

Passion to Engineer the Impossible, GAON

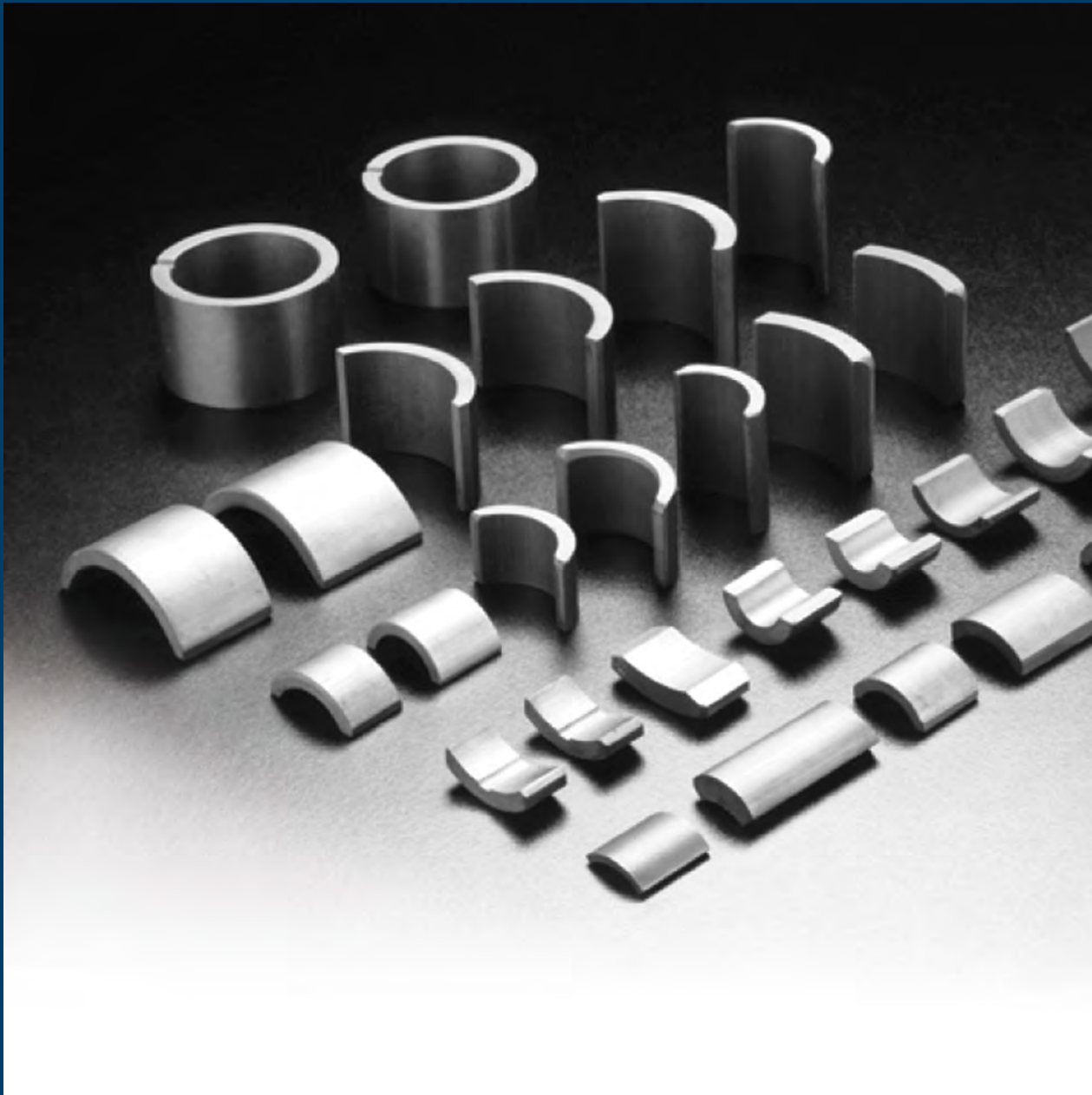
At GAON Solution, engineering is how we put our passion to work. We begin with what each customer needs, and we keep looking for new ideas and new partnerships across our system, magnet and component businesses.



Passion to Engineer the Impossible, GAON

MAGNET

Permanent Magnet Products

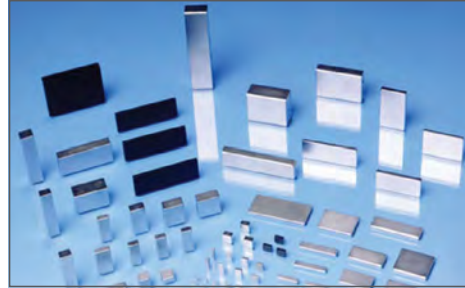


GAON Solution offers a broad portfolio of magnets in ring-type, radial, cylindrical, rectangular, and arc-shaped configurations, as well as magnets for voice coil motor (VCM) applications. Each configuration is available in a range of magnetic strengths to accommodate different structural and performance requirements. Leveraging extensive expertise in magnet design and application, GAON Solution delivers tailored solutions that meet each customer's functional and form-factor requirements.

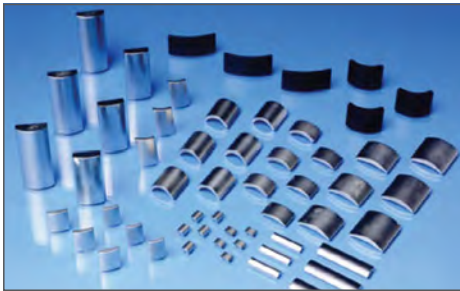
- Ring-Type, Cylindrical



- Rectangular



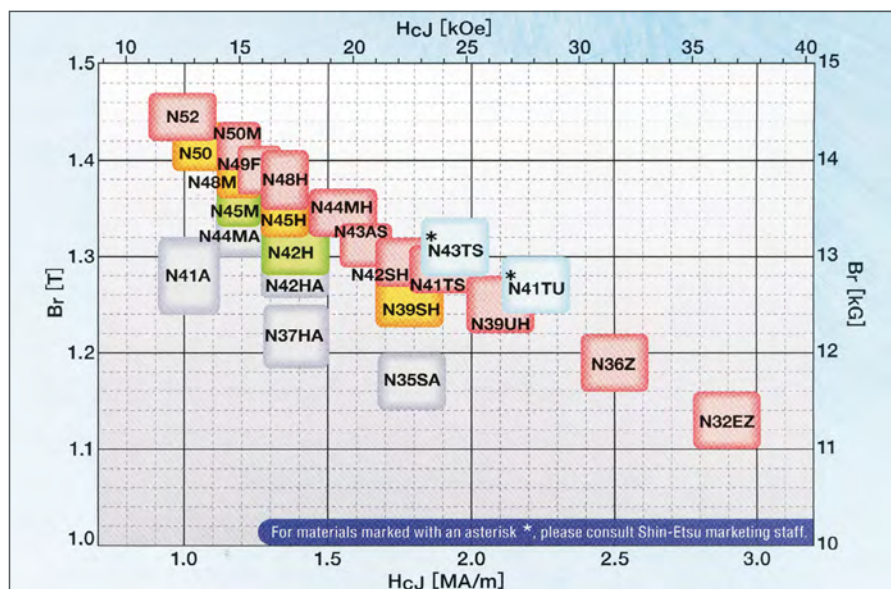
- Arc-Shaped



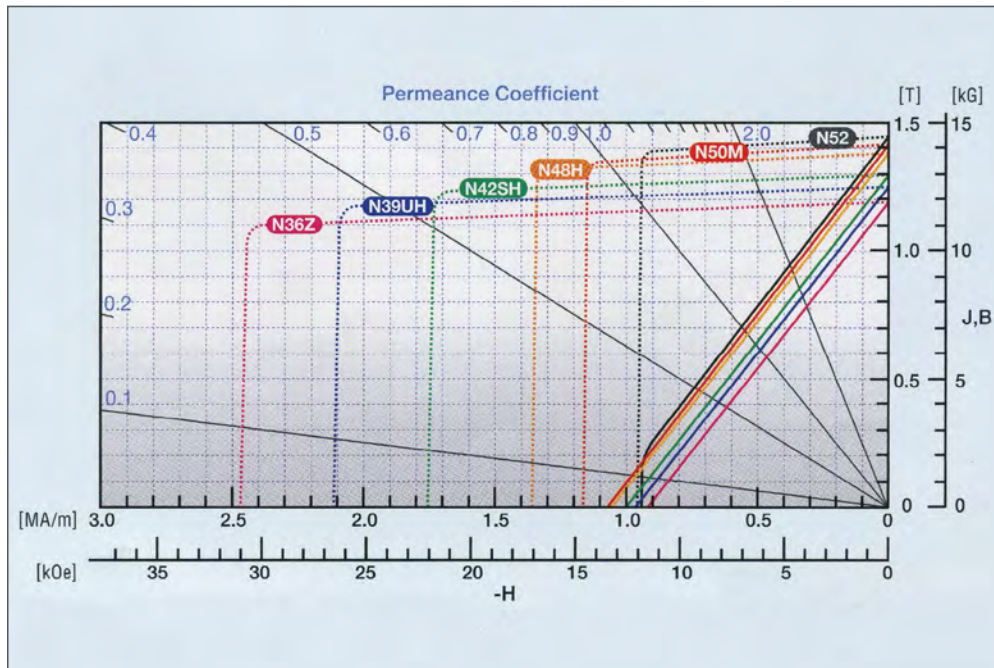
- VCM Magnets



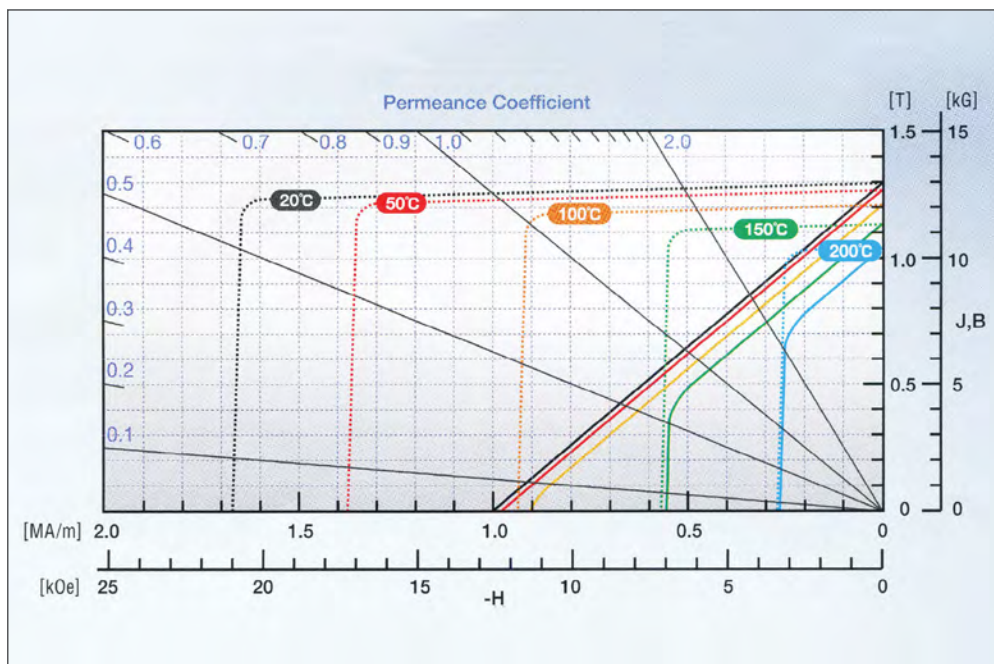
■ Magnet Types and Magnetic Properties



Demagnetization Curve



Thermal Characteristics



Other Properties

Density	Electrical Resistivity	Vickers Hardness	Flexural Strength	Tensile Strength	Curie Temp.	Magnetizing Force
(g/cm ³)	($\Omega \cdot m$)	(Hv)	(kgf/mm ²)	(kgf/mm ²)	(°C)	Hs(kOe)
7.5	144×10^{-8}	600	25	8	320~350	30

Surface Treatment

Name Color	Ni-Cu-Ni Plating Silver	Black Ni Plating Dark Silver	Epoxy Coating Black	Cr3_Zn Coating Bright Blue	Phosphate Coating Dark Grey
PCT (120 °C, 100%, 2 atm)	□	□	○	△	△
Humidity Test (80 °C, 90%, 1 atm)	□	□	□	○	△
Salt Spray Test (5% brine)	△	△	□	△	△
Thermal Cycle	○	○	○	○	○
Heat Resistance	△	△	△	△	○
Shock Resistance	○	○	○	○	○
Glue Adhesion Test	○	○	○	○	○
Dimensional Accuracy	○	○	○	○	□
Cost	□	○	○	○	□

Magnetic Properties

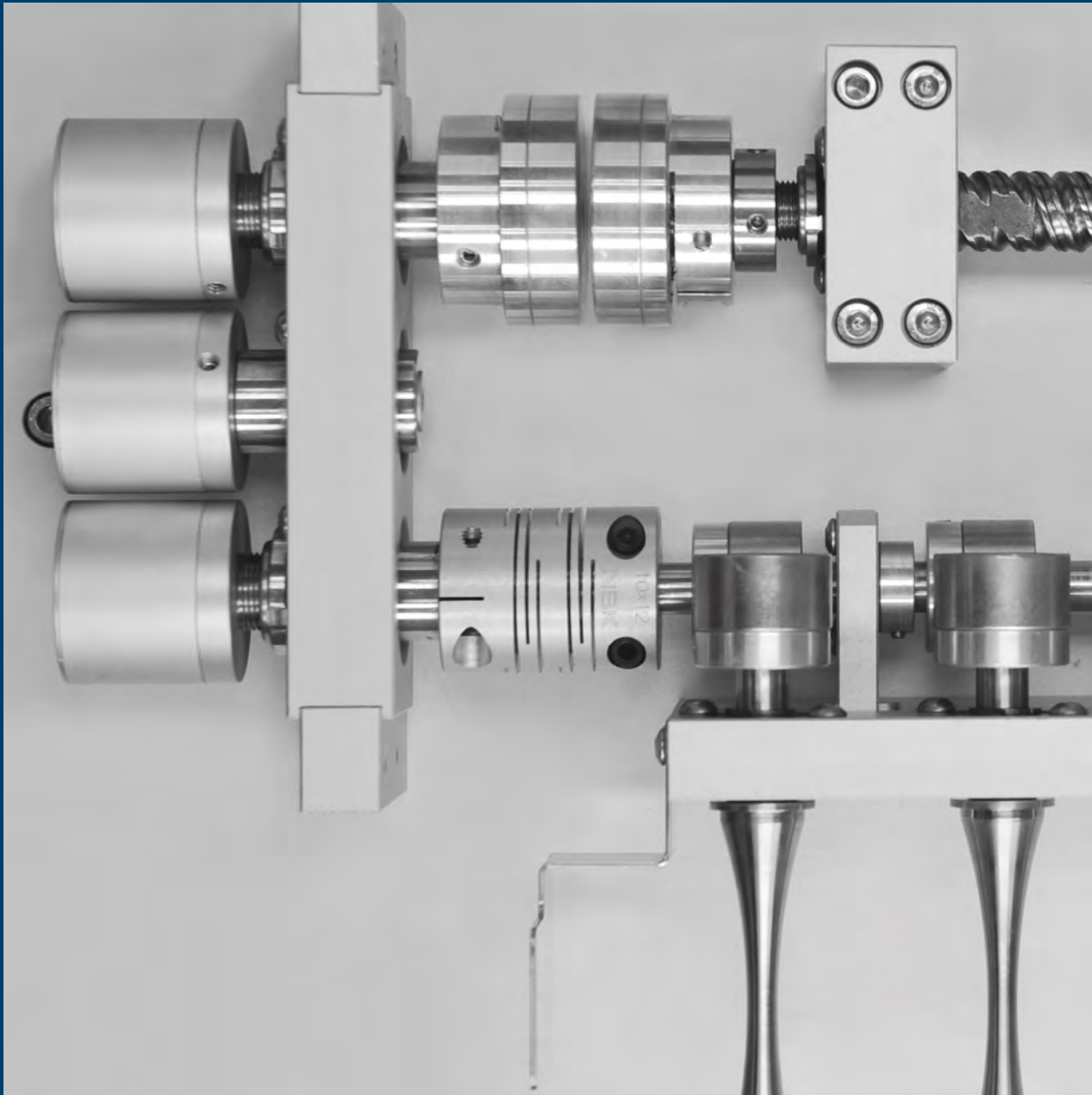
No.	Grade	Br		Hcj		HcB		(BH)max	
		T	kG	kA/m	kOe	kA/m	kOe	kJ/m ³	MGOe
		Range		Min		Min		Range	
1	N30	1.08~1.13	10.8~11.3	955	12	796	10.0	223~247	28~31
2	N33	1.13~1.17	11.3~11.7	955	12	836	10.5	247~271	31~34
3	N35	1.17~1.22	11.7~12.2	955	12	868	10.9	263~287	33~36
4	N38	1.22~1.25	12.2~12.5	955	12	899	11.3	287~310	36~39
5	N40	1.25~1.28	12.5~12.8	955	12	923	11.6	302~326	38~41
6	N42	1.28~1.32	12.8~13.2	955	12	923	11.6	318~342	40~43
7	N45	1.32~1.37	13.2~13.7	955	12	876	11.0	342~366	43~46
8	N48	1.37~1.42	13.7~14.2	955	12	892	11.2	366~390	46~49
9	N50	1.39~1.44	13.9~14.4	955	12	836	10.5	374~406	47~51
10	N52	1.42~1.47	14.2~14.7	876	11	836	10.5	390~422	49~53
11	N55	1.46~1.52	14.6~15.2	876	11	716	9.0	414~446	52~56
12	30M	1.08~1.13	10.8~11.3	1114	14	796	10.0	223~247	28~31
13	33M	1.13~1.17	11.3~11.7	1114	14	836	10.5	247~271	31~34
14	35M	1.17~1.22	11.7~12.2	1114	14	868	10.9	263~287	33~36
15	38M	1.22~1.25	12.2~12.5	1114	14	899	11.3	287~310	36~39
16	40M	1.25~1.28	12.5~12.8	1114	14	923	11.6	302~326	38~41
17	42M	1.28~1.32	12.8~13.2	1114	14	955	12.0	318~342	40~43
18	45M	1.32~1.37	13.2~13.7	1114	14	995	12.5	342~366	43~46
19	48M	1.36~1.42	13.6~14.2	1114	14	1019	12.8	358~390	45~49
20	50M	1.39~1.44	13.9~14.4	1114	14	1035	13.0	374~406	47~51
21	52M	1.42~1.47	14.2~14.7	1035	13	995	12.5	390~422	49~53
22	28H	1.04~1.09	10.4~10.9	1353	17	764	9.6	199~223	25~28
23	30H	1.08~1.13	10.8~11.3	1353	17	796	10.0	223~247	28~31
24	33H	1.13~1.17	11.3~11.7	1353	17	836	10.5	247~271	31~34
25	35H	1.17~1.22	11.7~12.2	1353	17	868	10.9	263~287	33~36
26	38H	1.22~1.25	12.2~12.5	1353	17	899	11.3	287~310	36~39
27	40H	1.25~1.28	12.5~12.8	1353	17	923	11.6	302~326	38~41
28	42H	1.28~1.32	12.8~13.2	1353	17	955	12.0	318~342	40~43

No.	Grade	Br		Hcj		HcB		(BH)max	
		T	kG	kA/m	kOe	kA/m	kOe	kJ/m ³	MGOe
		Range		Min		Min		Range	
29	45H	1.32~1.37	13.2~13.7	1353	17	971	12.2	342~366	43~46
30	48H	1.36~1.42	13.6~14.2	1353	17	1027	12.9	358~390	45~49
31	50H	1.39~1.44	13.9~14.4	1274	16	1035	13.0	374~406	47~51
32	28SH	1.04~1.09	10.4~10.9	1592	20	780	9.8	199~223	25~28
33	30SH	1.08~1.13	10.8~11.3	1592	20	804	10.1	223~247	28~31
34	33SH	1.13~1.17	11.3~11.7	1592	20	844	10.6	247~271	31~34
35	35SH	1.17~1.22	11.7~12.2	1592	20	876	11.0	263~287	33~36
36	38SH	1.22~1.25	12.2~12.5	1592	20	907	11.4	287~310	36~39
37	40SH	1.25~1.28	12.5~12.8	1592	20	939	11.8	302~326	38~41
38	42SH	1.28~1.32	12.8~13.2	1592	20	971	12.2	318~342	40~43
39	45SH	1.32~1.37	13.2~13.7	1592	20	979	12.3	342~366	43~46
40	48SH	1.36~1.42	13.6~14.2	1512	19	995	12.5	358~390	45~49
41	28UH	1.02~1.08	10.2~10.8	1990	25	764	9.6	207~231	26~29
42	30UH	1.08~1.13	10.8~11.3	1990	25	812	10.2	223~247	28~31
43	33UH	1.13~1.17	11.3~11.7	1990	25	852	10.7	247~271	31~34
44	35UH	1.17~1.22	11.7~12.2	1990	25	860	10.8	263~287	33~36
45	38UH	1.22~1.25	12.2~12.5	1990	25	876	11.0	287~310	36~39
46	40UH	1.25~1.28	12.5~12.8	1990	25	915	11.5	302~326	38~41
47	42UH	1.27~1.32	12.7~13.2	1990	25	971	12.2	310~342	39~43
48	28EH	1.04~1.09	10.4~10.9	2388	30	780	9.8	207~231	26~29
49	30EH	1.08~1.13	10.8~11.3	2388	30	812	10.2	223~247	28~31
50	33EH	1.13~1.17	11.3~11.7	2388	30	820	10.3	247~271	31~34
51	35EH	1.17~1.22	11.7~12.2	2388	30	836	10.5	263~287	33~36
52	38EH	1.20~1.25	12.0~12.5	2388	30	915	11.5	279~310	35~39
53	28AH	1.02~1.09	10.2~10.9	2706	34	780	9.8	199~231	25~29
54	30AH	1.07~1.13	10.7~11.3	2706	34	812	10.2	215~247	27~31
55	33AH	1.11~1.17	11.1~11.7	2706	34	836	10.5	239~271	30~34

Passion to Engineer the Impossible, GAON

MAGNET GEAR

Non-Contact Drive Mechanism





MAGNET GEAR, GAON Solution's maintenance-free drive technology, achieves ultra-low particle generation in both atmospheric and vacuum applications.

In high-tech industries where power must be transmitted with minimal contamination, particle generation caused by mechanical contact and lubrication in conventional gears and belt drives has become a critical concern. GAON Solution's MAGNET GEAR addresses this challenge with a non-contact torque transmission mechanism designed to withstand unexpected overloads without damage. Engineered to operate at atmospheric pressure and under vacuum, MAGNET GEAR helps improve productivity across a wide range of manufacturing processes in the electronic components, chemical, medical, and food industries.

Ultra-Low Particle Generation

By harnessing magnetic force to transmit torque without physical contact, MAGNET GEAR dramatically reduces particle generation during in-vacuum material transfer for thin-film processing.

Low Outgassing

A specialized surface treatment minimizes outgassing both at atmospheric pressure and under vacuum, enabling MAGNET GEAR to operate at pressures as low as 10^{-5} Pa.

Ultra-Low Noise

MAGNET GEAR achieves a level of quiet operation unattainable with conventional transmission mechanisms such as bevel gears and belt drives, creating a clean and comfortable manufacturing environment.

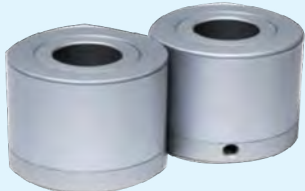
Built-In Torque Limiting

Under overload conditions, MAGNET GEAR's two magnets slip relative to each other, limiting the transmitted torque. The non-contact design also enables a longer service life than conventional gear drives.

Lower Operating Costs

MAGNET GEAR has no wear parts to replace, reducing operating costs. Its performance remains unaffected by repeated cycling between atmospheric pressure and vacuum, eliminating the need for complex, costly conventional designs.

Product Comparison

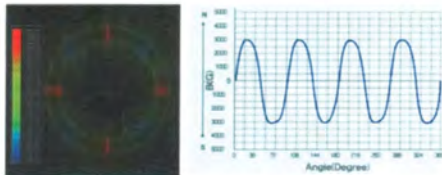
Category	Product Image	Torque	Impact & Scratch Resistance	Relative Cost	Surface Treatment
RIGHT-ANGLE TYPE	Sintered Type 	High	Medium	High	Electroless Ni Plating
	Bonded Type 	Low	Low	Low	Epoxy Coating
	Cover Type 	Medium to High	High	Medium	Anodizing + Electroless Ni
Parallel Type		High	High	Medium to High	Anodizing + Electroless Ni

MAGNET GEAR Design Engineering

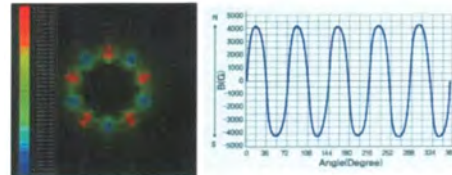
• Magnetic Circuit Design for Enhanced Torque

Models with “C (Collar)” in the product code incorporate a ferromagnetic yoke inside the magnet, increasing torque by at least 20% compared with an otherwise identical model without the yoke. Refer to the product specifications for torque values with and without the ferromagnetic yoke.

Without a Ferromagnetic Yoke

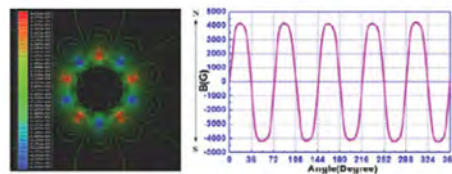
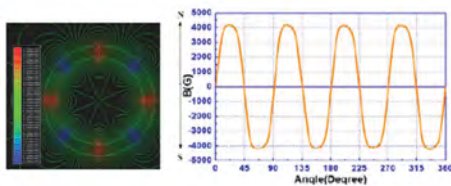


With a Ferromagnetic Yoke



• Magnetic Circuit Design by Pole Count

For models with the same outside diameter, torque decreases as the number of magnet poles increases; however, the increased pole count provides smoother rotation at low speeds.



Circuit Design

Actual Measurement

Product

MAGNET GEAR Rotation Configurations

• Right-Angle Series

The driving and driven shafts are arranged at 90°.



• Parallel Series

Multiple units can be arranged in line for continuous power transmission.



MAGNET GEAR Application Configurations

- Two-Axis Rotation



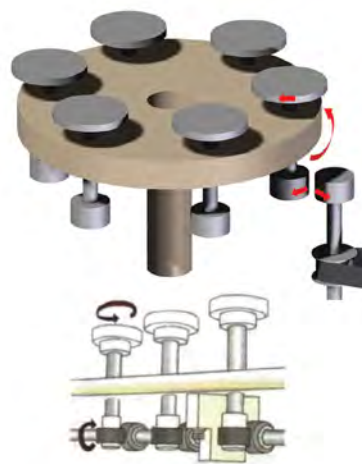
- Through-Wall Power Transmission



- Conveyor Drive



- Directional Power Transmission

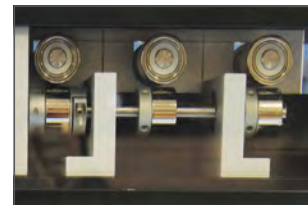


MAGNET GEAR Application Examples

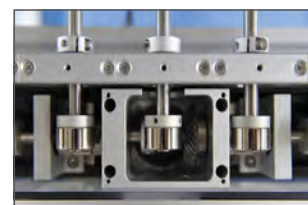
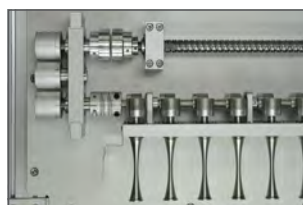
- Non-Contact Drive in Gear Transmission Systems



- Non-Contact Drive in Belt-and-Gear Transmission Systems



- Application in PCB Transfer Conveyors



MAGNET GEAR Right-Angle Type Specifications

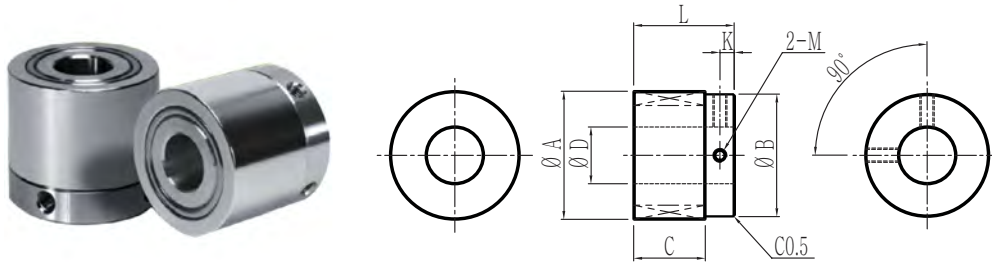
• Product Specifications

Magnet Type		Magnet O.D. (mm)		Number of Poles (Pole)		Shaft Bore (mm)		Holder Material		Collar Configuration		Mounting Method	
MGS	Sintered Type	45	Ø45	08P	8 Poles	20	Ø20	A	AL6061	C	With Collar	M	Set Screw
MGB	Bonded Type	39	Ø39	10P	10 Poles	15	Ø15	S	SUS304	X	No Collar	C	Clamp type
MGC	Cover Type	.	.	12P	12 Poles	.	.	L	SUS316L				
MGV	Vacuum Type							V	POM Sleeve				

• Standard Product Lineup & Torque Data by Air Gap

TYPE	Model	O.D. (mm)	Number of Poles (POLE)	AIR GAP (mm) / kgf·cm					
				0.5	1	1.5	2	2.5	3
Sintered TYPE	MGS4510P – **ACM	45	10	12	10.5	9	7.5	6.5	5.5
	MGS4510P – **AXM	45	10	9	7.9	6.4	5.5	5	4.5
	MGS3908P – **ACM	39	8	9.2	7.5	6.5	5	4	3.3
	MGS3912P – **ACM	39	12	6	5.2	4.5	3.9		
	MGS3508P – **ACM	35	8	7.3	6	5	4.2		
	MGS3508P – **AXM	35	8	5.8	4.8	4.1	3.4		
	MGS3512P – **ACM	35	12	4.6	3.8	3.1	2.4		
	MGS3512P – **AXM	35	12	3.7	2.8	2.2	1.8		
	MGS3208P – **ACM	32	8	5.2	4.1	3.2	2.7		
	MGS3208P – **AXM	32	8	4.2	3.3	2.6	2.2		
	MGS3210P – **ACM	32	10	4.2	3.1	2.4	2		
	MGS3010P – **ACM	30	10	3.5	2.5	2	1.5		
	MGS3010P – **AXM	30	10	2.2	1.8	1.4	1.2		
	MGS2608P – **ACM	26	8	2.5	2	1.5	1		
	MGS2608P – **AXM	26	8	1.6	1	0.7	0.3		
	MGS2108P – **AXM	21	8	1.25	1	0.8			
	MGS1808P – **AXM	18	8	0.8	0.5				

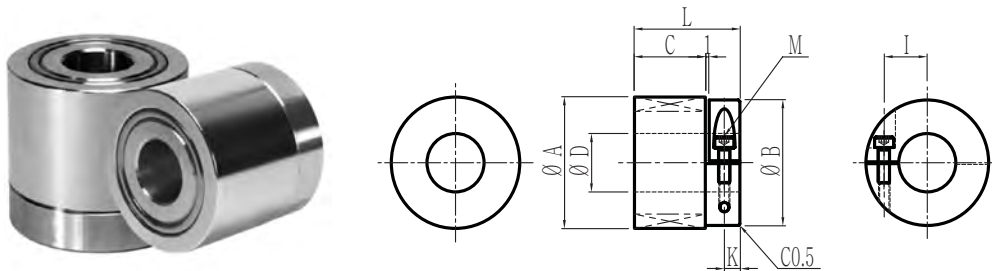
Sintered Type - Set Screw Mounting



Model	ØA	ØB	C	ØD (Shaft Size)	K	L	M
MGS45**P	45	43	25	~ 25	5	35	M5
MGS39**P	39	38	26	~ 20	5	35.5	M5
MGS35**P	35	34	21.5	~ 20	5	32	M5
MGS32**P	32	31	20	~ 20	5	30	M4
MGS30**P	30	29	18	~ 15	4	25	M4
MGS26**P	26	25	14	~ 15	3.5	21	M4
MGS21**P	21	20.5	15	~ 12	3	20	M3
MGS18**P	18	17.5	10	~ 10	2.5	15	M3

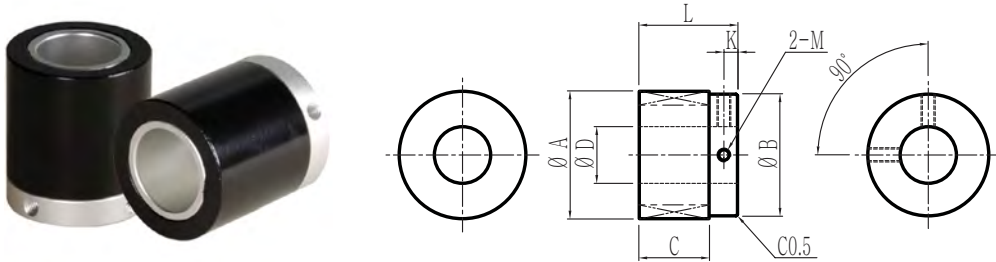
※ All dimensions other than the magnet outside diameter and length can be customized.

Sintered Type - Clamp Mounting



Model	ØA	ØB	C	ØD (Shaft Size)	K	L	M
MGS45**P	45	43	25	~ 25	5	37	M4
MGS39**P	39	38	26	~ 20	5	37	M4
MGS35**P	35	34	21.5	~ 20	5	32	M4
MGS32**P	32	31	20	~ 20	4.5	30	M4
MGS30**P	30	29	18	~ 15	4.5	27.5	M3
MGS26**P	26	25	14	~ 15	4.5	23.5	M3
MGS21**P	21	20.5	15	~ 12	4	22.5	M3
MGS18**P	18	17.5	10	~ 10	3	17	M3

Bonded Type - Set Screw Mounting

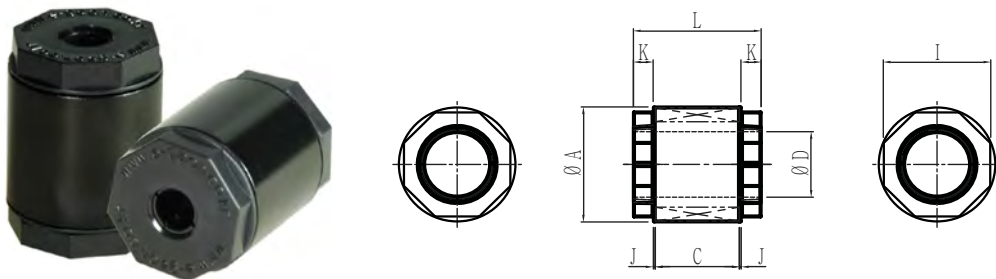


Model	ØA	ØB	C	ØD (Shaft Size)	K	L	M
MGB45**P	45	43	30	~ 30	5	40	M5
MGB42**P	42	41	21	~ 30	4.5	30	M4
MGB35**P	35	34	32	~ 20	4.5	41	M4
MGB32**P	32	31	15	~ 20	3.5	22	M4
MGB21**P	21	20	15	~ 12	2.5	20	M3
MGB20**P	20	19	15	~ 10	2.5	20	M3

※ All dimensions other than the magnet outside diameter and length can be customized.

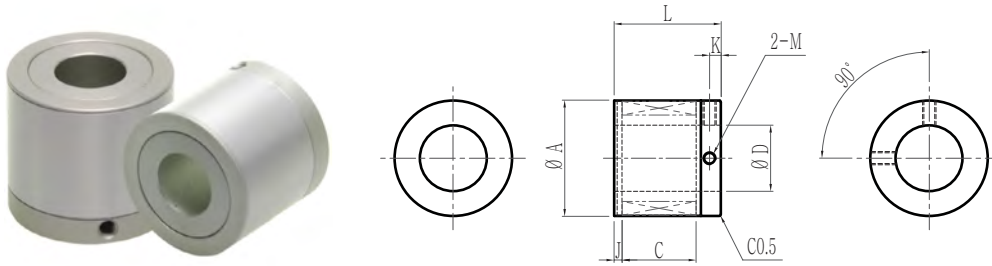
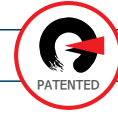
※ Also available with a clamp-style mounting configuration.

Bonded Type - Sleeve Mounting



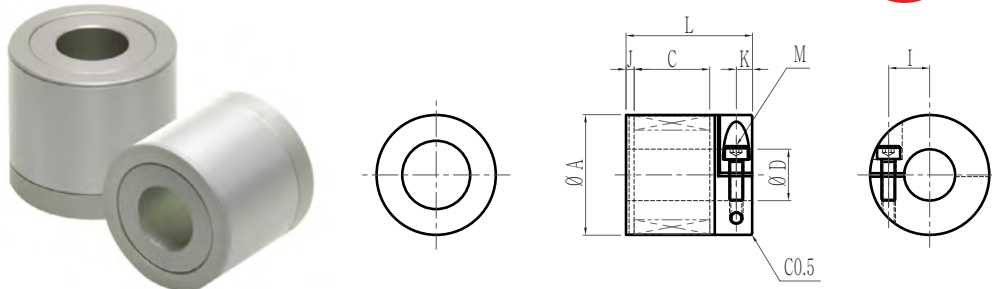
Model	ØA	C	ØD (Shaft Size)	L	Sleeve
MGB35**P - **VXN	35	32	10, 15, 20	46	Nut Type
MGB35**P - **VXP	35	32	15, 20	38	Push Type
MGB35**P - **VXC	35	32	10, 15, 20	42.5	Clamp Type

Cover Type - Set Screw Mounting



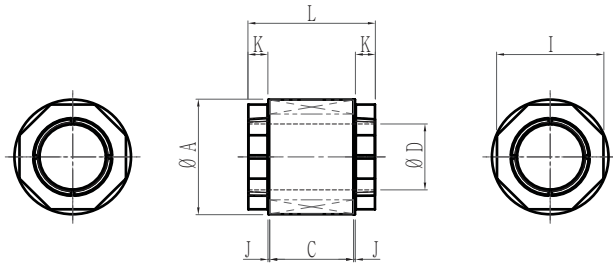
Model	ØA	C	ØD (Shaft Size)	K	L	M
MGC35**P	35	22	~ 20	3.5	32	M4
MGC32**P	32	22	~ 15	3.5	32	M4
MGC30**P	30	18	~ 15	3.5	30	M4
MGC21**P	21	14	~ 12	2.5	21	M3

Cover Type - Clamp Mounting



Model	ØA	C	ØD (Shaft Size)	K	L	M
MGC35**P	35	22	~ 20	3.5	37	M4
MGC32**P	32	22	~ 15	3.5	37	M4
MGC30**P	30	18	~ 15	3.5	35	M3
MGC21**P	21	14	~ 12	2.5	25	M3

■ Cover Type - Sleeve Mounting



Model	ØA	C	ØD			I	J	K	L
MGC35**P – **VCN	35	25	10	15	20	32	0.5	6	38

MAGNET APPLICATION SYSTEM

MAGNET

MAGNET GEAR

MAGNET COUPLING

CHECKER

Anti-Static Rope

Room-Temperature
Fluorine Coating

MAGNET GEAR Parallel Type Specifications

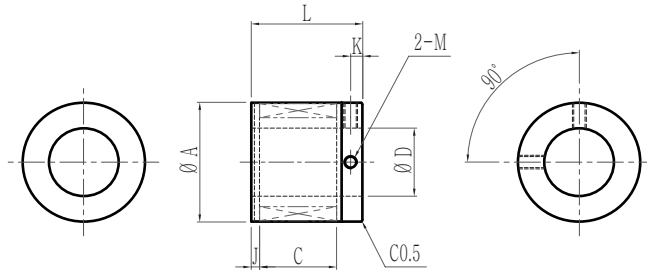
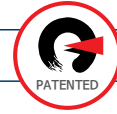
• Product Specifications

MGC	45	10	H	–	20	A	C	C
Magnet Type	Magnet O.D. (mm)	Poles (Pole)	Angle		Shaft Bore (mm)	Holder Material	Collar Configuration	Mounting Method
MGS Sintered Type	45 Ø45	08 8 Poles	H 180		20 Ø20	A AL6061	C With Collar	M Set Screw
MGC Cover Type	39 Ø39	10 10 Poles	R 135		15 Ø15	S SUS304	X No Collar	C Clamp type
MGV Vacuum Type	.	12 12 Poles				L SUS316L		
						V POM Sleeve		

• Standard Product Lineup & Torque Data by Air Gap (Tolerance ±5%)

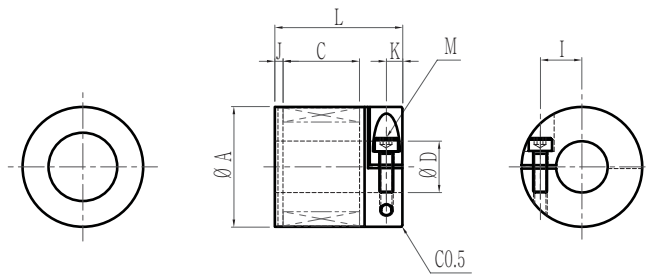
Model	O.D. (mm)	Poles (POLE)	AIR GAP (mm) / kgf·cm				
			0.5	1	1.5	2	2.5
MGC6024H – **ACM	60	24	12.5	11	10	7	6.0
MGC4524H – **ACM	45	24	6.5	5	3.8	3	2
MGC3916H – **ACM	39	16	9	7	6	5	
MGC3520H – **ACM	35	20	4.5	3	2	1.2	
MGC3514H – **ACM	35	14	10	8	6	4.5	3.5
MGC3514H – **AXM	35	14	8	7	5	3.5	2.5
MGC3216H – **ACM	32	16	4.5	3	2.3	1.9	1.2
MGC3012H – **ACM	30	12	6	4	3.2	2.6	1.8
MGC3016H – **ACM	30	16	3.5	2.5	1.7	1.4	
MGC2612H – **ACM	26	12	2.6	2	1.7	1.4	
MGC2112H – **AXM	21	12	2	1.6	1		

Parallel Type - Set Screw Mounting



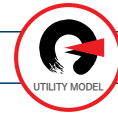
Model	ØA	C	ØD (Shaft Size)	K	L	M
MGC6024H - **ACM	60	22	~ 35	5	35	M5
MGC4524H - **ACM	45	22	~ 35	5	35	M5
MGC3916H - **ACM	39	22	~ 20	5	35	M5
MGC3514H - **ACM	35	22	~ 20	3.5	32	M4
MGC3514H - **AXM	35	22	~ 20	3.5	32	M4
MGC3216H - **ACM	32	22	~ 15	3.5	32	M4
MGC3012H - **ACM	30	18	~ 15	3	30	M4
MGC3016H - **ACM	30	18	~ 15	3	30	M4
MGC2612H - **ACM	26	15	~ 15	3	23	M4
MGC2112H - **AXM	21	14	~ 12	2.5	21	M3

Parallel Type - Clamp Mounting

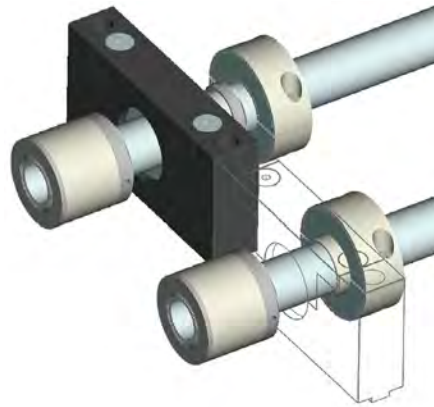


Model	ØA	C	ØD (Shaft Size)	K	L	M
MGC6024H - **ACM	60	22	~ 35	5	35	M5
MGC4524H - **ACM	45	22	~ 35	5	35	M5
MGC3916H - **ACM	39	22	~ 20	5	35	M5
MGC3514H - **ACM	35	22	~ 20	3.5	32	M4
MGC3514H - **AXM	35	22	~ 20	3.5	32	M4
MGC3216H - **ACM	32	22	~ 15	3.5	32	M4
MGC3012H - **ACM	30	18	~ 15	3	30	M4
MGC3016H - **ACM	30	18	~ 15	3	30	M4
MGC2612H - **ACM	26	15	~ 15	3	23	M4
MGC2112H - **AXM	21	14	~ 12	2.5	21	M3

PARTICLE CATCHER



The PARTICLE CATCHER collects ferrous wear particles generated by bearings during shaft rotation. Magnetic attraction holds the particles in place, preventing them from dispersing. It is used in flat-panel display (FPD) handling conveyor systems.



• Product Specifications

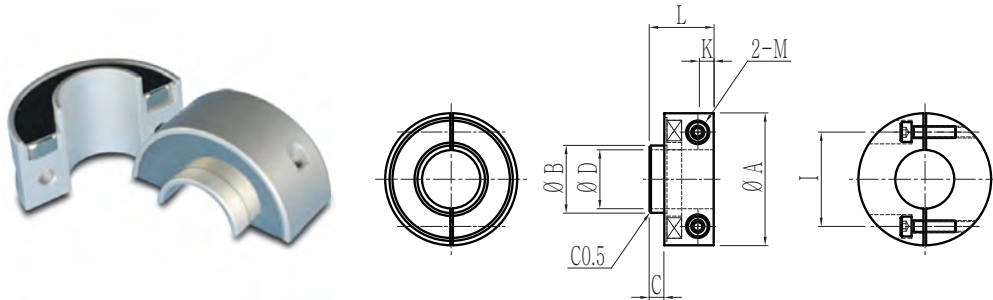
	MPC	50	20L	–	20	A	C		
Product Code	Magnet O.D. (mm)		Length (mm)		I.D. (mm)		Holder Material		Special Marking
	50	Ø 50	20L	20	20	Ø 20	A	AL6061	
	40	Ø 40	25L	25	15	Ø 15	S	SUS304	
	.	.	.	.	.	.	L	SUS316L	
							V	POM Sleeve	

• Standard Product Lineup and Specifications

Model	Specification		
	Ø O.D.	Ø I.D.	Collar Configuration
MPC50**L – 25 □ C	50	25	With Collar
MPC45**L – 20 □ C	45	20	With Collar
MPC35**L – 15 □ C	35	15	With Collar
MPC30**L – 10 □ C	30	10	With Collar
MPC50**L – 25 □ F	50	25	Without Collar
MPC45**L – 20 □ F	45	20	Without Collar
MPC35**L – 15 □ F	35	15	Without Collar
MPC30**L – 10 □ F	30	10	Without Collar

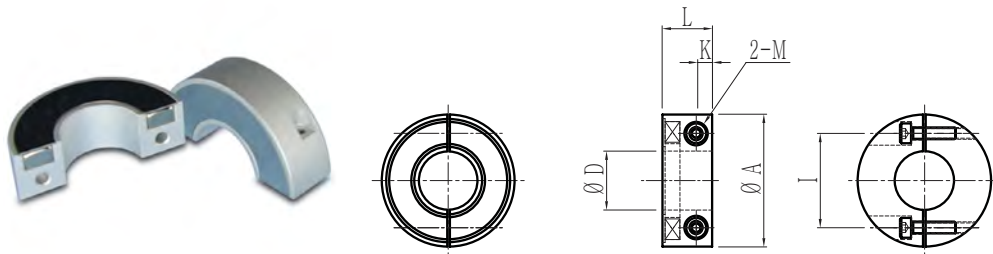
PARTICLE CATCHER Types

COLLAR TYPE



Model	ØA	ØB	C	ØD	I	K	L		M
MPC50**L – 25□C	50	28	5	25	37	5	22	25	M4
MPC45**L – 20□C	45	23	5	20	32	5	22	25	M4
MPC35**L – 15□C	35	18	3	15	27	4	17	19	M3
MPC30**L – 10□C	30	13	3	10	22	4	17	19	M3

FLAT TYPE

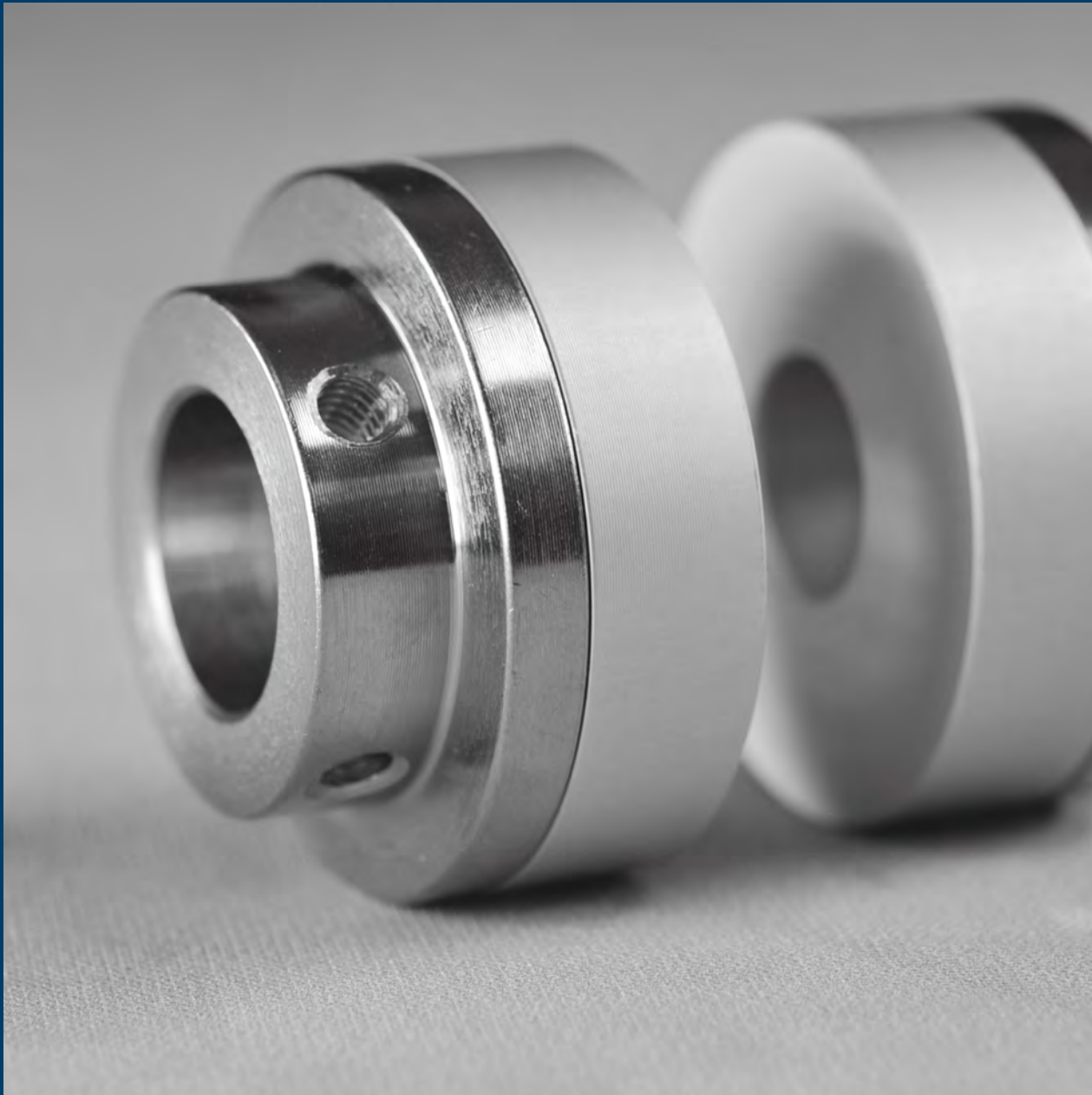


Model	ØA	ØD	I	K	L		M
MPC50**L – 25□F	50	25	37	5	17	20	M4
MPC45**L – 20□F	45	20	32	5	17	20	M4
MPC35**L – 15□F	35	15	27	4	14	16	M3
MPC30**L – 10□F	30	10	22	4	14	16	M3

Passion to Engineer the Impossible, GAON

MAGNET COUPLING

MAC COUPLING



A magnetic coupling is a non-contact power transmission device that uses magnetic attraction and repulsion to transmit torque. GAON Solution offers this technology under the product name 'MAC COUPLING'.

Conventional mechanical power transmission systems often present challenges related to noise, particle generation, and durability. GAON Solution's MAC COUPLING transmits torque without physical contact, delivering low noise and vibration, ultra-low particle generation, and maintenance-free operation. By addressing common engineering constraints, it provides greater flexibility across a broad range of applications. Most notably, MAC COUPLING can transmit torque across a barrier, making it suitable for washdown and vacuum environments. Under mechanical overload conditions, it can also function as a torque limiter.

■ Features of GAON Solution's MAC COUPLING

• Customers Across Diverse Industries

GAON Solution provides custom-engineered solutions tailored to the specific applications and functional requirements of customers across diverse industries—including vacuum equipment, FPD handling equipment, thermal processing equipment, and cleaning equipment—in Korea, China, Japan, and other markets.



REPUBLIC OF KOREA

Vacuum Equipment, Vacuum Pumps, Cleaning Equipment, Thermal Processing Equipment, FPD Handling Equipment, Printing Equipment, and Automotive



CHINA

FPD Handling Equipment



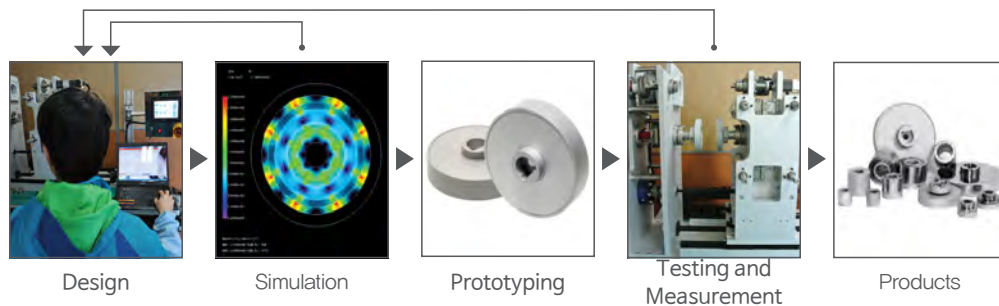
JAPAN

Heavy Industry, Nuclear Power, Aerospace, and FPD Handling Equipment

• Integrated R&D, Design, and Manufacturing Capabilities

GAON Solution has the proprietary expertise and integrated development systems required to deliver optimized results through design, simulation, prototyping, and testing. Through continuous R&D, we develop and manufacture prototypes and demonstration equipment for emerging applications.

Custom production is also available to meet each customer's specific requirements.



• A Broad Lineup of Standard Product Configurations

GAON Solution offers a broad lineup of standard products, including DISK, Low Thrust, IN - OUT, and Rotary Feedthrough types.



DISK TYPE



LOW THRUST TYPE



IN-OUT TYPE



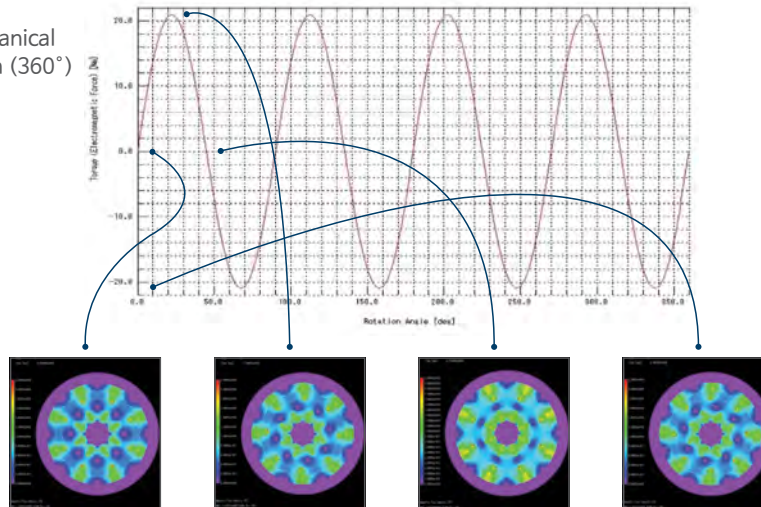
ROTARY FEEDTHROUGH

MAGNET COUPLING Design Using Magnetic Field Analysis

• MAGNET COUPLING Magnetic Field Simulation

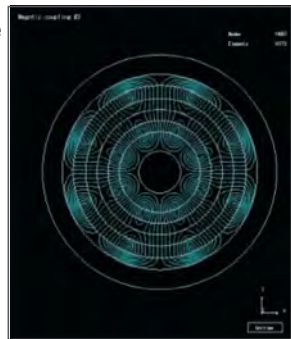
Magnetic field simulations are performed to optimize performance for each customer's equipment specifications.

One Mechanical Revolution (360°)



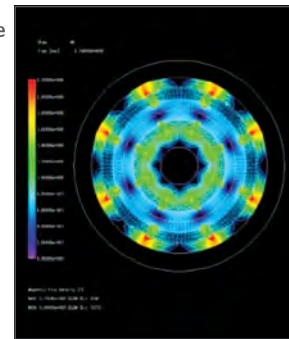
• Initial Stationary State

Magnetic Flux
Density Line

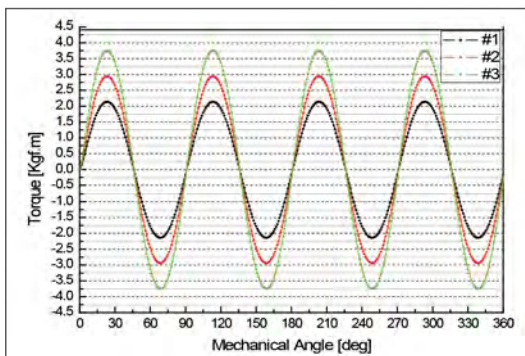


• Maximum Torque

Magnetic Flux
Density Vector



The magnetic flux density generated by the permanent magnets is analyzed to evaluate leakage flux and magnetic saturation, enabling structural optimization.



Modeling	Max. Torque [kgf·m]
#1	2.13696
#2	2.93974
#3	3.75034

Simulated Variation of Magnet Coupling Torque with Air Gap.

MAGNET COUPLING Type Comparison

DISK TYPE



- Axial thrust load present
- Easy installation across a barrier
- Used in cleaning and vacuum equipment
- Power transmission for material handling systems
- Suitable for high-vacuum equipment

LOW-THRUST TYPE



- Low-thrust design
- Easy installation across a barrier
- Used in cleaning and vacuum equipment
- Used for power transmission in material handling systems
- Suitable for coupling separated shafts in large-format workpiece transfer

IN-OUT TYPE



- No axial thrust load
- Designed for high-torque applications
- Used in cleaning and vacuum equipment
- Used for power transmission in material handling systems
- Optional barrier available in a range of materials

Rotary Feedthrough



- Designed for high-torque applications
- Suitable for ultra-high-vacuum applications
- No axial thrust load
- Assembly for Material-Handling Drives (Easy Installation and Removal)
- Used in cleaning and vacuum equipment

MAGNET COUPLING Application Examples

- IN-OUT Type
Supplied to a Japanese Chemical Equipment Manufacturer



Outside Diameter: $\varnothing 120$ mm
Materials: SUS304 and S45C
Torque : 150 kgf·cm
Gap : 15 mm



Application: Chemical Containment and Power Transmission

- IN-OUT Type for the Japan Aerospace Exploration Agency (JAXA)



Outside Diameter: $\varnothing 61$ mm
Materials: AL6061 and S45C
Torque : 0.5 N·m
Gap : 6mm



Speed : 5,000 rpm
Application: High-speed, non-contact power transmission

- IN-OUT Type for Vacuum Pumps



Designed for High-RPM Operation
High-Torque Transmission
Outside Diameter: $\varnothing 100$ mm
Speed : 3,500 rpm



- Low-Thrust Disk-Type Coupling for LCD Glass Handling



Outside Diameter: $\varnothing 50$ mm Material: AL6061
Torque : 10 kgf·cm
Gap: 6mm



Application: Low-Thrust Drive for Gen 11 LCD Glass Conveyors
Feature: Split-shaft design Easy installation and removal

- IN-OUT Type for Toyota Motor Corporation, Japan



Outside Diameter: $\varnothing 35$ mm
Material: AL6061
Torque : 9.0~9.5 kgf·cm
Gap : 2.5mm
Number of Poles: 12

MAGNET COUPLING Disk-Type Specifications

The MCDT is a synchronous disk-type coupling that allows a barrier to be installed between the two coupling halves. Under overload conditions, the coupling slips even with the barrier in place, protecting connected equipment from damage.

MCDT	045	10P	–	20	A	C				
Magnet Type	O.D. (mm)		Number of Poles (Pole)		I.D. (mm)		Holder Material		Mounting Method	
MCDT	30	Ø30	08P	8 Poles	20	Ø20	A	AL6061	C	Clamp
	35	Ø35	10P	10 Poles	15	Ø15	S	SUS304	S	Set Screw
	.	.	12P	12 Poles	.	.	L	SUS316L		
					V		PVC			

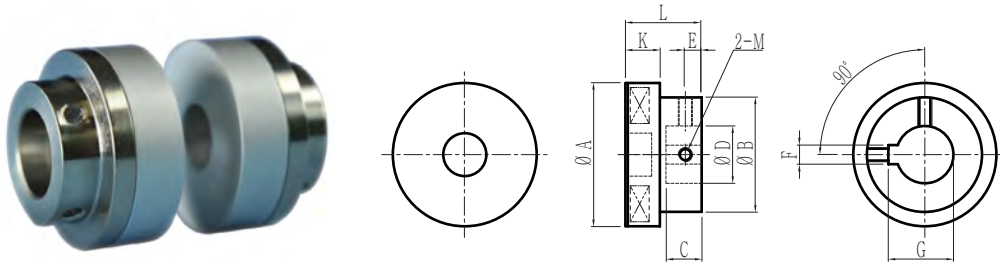
Transmitted Torque by Air Gap

Model	Type	O.D. (mm)	Number of Poles	AIR GAP (mm) / kgf·cm, kgf						
				0.5	1	1.5	2	3	4	5
MCDT3012P	TORQUE	30	12	7	5	3.5	2.5	1.5		
	THRUST	30	12	6.4	4.9	3.5	1.5	0.05		
MCDT3508P	TORQUE	35	8	10.2	9.2	7.8	6.5	4.7	3.5	2.4
	THRUST	35	8	13.4	10.7	8.8	7.6	5.3	3.5	2.3
MCDT4508P	TORQUE	45	8		30.5	26	22	16.8	12.4	10
	THRUST	45	8		24.2	21.2	19	13.6	10	7.6
MCDT6008P	TORQUE	60	8		50	46	40	35	26	24
	THRUST	60	8		33	29	24.4	20	17	15
MCDT6012P	TORQUE	60	12		38.2	32	27	20.8	12	10.2
	THRUST	60	12		20.6	18.1	15.8	11.3	8.7	6.2

Model	Type	O.D. (mm)	Number of Poles	AIR GAP (mm) / kgf·cm, kgf					
				6	7	8	9	10	11
MCDT10010P	TORQUE	100	10	117	94	71	65	60	
	THRUST	100	10	45	38	33.6	29.3	24.5	
MCDT12508P	TORQUE	125	8	166	153	142	126	115	
	THRUST	125	8	39.2	35.1	30.5	26.9	22.7	
MCDT15008P	TORQUE	150	8	325	302	280	241	221	205
	THRUST	150	8	85	72	69	62	57	50

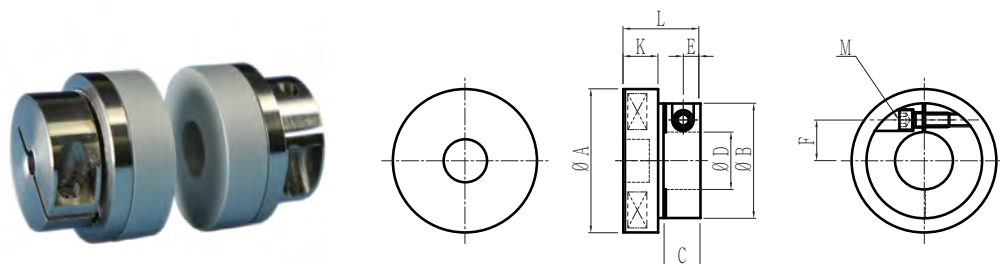
- Operating Temperature: 60 °C
- Standard models use NdFeB magnets; high-temperature versions are available for operation up to 150 °C.
- Custom SmCo magnet versions are available for operation up to 300 °C.
- Torque ratings and dimensions can be customized upon request.

■ Mounting Method - Set Screw



Model	ØA	ØB	C	ØD	E	F	G	K	L	M	P
MCDT030	30	22	10	8	4.5	3	9.4	12	22	M3	M4 C/B
MCDT035	35	28	10	14	4.5	5	16.3	13	23	M3	M5 C/B
MCDT045	45	37	14	19	5.5	6	21.8	14	26	M4	M6 C/B
MCDT060	60	48	15	24	6.5	8	27.3	14.6	32	M6	M8 C/B
MCDT100	100	58	16	28	7.5	8	31.3	26.7	45	M8	M10 C/B
MCDT125	125	65	20	35	9	10	38.3	22	45	M8	M10 C/B
MCDT150	150	75	25	35	11.5	10	38.3	22	50	M8	M10 C/B

■ Mounting Method - Clamp



Model	ØA	ØB	C	ØD	E	F	K	L	M	P
MCDT030	30	22	10	8	4.5	7	12	22	M3	M4 C/B
MCDT035	35	28	10	14	4.5	10	13	23	M3	M5 C/B
MCDT045	45	37	14	19	5.5	13.5	14	26	M4	M6 C/B
MCDT060	60	48	15	24	6.5	17	14.6	32	M4	M8 C/B
MCDT100	100	58	16	28	7.5	20.5	26.7	45	M6	M10 C/B
MCDT125	125	65	20	35	9	24.5	22	45	M8	M10 C/B
MCDT150	150	75	25	35	11.5	27	22	50	M8	M10 C/B

MAGNET COUPLING LOW THRUST TYPE Specifications



The MCLT is a synchronous disk-type coupling that allows a barrier to be installed between the two coupling halves. Under overload conditions, the coupling slips even with the barrier in place, protecting connected equipment from damage.

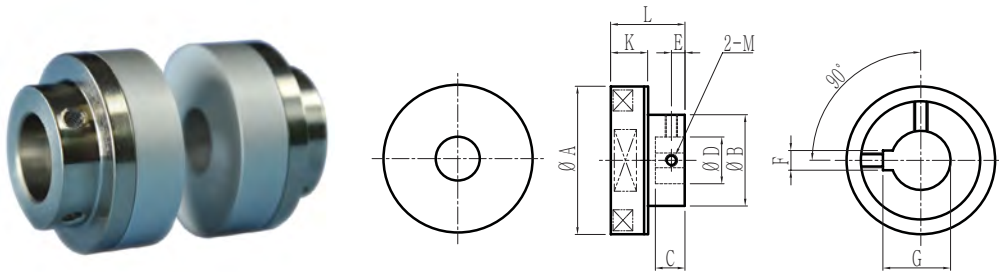
MCLT	045	10P	–	20	A	C
Magnet Type	O.D. (mm)	Number of Poles (Pole)	I.D. (mm)	Holder Material	Mounting Method	
MCLT	30 Ø30	08P 8 Poles	20 Ø20	A AL6061	C Clamp	
	35 Ø35	10P 10 Poles	15 Ø15	S SUS304	S Set Screw	
	.	12P 12 Poles	.	L SUS316L		
				V PVC		

Transmitted Torque by Air Gap

Model	Type	O.D. (mm)	Number of Poles	AIR GAP (mm) / kgf·cm, kgf								
				4	5	6	7	8	9	10	11	12
MCLT6008P	TORQUE	60	8	17.8	14.8	12.2	10.1	8.3				
	THRUST	60	8	6.4	4.8	3.5	2.6	1.9				
MCLT8008P	TORQUE	80	8	35.8	30.4	27.9	23	19.6	17.7	15.3		
	THRUST	80	8	8.8	6.3	5.4	4.9	3.8	3	2.1		
MCLT10008P	TORQUE	100	8	94	81	69.9	61.5	57.7	49.5	43.5	37.2	31.5
	THRUST	100	8	22.9	19.9	15.5	13.9	12.1	10.3	8.7	6.1	4.5
MCLT12508P	TORQUE	125	8		184	166	153	142	126	115		
	THRUST	125	8		45.5	39.2	35.1	30.5	26.9	22.7		
MCLT15008P	TORQUE	150	8	370	347	325	302	280	241	221	205	189
	THRUST	150	8	66	59.00	52.00	47.00	43.20	37.00	33.00	27.00	25.50

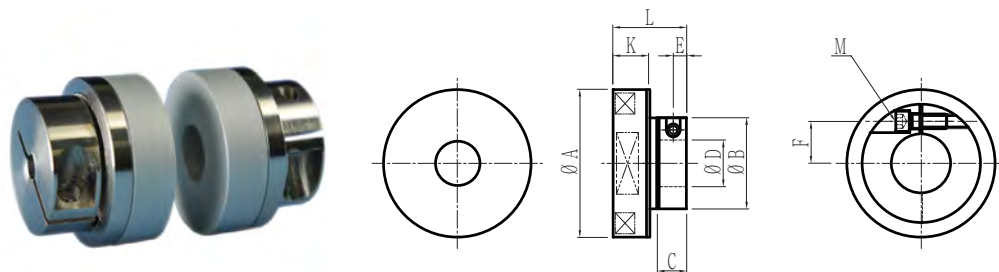
- Operating Temperature: 60 °C
- Standard models use NdFeB magnets; high-temperature versions are available for operation up to 150 °C.
- Custom SmCo magnet versions are available for operation up to 300 °C.
- Torque ratings and dimensions can be customized upon request.

■ Mounting Method - Set Screw



Model	ØA	ØB	C	ØD	E	F	K	L	M	P
MCLT060	60	37	12	19	5.5	13.5	15	30	M4	M8 C/B
MCLT100	100	48	15	24	7	17.5	17.5	38	M6	M8 C/B
MCLT125	125	65	20	35	9	24.5	22	45	M8	M10 C/B
MCLT150	150	75	25	35	11.5	27	22	50	M8	M10 C/B

■ Mounting Method - Clamp



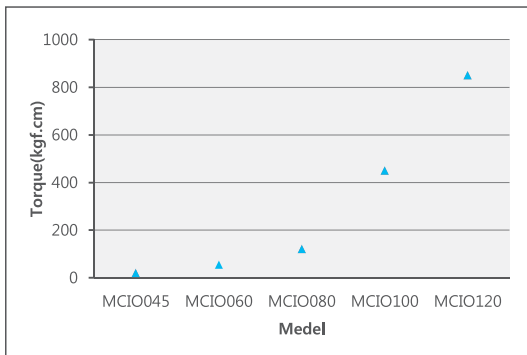
Model	ØA	ØB	C	ØD	E	F	K	L	M	P
MCLT060	60	37	12	19	5.5	13.5	15	30	M4	M8 C/B
MCLT100	100	48	15	24	7	17	17.5	38	M6	M10 C/B
MCLT125	125	65	20	35	9	24.5	22	45	M8	M10 C/B
MCLT150	150	75	25	35	11.5	27	22	50	M8	M10 C/B

MAGNET COUPLING LOW IN-OUT TYPE Specifications

The MCIO is a synchronous IN-OUT type coupling. A barrier can be installed between the inner and outer coupling elements to separate the two operating zones. Under overload conditions, the coupling slips even with the barrier in place, protecting connected equipment from damage.

MCIO		045		10P		–		20		A		C	
Magnet Type		O.D. (mm)		Number of Poles (Pole)		I.D. (mm)		Holder Material		Mounting Method			
MCIO		30	Ø 30	08P	8 Poles	20	Ø 20	A	AL6061	C	Clamp		
		35	Ø 35	10P	10 Poles	15	Ø 15	S	SUS304	S	Set Screw		
		.	.	12P	12 Poles	.	.	L	SUS316L				

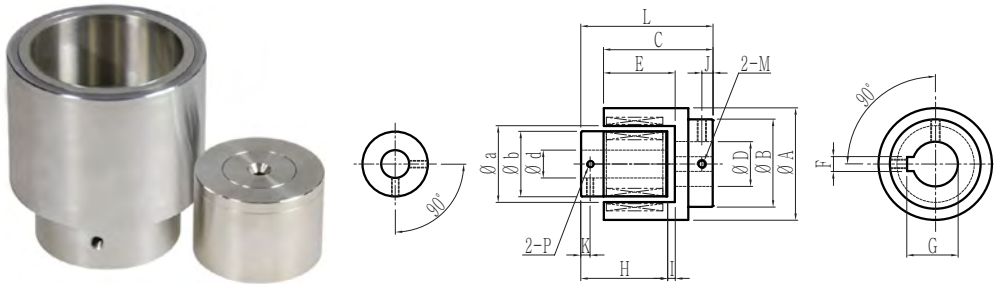
Transmitted Torque by Model



Model	Torque (kgf·cm)
MCIO045	20
MCIO060	55
MCIO080	120
MCIO100	450
MCIO120	850

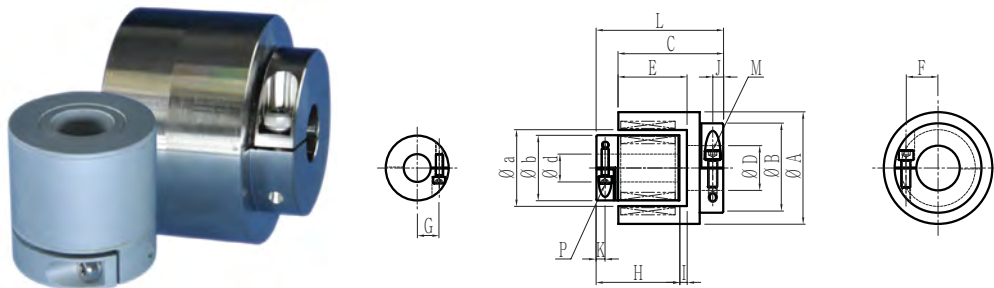
- Operating Temperature: 60 °C
- Standard models use NdFeB magnets; high-temperature versions are available for operation up to 150 °C.
- Custom SmCo magnet versions are available for operation up to 300 °C.
- Torque ratings and dimensions can be customized upon request.
- For the optional barrier configuration, refer to page 88.

Mounting Method - Set Screw



Model	ØA	ØB	C	ØD	Øa	Øb	Ød	E	F	G	H	I	J	K	L	M	P
MCIO045	45	38	50	19	33	27	12	32	14	9.5	38	4	5	4	60	M4	M3
MCIO060	60	47	58	24	43	35	15	38	17.5	12	46	4	6	5	70	M5	M4
MCIO080	80	58	65	28	58	48	20	40	22	17.5	49.5	5.5	7	6	80	M6	M5
MCIO100	100	70	100	35	72	58	25	72	26.5	22	83	6	8.5	7	117	M8	M6
MCIO120	120	70	105	35	86	70	30	72	26.5	26.5	86	6	8.5	7	125	M8	M8

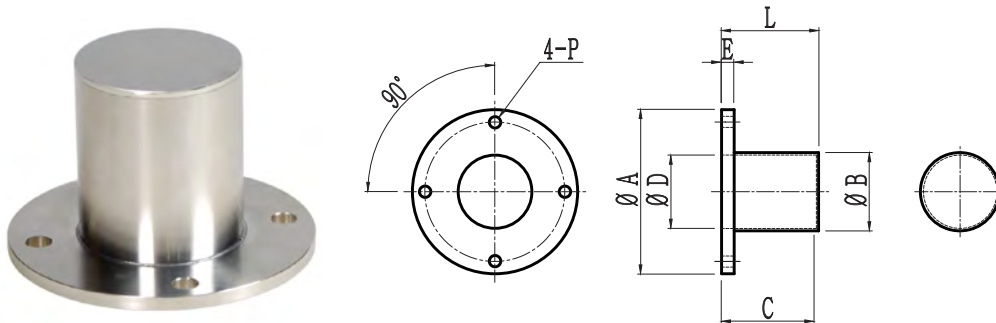
Mounting Method - Clamp



Model	ØA	ØB	C	ØD	Øa	Øb	Ød	E	F	G	H	I	J	K	L	M	P
MCIO045	45	38	50	19	33	27	12	32	6	21.8	38	4	5	4	60	M4	M3
MCIO060	60	47	58	24	43	35	15	38	8	27.3	46	4	6	5	70	M5	M4
MCIO080	80	58	65	28	58	48	20	40	8	31.3	49.5	5.5	7	6	80	M6	M5
MCIO100	100	70	100	35	72	58	25	72	10	38.3	83	6	8.5	7	117	M8	M6
MCIO120	120	70	105	35	86	70	30	72	10	38.3	86	6	8.5	7	125	M8	M8

MAGNET COUPLING LOW IN-OUT TYPE - OPTIONAL BARRIER

IN-OUT TYPE Optional Barrier Specifications



Model	ØA (mm)	ØB (mm)	C (mm)	ØD (mm)	E (mm)	L (mm)	P
For MCIO045	65	31	37.5	29	5	38.5	Ø4.5 HOLE / P.C.D 55
For MCIO060	90	40	46.5	38	6	47.5	Ø5.5 HOLE / P.C.D 77
For MCIO080	115	55	49	51	8	51	Ø6.6 HOLE / P.C.D 99
For MCIO100	142	68	84	62	10	84	Ø8.6 HOLE / P.C.D 122
For MCIO120	165	82	86	74	10	88	Ø8.6 HOLE / P.C.D 145

- Standard models use NdFeB magnets; high-temperature versions are available for operation up to 150 °C.
- Custom SmCo magnet versions are available for operation up to 300 °C.
- Torque ratings and dimensions can be customized upon request.

MAGNET COUPLING RF (Rotary Feedthrough)



- Unlike magnetic fluid seals, it employs a hermetically sealed design with an extremely low leak rate.
- Capable of transmitting high torque.
- Provides reliable power transmission with ultra-low particle generation, even in vacuum environments.

The MCRF Type is designed for ultra-high-vacuum applications. A barrier can be installed between the inner and outer coupling elements to separate the two operating zones. Under overload conditions, the coupling slips, protecting connected equipment from damage.

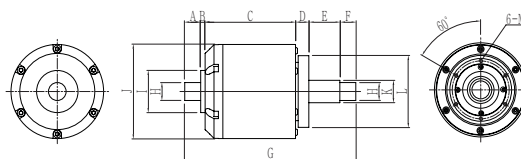
Rotary Feedthrough Specifications

Type	Outside Diameter (mm)	Input Shaft Diameter (mm)	Output Shaft Diameter (mm)	Housing Material	OPTION
MCRF	088 100 .	13 16 .	13 16 .	S L F	X None
	Ø88 Ø100 .	Ø13 Ø16 .	Ø13 Ø16 .	SUS304 SUS316L SM45C	

Magnetic Rotary Feedthrough Technical Data

Model	Vacuum Rating (Pa)	Leak Rate (Pa·m ³ /s Max)	Transmitted Torque (kgf·cm)	Maximum Allowable Rotational Speed (rpm)	Operating Temperature (°C)	Mass (kg)
MCRF088	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	35	500	60	3.5
MCRF100	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	68	500	60	4.6
MCRF105	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	120	500	60	5.2
MCRF110	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	455	500	60	7.5
MCRF125	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	829	500	60	9.8
MCRF130	1 × 10 ⁻⁶	1.3 × 10 ⁻¹¹	1450	500	60	10.8

- Standard models use NdFeB magnets; high-temperature versions are available for operation up to 150 °C.
- Custom SmCo magnet versions are available for operation up to 300 °C.
- Torque ratings and dimensions can be customized upon request.



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	ØHg6 (mm)	ØI (mm)	ØJ (mm)	ØK (mm)	ØL (mm)	M (mm)	KEY (mm)
MCRF088	15	5	100	15	35	15	184	13	30	88	15	65	M4X8L P.C.D 50	5X5X15
MCRF100	15	5	102	15	35	15	187	16	42	100	20	75	M4X8L P.C.D 58	5X5X15
MCRF105	18	5	102	15	35	18	193	20	47	105	25	80	M4X8L P.C.D 64	6X6X18
MCRF110	20	8	155	20	35	20	258	25	52	110	30	90	M5X10L P.C.D 73	8X7X20
MCRF125	22	8	159	20	35	22	266	30	67	125	35	100	M5X8L P.C.D 81	10X8X22
MCRF130	25	8	160	20	35	25	273	35	72	130	40	105	M5X8L P.C.D 86	10X8X25



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