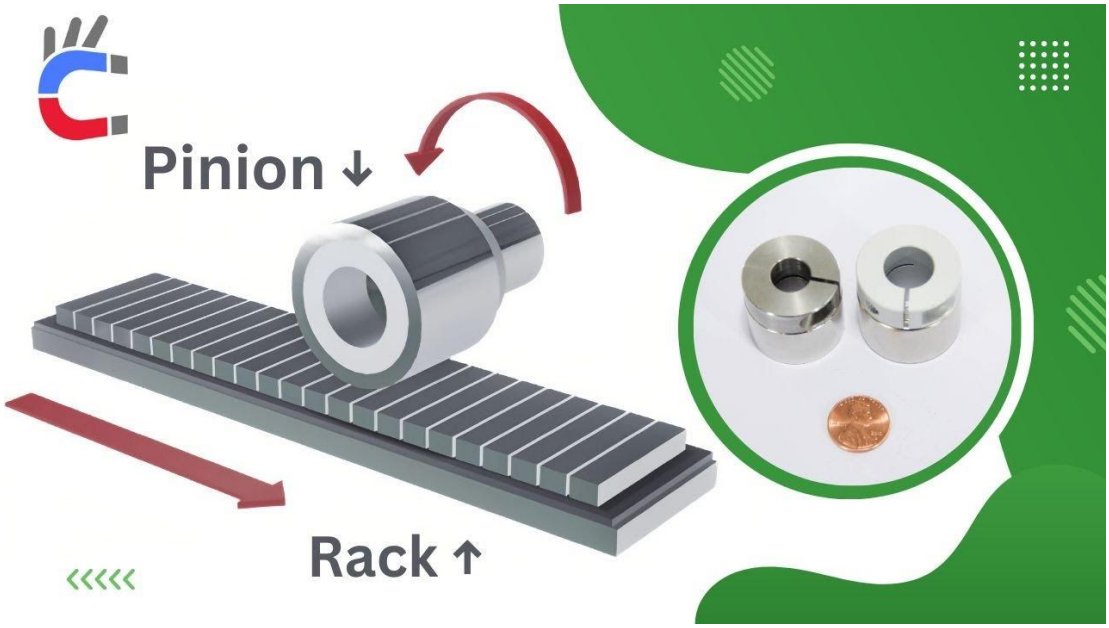
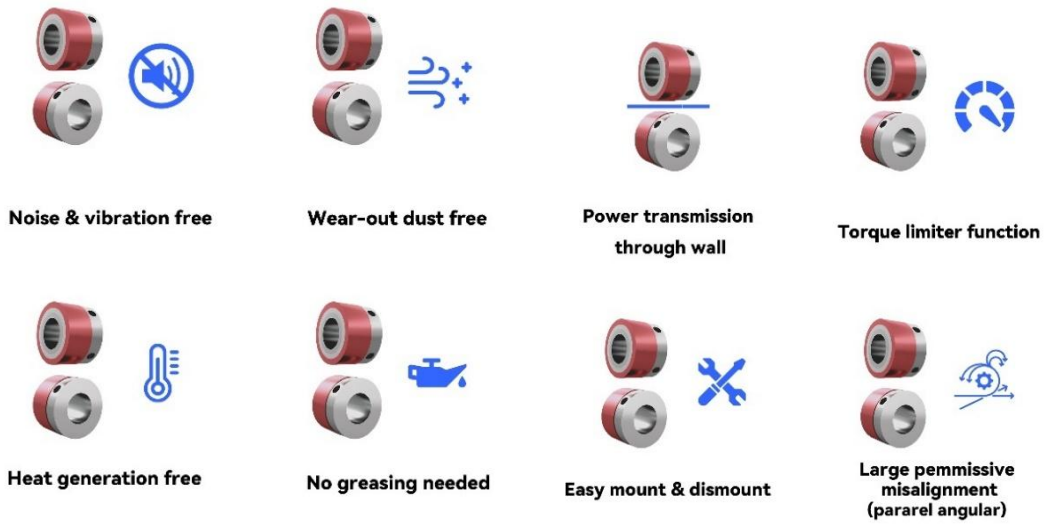
Non-contact Magnetic Rack & Pinion Gear



Overview of Magnetic Rack & Pinion Gears

A magnetic rack & pinion gear transmission system consists of a magnetic gear and a magnetic track. This proposal introduces a groundbreaking new type of transportation rack that can be easily transformed into a rack upon attachment. It incorporates a magnetic rack & pinion gear system that operates in two transmission modes: Parallel Type and Cross Type. These systems offer the following advantages:



Compare Parallel type and cross type Rack & pinion gear:

Pros of parallel type	Pros of Cross Type
1. Stronger torque	1. Smooth working process
2. Lower price	2. Smaller vibration during operation
3. Any shaft diameter can be customized	3. Any shaft diameter can be customized
4. Any track length can be customized	4. Any track length can be customized
Cons of parallel type	**Cons of cross type**
The vibration during operation is greater than the cross type with the same number of poles.	The torque during operation is less than the parallel type with the same number of poles. The price is higher because the track poles are tilted.

Customization Notes: Magnetic Rack & Pinion Gears

1. Pole Count:

More poles usually mean smoother running and less vibration. Fewer poles mean a larger magnetic area, which can transmit more torque, but might cause more vibration.

2. How to Customize:

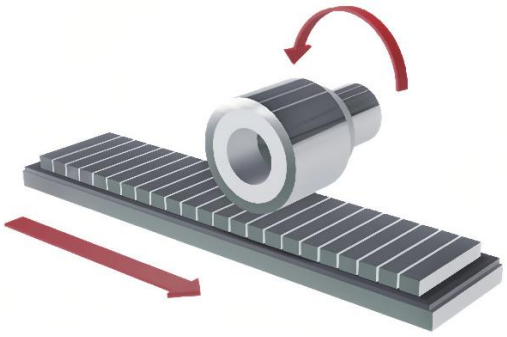
You need to choose the magnetic pinion gear first. Then, we will customize the track according to the size and pole count of that pinion gear.

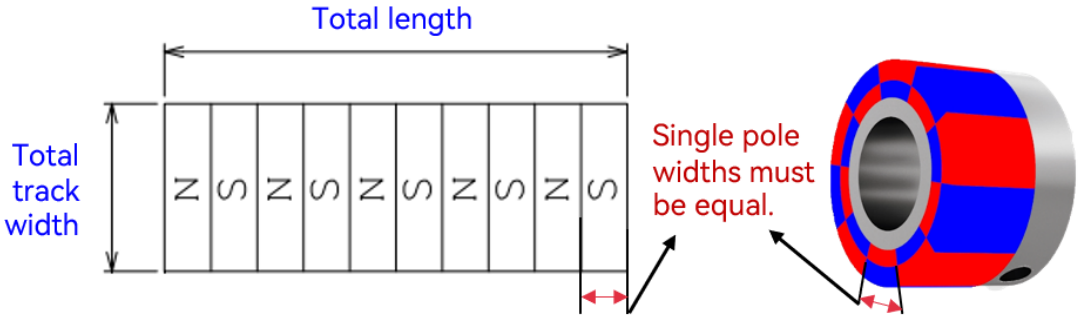
3. Information Needed:

If you want to customize this device, please provide the Total Length of the magnetic track and the locations of the screw holes.

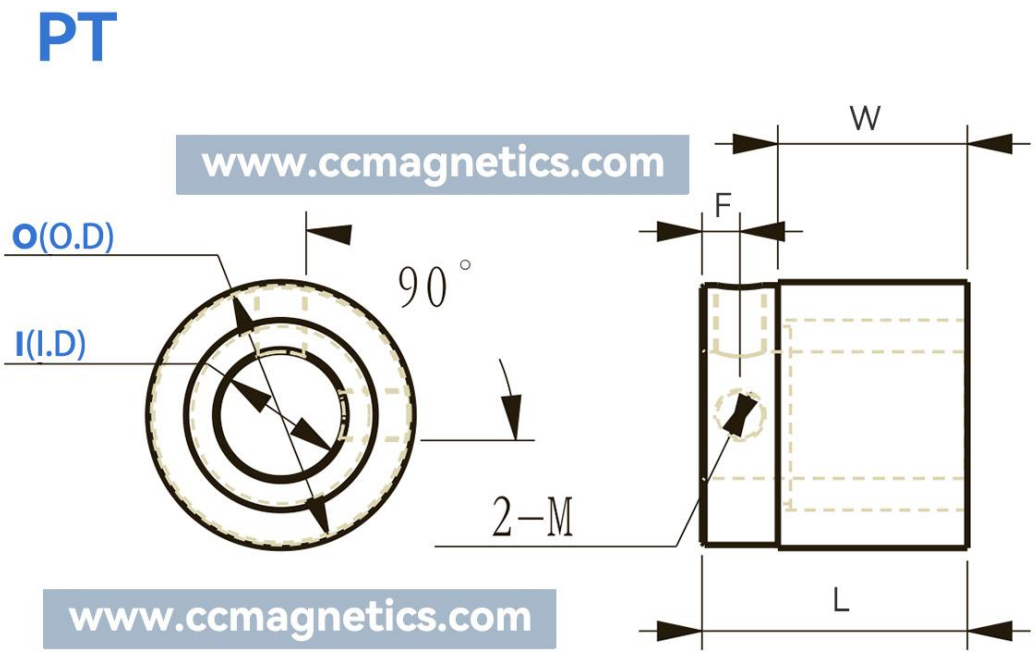
Parallel type Magnetic Rack & Pinion Gears

Parallel Type: Pinion (PT) outer diameters range from 13 mm to 90 mm, with custom shaft diameters. Magnetic track widths can be customized from 8 mm to 40 mm, and track lengths can be customized to any desired length.





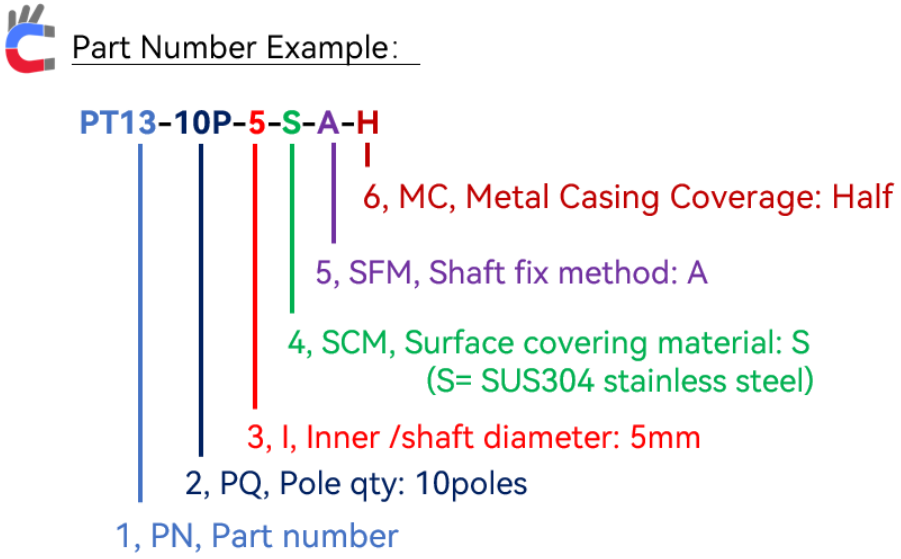
Specification of PT gear :



PN	PQ	(I) I.D	SCM	SFM	MC	Tq	(O) O.D	L	W	F	M
PT13	10P	5~6	A/S	C/A	H	2.2N.m	13	15	10	2.5	M2.5
PT16	12P	6~10	A/S	C/A	H	0.05N.m	16	13	8	2.5	M2.5
PT21	8P	8~12	A/S	C/A	H	0.2N.m	21	21	15	3	M4
PT22	18P	8~12	A/S	C/A	F/H	0.13N.m	22	18	12	3	M4

PT22	8P	8~12	L/T	A	F/H	0.13N.m	22	22	16	-	M4
PT24	12P	8~12	A/S	C/A	F/H	0.4N.m	24	19	12	3.5	M4
PT26	12P	8~15	A/S	C/A	F/H	0.45N.m	26	21	14	3.5	M4
PT26	18P	8~15	A/S	C/A	F/H	0.21N.m	26	21	14	3.5	M4
PT27	8P	8~12	L/T	A	F/H	0.3N.m	27	22	15	-	M4
PT27	10P	8~12	L/T	A	F/H	0.26N.m	27	22	15	-	M4
PT28	12P	8~15	A/S	C/A	F/H	0.32N.m	28	25	14	3.5	M4
PT29	8P	8~15	L/T	C/A	F/H	0.36N.m	29	25	17	4	M4
PT30	10P	8~15	A/S	C/A	F/H	0.39N.m	30	25	18	3.5	M4
PT30	8P	10~15	L/T	C/A	F/H	0.38N.m	30	25	18	3.5	M4
PT30	10P	10~15	L/T	C/A	F/H	0.35N.m	30	25	18	3.5	M4
PT31	8P	10~20	L/T	A	F/H	0.4N.m	31	25	18	-	M4
PT31	10P	10~20	L/T	A	F/H	0.39N.m	31	25	18	-	M4
PT32	10P	10~20	A/S	C/A	F/H	0.8N.m	32	30	20	4	M4
PT35	12P	10~20	A/S	C/A	F/H	1.1N.m	35	32	21.5	5.25	M5
PT35	18P	10~20	A/S	C/A	F/H	0.7N.m	35	32	21.5	5.25	M5
PT36	08P	10~20	L/T	A	F/H	0.78N.m	36	32	22	-	M5
PT36	10P	10~20	L/T	A	F/H	0.72N.m	36	32	22	-	M5
PT36	12P	10~20	L/T	A	F/H	0.58N.m	36	32	22	-	M5
PT39	16P	10~20	A/S	C/A	F/H	1.5N.m	39	35.8	26.5	5	M5
PT40	12P	10~20	L/T	A	F/H	0.98N.m	40	36.5	26	-	M5
PT45	10P	10~20	A/S	C/A	F/H	2.2N.m	45	34	25	4	M5
PT53	10P	20~30	L/T	A	F/H	1.8N.m	53	37	26	-	M5
PT60	10P	20~25	A/S	C/A	F/H	4N.m	60	50	37	6.5	M6
PT90	14P	40	A/S	C/A	F/H	9N.m	90	70	40	15	M6

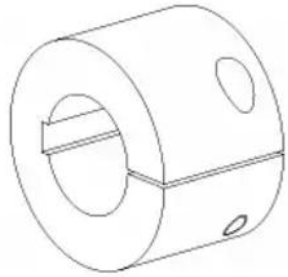
Note:



No.	Item	Description	Notes
1	PN	Part Number	The number after PN is the outer diameter of the magnetic coupling in millimeters.
2	PQ	Pole Quantity	Number of magnets on one magnetic coupling.
3	I	Inner Diameter	Unit of length is millimeters.
4	SCM	Surface Covering Material	A=A6061 (aluminum alloy), S=SUS304 (stainless steel), L=SUS316L (stainless steel), T=TC4 (Titanium Alloy).
5	SFM	Shaft Fixing Method	Type A: Setscrew Type B: Setscrew and keyway Type C: Clamping hub slot and keyway. Refer to the drawing for the shaft fixing method.
6	MC	Metal Casing Coverage	F= Fully seals magnets with metal casing. Waterproof and corrosion-resistant. H= Half-seals magnets with metal casing.
7	Tq	Torque	The torque value shown is for a 1mm gap.
8	O	Outer diameter.	Unit of length is millimeters.
9	L,W,F,M	Unit of length on the drawing.	Unit of length is millimeters.

Type A
Setscrew

Type B
Setscrew and keyway



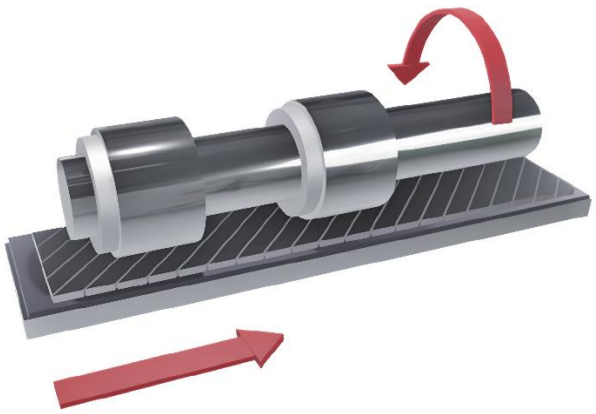
Type C
Clamping hub slot and keyway

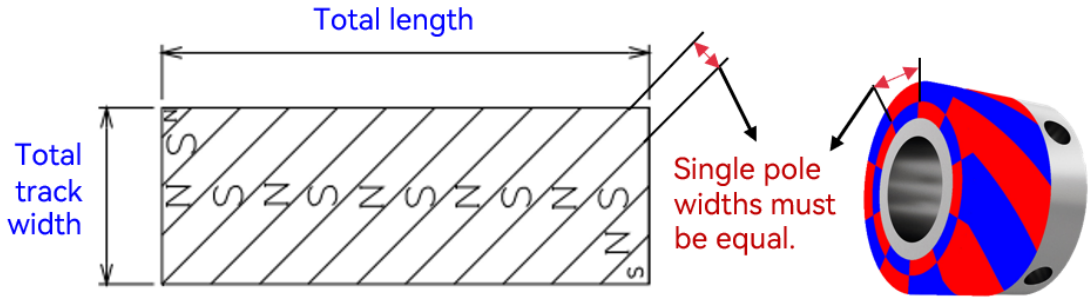
Specification of magnetic track :

Magnetic track width	As wide as the magnet part of the pinion gear.
Magnetic track lenth	Customizable
Material	Neodymium sintered magnet / 6061 aluminium alloy
Surface treatment	Ni-Cu-Ni (Magnets)
Max.operating temperature	80°C

Specification of CT magnetic pinion gear :

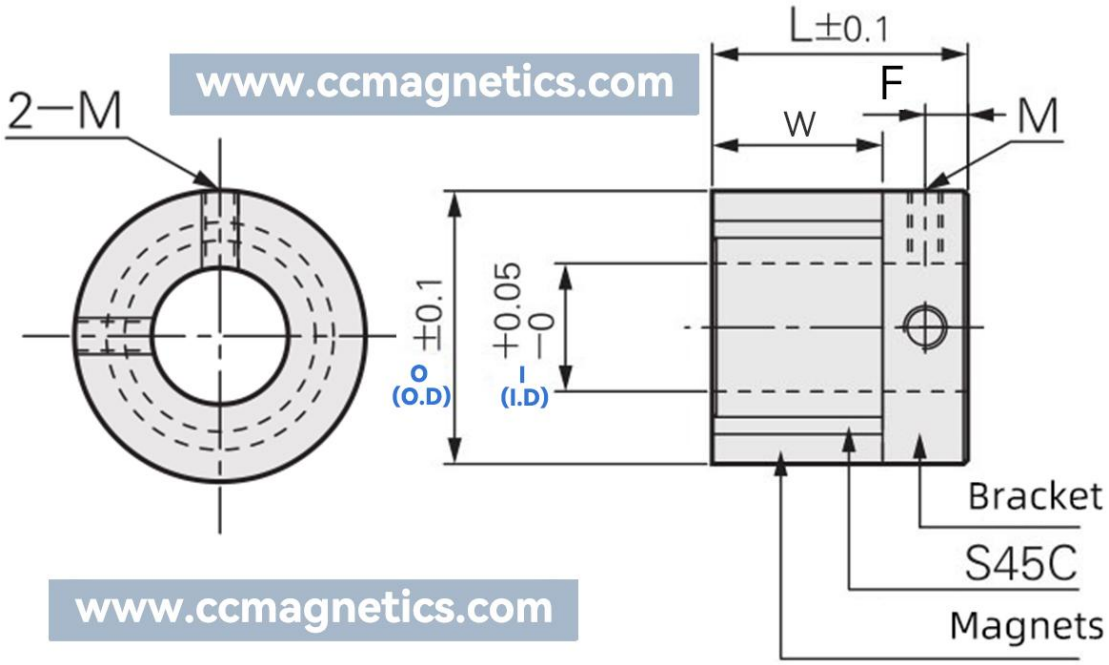
Cross Type: Pinion (CT) outer diameters range from 13 mm to 65 mm, with custom shaft diameters. Magnetic track widths can be customized from 8 mm to 35 mm, and track lengths can be customized to any desired length.





Specification of CT gear :

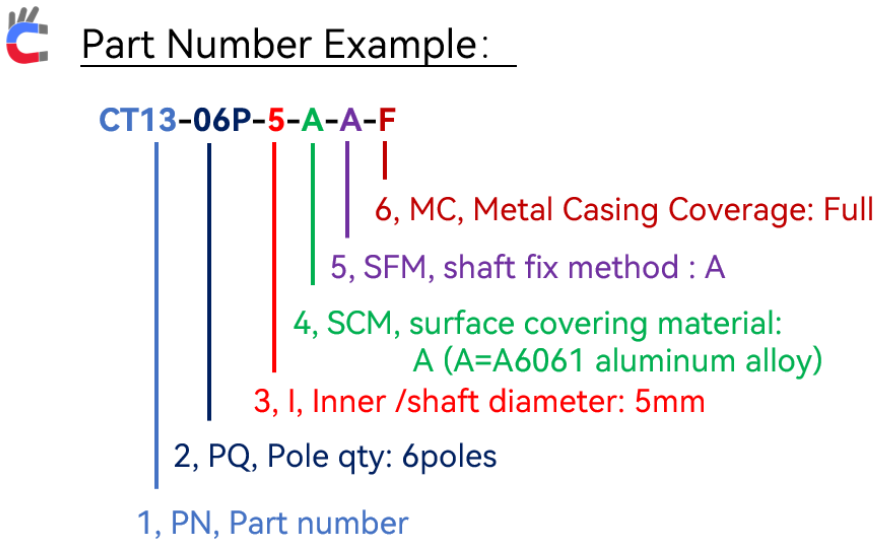
CT



PN	PQ	(I) I.D	SCM	SFM	MC	Tq	(O) O.D	L	W	F	M
CT13	6P	5~6	A/S	A	H	0.012N.m	13	15	10	2.5	M3
CT16	8P	5~8	A/S	A	H	0.025N.m	16	13	8	2.5	M3
CT16	12P	5~8	A/S	A	H	0.015N.m	16	13	8	2.5	M3
CT18	8P	6~8	A/S	A	H	0.05N.m	18	15	10	2.5	M3
CT21	6P	6~12	A/S	C/A	F/H	0.13N.m	21	21	15	3	M4
CT21	8P	6~12	A/S	C/A	F/H	0.11N.m	21	21	15	3	M4
CT21	16P	6~12	A/S	C/A	F/H	0.07N.m	21	21	15	3	M4
CT22	8P	8~12	L/T	A	F/H	0.09N.m	22	22	16	-	M4
CT22	18P	6~12	A/S	C/A	F/H	0.07N.m	22	18	12	3	M4
CT25	10P	6~15	A/S	C/A	F/H	0.15N.m	25	22	15	3.5	M4
CT26	8P	6~15	A/S	C/A	F/H	0.2N.m	26	21	14	3.5	M4
CT26	10P	6~15	A/S	C/A	F/H	0.16N.m	26	21	14	3.5	M4
CT26	12P	6~15	A/S	C/A	F/H	0.14N.m	26	21	14	3.5	M4
CT26	20P	6~15	A/S	C/A	F/H	0.05N.m	26	21	14	3.5	M4
CT27	8P	8~12	L/T	A	F/H	0.14N.m	27	22	15	-	M4
CT27	10P	8~12	L/T	A	F/H	0.11N.m	27	22	15	-	M4
CT28	8P	8~15	A/S	C/A	F/H	0.22N.m	28	25	17	4	M4
CT29	8P	8~15	L/T	C/A	F/H	0.25N.m	29	25	17	4	M4
CT30	8P	10~15	L/T	C/A	F/H	0.31N.m	30	25	18	3.5	M4
CT30	10P	10~15	L/T	C/A	F/H	0.28N.m	30	25	18	3.5	M4
CT31	8P	10~20	L/T	A	F/H	0.25N.m	31	25	18	-	M4
CT31	10P	10~20	L/T	A	F/H	0.23N.m	31	25	18	-	M4

CT32	08P	8~20	A/S	C/A	F/H	0.4N.m	32	30	20	5	M4
CT32	10P	8~20	A/S	C/A	F/H	0.32N.m	32	30	20	5	M4
CT32	12P	8~20	A/S	C/A	F/H	0.28N.m	32	30	20	5	M4
CT32	20P	8~20	A/S	C/A	F/H	0.09N.m	32	30	20	5	M4
CT35	08P	8~20	A/S	C/A	F/H	0.55N.m	35	32	21.5	5.25	M5
CT35	10P	8~20	A/S	C/A	F/H	0.45N.m	35	32	21.5	5.25	M5
CT35	12P	8~20	A/S	C/A	F/H	0.36N.m	35	32	21.5	5.25	M5
CT35	18P	8~20	A/S	C/A	F/H	0.36N.m	35	32	21.5	5.25	M5
CT36	08P	10~20	L/T	A	F/H	0.4N.m	36	32	22	-	M5
CT36	10P	10~20	L/T	A	F/H	0.35N.m	36	32	22	-	M5
CT36	12P	10~20	L/T	A	F/H	0.3N.m	36	32	22	-	M5
CT39	08P	15~20	A/S	C/A	F/H	0.8N.m	39	35.8	26.6	4.6	M5
CT39	12P	15~20	A/S	C/A	F/H	0.58N.m	39	35.8	26.6	4.6	M5
CT39	16P	15~20	A/S	C/A	F/H	0.4N.m	39	35.8	26.6	4.6	M5
CT40	12P	10-20	L/T	A	F/H	0.58N.m	40	36.5	26	-	M5
CT40	16P	15~25	A/S	C/A	F/H	0.42N.m	40	34	24	5	M5
CT42	12P	15~25	A/S	C/A	F/H	0.74N.m	42	30	21	4.5	M5
CT42	18P	15~25	A/S	C/A	F/H	0.42N.m	42	30	21	4.5	M5
CT45	10P	15~30	A/S	C/A	F/H	1.2N.m	45	35	25	4.5	M4
CT45	12P	15~30	A/S	C/A	F/H	0.95N.m	45	35	25	4.5	M4
CT46	10P	15-25	L/T	A	F/H	0.83N.m	46	27	26	-	M5
CT52	10P	20~35	A/S	C/A	F/H	1.45N.m	52	37	25	5	M5
CT53	10P	20~30	L/T	A	F/H	0.95N.m	53	37	26	-	M5
CT65	18P	20~40	A/S	C/A	F/H	1.95N.m	65	50	35	7.5	M6

Note:



No.	Item	Description	Notes
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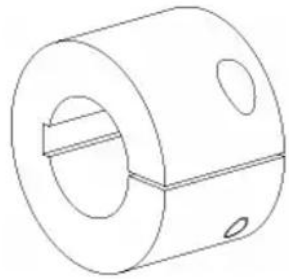
3	I	Inner Diameter	Unit of length is millimeters.
4	SCM	Surface Covering Material	A=A6061 (aluminum alloy), S=SUS304 (stainless steel), L=SUS316L (stainless steel), T=TC4 (Titanium Alloy).
5	SFM	Shaft Fixing Method	Type A: Setscrew Type B: Setscrew and keyway Type C: Clamping hub slot and keyway. Refer to the drawing for the shaft fixing method.
6	MC	Metal Casing Coverage	F= Fully H= Half
7	Tq	Torque	The torque value shown is for a 1mm gap.
8	O	Outer diameter.	Unit of length is millimeters.
9	L,W,F,M	Unit of length on the drawing.	Unit of length is millimeters.

Type A
Setscrew

Type B
Setscrew and keyway

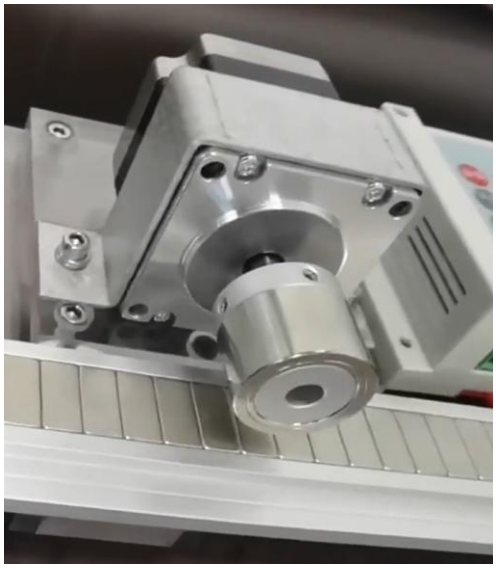


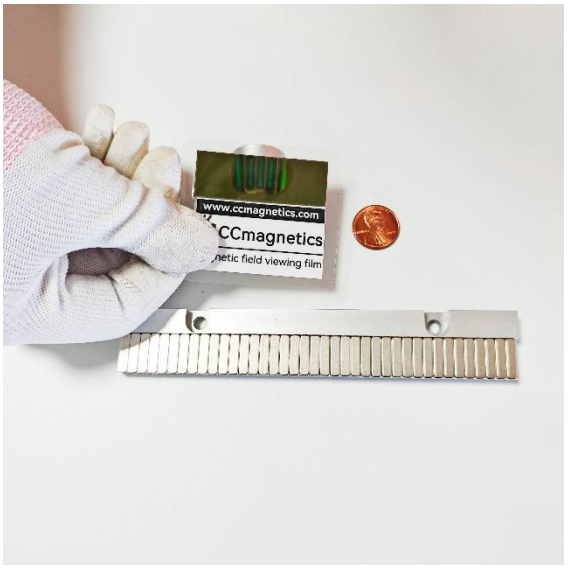
Type C
Clamping hub slot and keyway

Specification of magnetic track :

Magnetic track width	As wide as the magnet part of the pinion gear.
Magnetic track lenth	Customizable
Material	Neodymium sintered magnet / 6061 aluminium alloy
Surface treatment	Ni-Cu-Ni (Magnets)
Max.operating temperature	80℃

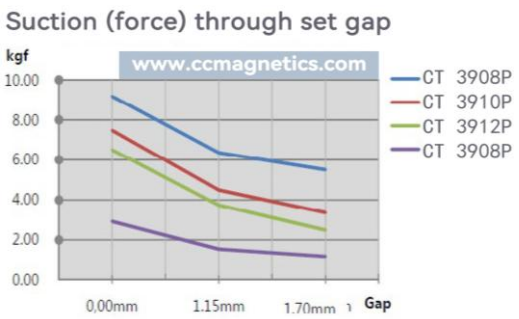
Applications:

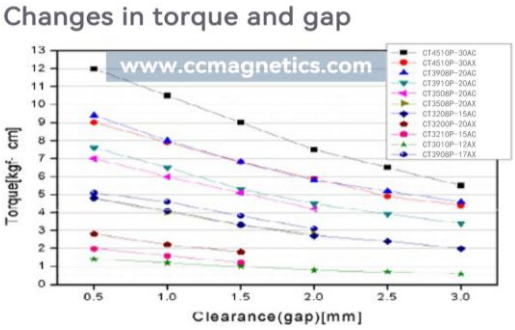




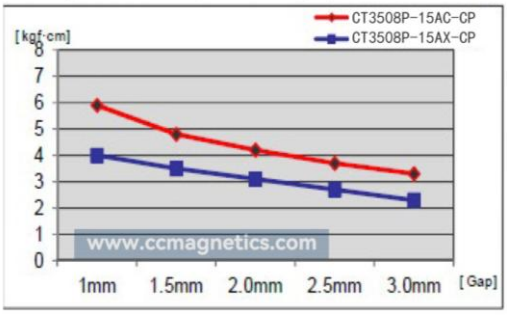
- Cleanroom and noise-free workshop: Transmission devices for environments requiring dust-free and quiet operation.
- Pharmaceutical and chemical industries: Transmission equipment for pharmaceutical and chemical processing.
- Precision electronic equipment: Transmission devices for PCB and other precision electronic equipment.
- Universities and research laboratories: Equipment for research and development.

Test report of magnetic transmission gear

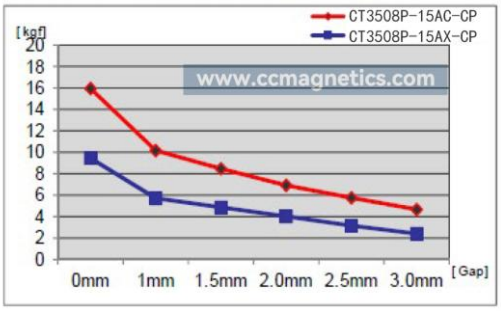




Changes in torque and gap



Suction (force) through set gap



About Us:

Established in 2010 and headquartered in Beijing, China, CCmagnetics is a duly registered commercial entity operating under the auspices of the Chinese industrial and commercial authorities.

CCmagnetics supplies contactless magnetic drives products to 39 countries and regions worldwide. This is made possible by: exquisite workmanship, meticulous and professional service, and extremely high overall cost performance. Our products have won widespread praise from global customers.

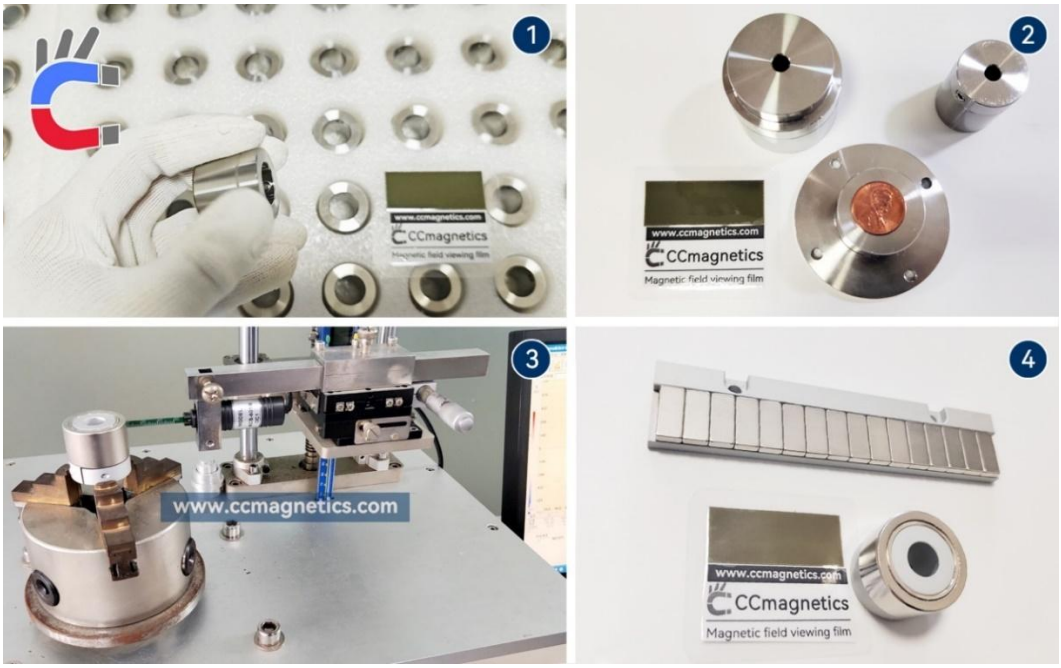


Image Captions:

1. Stainless steel 316l (UNS31603) PT series magnetic gear pairs awaiting packaging and shipment to germany.
2. Custom-made stainless steel 304 (UNS30400) co-axial magnetic couplings for our valued customer.
3. All magnetic drive/transmission products undergo rigorous magnetic field testing before shipment.
4. Custom-made rack pinion gears designed for laboratory liquid shaking applications.

Representative Patents

Since its inception, our company has been dedicated to the field of magnetic transmission and magnetic rings. Our representative patents include:

Patent Name 1: Comprehensive management system for magnetic ring production line.
Patent Name 2: Fixture tooling for rubber mold.
Patent Name 3: Axial magnetization equipment.
Patent Name 4: Magnetic detection equipment for sealing ring.
Patent Name 5: Torque adjustable magnetic coupling.
Patent Name 6: Magnetic suction coupling with clutch function.

Ordering Information:

Delivery Timeframe

- Custom/Out-of-Stock Products: Shipment will be completed within 4 weeks after receiving your payment.

- In-Stock Products: To ensure product quality and safety, we will conduct inspections and arrange shipments within 5 days.

- Logistics Tracking: After shipment, your dedicated account manager will promptly send the Tracking Number to your email for real-time order monitoring.

Shipping Method & Timeframe

We use specialized magnet shipping services to ensure safety and stability during transit. Delivery time typically ranges from 7 to 14 days, depending on the destination.

Certifications

CCmagnetics products are certified by internationally recognized authorities, including:

- IATF16949 (issued by SGS)
- ISO9001 (issued by SGS)
- Management System Certificate (issued by DNV)

Test Reports

By default, we provide product test reports issued by the CCmagnetics Testing Center. For specific requirements, we can facilitate third-party test reports or methods, such as the Spart Direct Reading Spectrometer.

Payment

- Accepted payment methods: Proforma invoice and 100% T/T.
- Credit card payments are accepted with a 2.9% surcharge.
- Packaging and Logistics
- We accept delivery through your preferred shipping company.
- Our packaging materials (tinplate, kraft paper, and foam) comply with environmental regulations in most countries, including the EU and North America.

Delivery Time

- Shipment will be arranged within 30 days after receipt of payment. Delivery may be shorter if our factory schedule permits.
- Transportation time is estimated at 7-10 days.

After-Sales Service

- All products undergo rigorous quality inspection and testing before leaving the factory.
- Based on the demagnetization curve of neodymium iron boron, our products have a lifespan of 60-100 years under normal conditions.
- Our products are made of internationally standard metals and magnets, with adhesives from the well-known brand 3M. Additional material safety reports are available upon request.
- If quality issues arise within one year, provide photos as proof. We will compensate for a new product in your next order. The defective product does not need to be returned.

Contact us

Email: sales@ccmagnetics.com
Phone/WhatsApp: +86 18611633383
Address: Building 1, No. 9 Linhe South Street, Shunyi District, Beijing, China
Business Hours: Monday to Friday, 9:00 AM to 5:30 PM