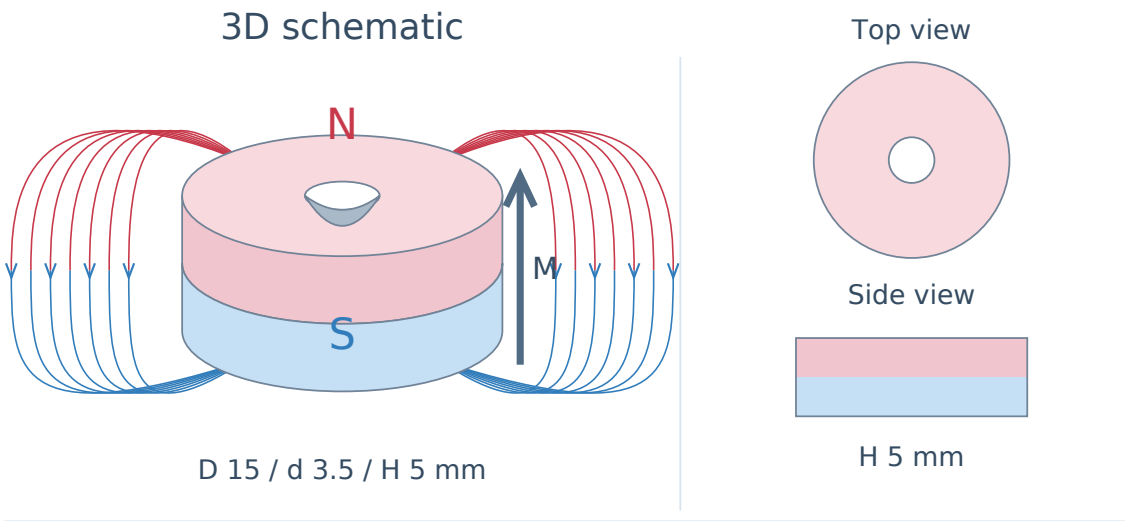


Magnet calculation report — MP 15/3.5x5 / N38

Dhit sp. z o.o. · 22.10.2026



Red: N pole | Blue: S pole | M: magnetization S → N

External field: N → S. Pole colours are symbolic.

Not to scale; field paths are schematic, not a simulation.

Ring: geometry and axial field

Pull force: unavailable. The observation point is in the hole, not on the pole face. A validated contact-force model or measurement is required.

Mass: 6.27 g

z [mm]	Bz [Gs]
0.00	-2,412.78
0.01	-2,382.14
1.00	177.76
2.00	1,283.96
5.00	1,265.59
10.00	534.41
20.00	124.82
50.00	11.08

Signed Bz: a minus sign indicates direction, not a negative force. Uniform axial magnetization; no steel response.

[Open calculator](#)

Cylinder axial field; z measured from the face

$$B_c(R,H,z) = \frac{B_r}{2} \left[\frac{H+z}{\sqrt{R^2+(H+z)^2}} - \frac{z}{\sqrt{R^2+z^2}} \right]$$

Ring — signed difference of two cylinder fields

$$B_z(z) = B_c(R_o,H,z) - B_c(R_i,H,z)$$

Permeance coefficient — geometry approximation

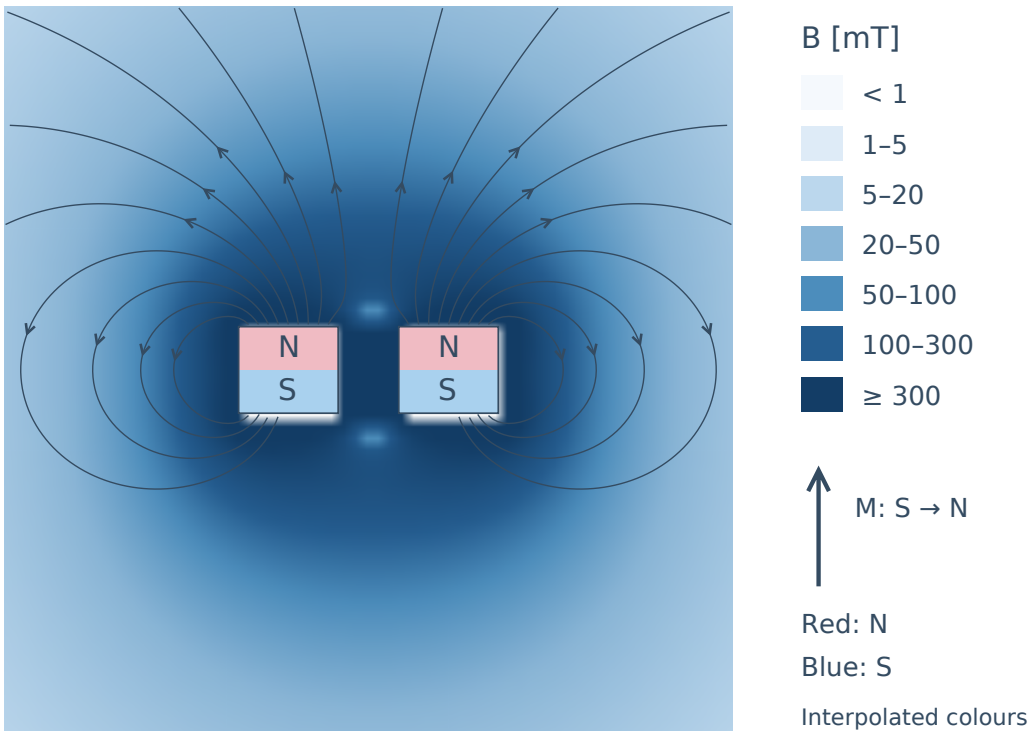
$$P_c = \frac{1.7\,k}{1+0.9\,k}; \quad k = \frac{H}{D_e}$$

Equivalent diameter for permeance

$$D_e = 2\sqrt{R_o^2 - R_i^2}$$

Calculated field in air — axial magnetization

Field in air | B [mT] | axial magnetization



x: -21 ... +21 mm; z: -21 ... +21 mm

J ≈ Br = 1.24 T; uniform magnetization; no steel or housing.

Calculated lines N → S outside. Not a pull-force or safety-clearance model.

Magnet grades and catalogue temperature limits

Family N

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N30	10.8-11.2	≥ 955	≤ 80
N33	11.4-11.7	≥ 955	≤ 80
N35	11.7-12.1	≥ 955	≤ 80
N38	12.2-12.6	≥ 955	≤ 80
N40	12.6-12.9	≥ 955	≤ 80
N42	12.9-13.2	≥ 955	≤ 80
N45	13.2-13.7	≥ 955	≤ 80
N48	13.7-14.2	≥ 955	≤ 80
N50	14-14.6	≥ 955	≤ 60
N52	14.2-14.7	≥ 955	≤ 60
N54	14.5-15.1	≥ 955	≤ 60

Family M

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N30M	10.8-11.2	≥ 1114	≤ 100
N33M	11.4-11.7	≥ 1114	≤ 100
N35M	11.7-12.1	≥ 1114	≤ 100
N38M	12.2-12.6	≥ 1114	≤ 100
N40M	12.6-12.9	≥ 1114	≤ 100
N42M	12.9-13.2	≥ 1114	≤ 100
N45M	13.2-13.7	≥ 1114	≤ 100
N48M	13.7-14.2	≥ 1114	≤ 100
N50M	14-14.6	≥ 1114	≤ 100

Family H

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N27H	10.2-10.6	≥ 1353	≤ 120
N30H	10.8-11.2	≥ 1353	≤ 120
N33H	11.4-11.7	≥ 1353	≤ 120
N35H	11.7-12.1	≥ 1353	≤ 120
N38H	12.2-12.6	≥ 1353	≤ 120
N40H	12.6-12.9	≥ 1353	≤ 120
N42H	12.9-13.2	≥ 1353	≤ 120
N44H	13.2-13.6	≥ 1353	≤ 120
N48H	13.7-14.2	≥ 1353	≤ 120

Family SH

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N27SH	10.2-10.6	≥ 1592	≤ 150
N30SH	10.8-11.2	≥ 1592	≤ 150
N33SH	11.4-11.7	≥ 1592	≤ 150
N35SH	11.7-12.1	≥ 1592	≤ 150
N38SH	12.2-12.6	≥ 1592	≤ 150
N40SH	12.6-12.9	≥ 1592	≤ 150
N42SH	12.9-13.2	≥ 1592	≤ 150
N45SH	13.2-13.7	≥ 1592	≤ 150

Family UH

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N25UH	9.8-10.2	≥ 1990	≤ 180
N28UH	10.4-10.8	≥ 1990	≤ 180
N30UH	10.8-11.2	≥ 1990	≤ 180
N33UH	11.4-11.7	≥ 1990	≤ 180
N35UH	11.7-12.1	≥ 1990	≤ 180
N38UH	12.2-12.6	≥ 1990	≤ 180
N40UH	12.6-12.9	≥ 1990	≤ 180

Family EH

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N25EH	9.8-10.2	≥ 2388	≤ 200
N28EH	10.4-10.8	≥ 2388	≤ 200
N30EH	10.8-11.2	≥ 2388	≤ 200
N33EH	11.4-11.7	≥ 2388	≤ 200
N35EH	11.7-12.1	≥ 2388	≤ 200
N38EH	12.2-12.5	≥ 2388	≤ 200
N40EH	12.5-12.8	≥ 2388	≤ 200
N42EH	12.8-13.2	≥ 2388	≤ 200

Family AH

Grade	Br [kGs]	Hcj [kA/m]	T [°C]
N28AH	10.4-10.8	≥ 2624	≤ 230
N30AH	10.8-11.3	≥ 2624	≤ 230
N33AH	11.3-11.7	≥ 2624	≤ 230
N35AH	11.7-12.2	≥ 2624	≤ 230
N38AH	12.2-12.5	≥ 2624	≤ 230
N40AH	12.5-12.8	≥ 2624	≤ 230

N M H SH UH EH AH

Colours identify material families, not pull force. The number denotes an energy grade; the suffix distinguishes coercivity and temperature classes. Check the temperature limit of the selected product; N50/N52/N54 in this catalogue are limited to 60°C.

Catalogue limits are not a guarantee for every geometry. Coating, magnetic circuit and actual magnet temperature matter. Colour halves illustrate magnetization, not two separate magnets.

Scope and limitations

Friction, steel-thickness response, housing gains, ageing, irreversible thermal loss and market comparisons are illustrative scenarios, not measured product specifications. Catalogue fitting is not independent validation. Axial field thresholds are not safe clearances for medical implants. Consult the implant manufacturer; do not use these tables to assess personal safety. Impact energy is an idealized mechanical scenario, not an injury prediction. The basic temperature table shows reversible force change (Br squared); the extended table adds an unvalidated irreversible-loss scenario. Above Tmax, neither table authorizes operation.

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