Magnetization



Goudsmit offers a wide range of services with regards to the design and selection of the appropriate magnet for your specific application. For instance, we apply magnet calculations and FEM simulations to quickly identify the best magnet for your product. In addition, we have all the necessary processes in place to supply the automotive and aerospace industries, including IATF16949 and AS9120 certifications.

The possibilities with magnet technology are endless, which is why it can quickly become confusing. Goudsmit has more than 60 years of experience in the world of magnetism and is happy to help you with advice and a range of services:

- FEM simulation & magnet calculations: gain quick insight into the operation of your design.
- Prototyping & samples: tangible magnet technology based on your requirements.
- Engineering: development of magnet assemblies and components.
- Quality control: critical properties tested and validated in our own measurement lab.
- Certification: ISO9001, IATF16949 or AS9120 for your industry.
- Stock management service: delivery of your magnets on demand through our modern warehouse.

You can choose whatever form of support you want. This guarantees you the right magnet for your specific application.

LRQA CERTIFIED ISO 9001 | LRQA CERTIFIED ISO 14001 | LRQA CERTIFIED IATF 16949 | LRQA CERTIFIED AS 9120