Breakthrough Technology for Process Control

...Welcome to the Next Industrial Revolution

MagnaDrive™

RELIABLE › EFFICIENT › SUSTAINABLE › SAFE

More than just a coupling

MagnaDrive's breakthrough magnetic technology provides a cost effective solution to increase reliability and lower maintenance expense while achieving energy savings and process control.

The impact and potential of MagnaDrive's worldwide patent protected technology is widely recognized. MagnaDrive offers a family of products to accomplish a broad range of operating objectives: Reliability, Speed Control, Torque Management, Cushioned Start, Vibration Control, Misalignment Tolerance and Reduced Energy Consumption.

MagnaDrive couplings and Adjustable Speed Drives transfer torque across an air gap eliminating the physical connection between motor and load. The advantage of the air gap in combination with no physical connection is it helps: reduce harmful vibration, allow for misalignment, minimize wear and tear on equipment, eliminate side loading, limit peak torque transmitted, and generally increase motor and equipment life. The MagnaDrive couplings also reduce energy consumption when applied to variable torque equipment. The result is a lower total cost of ownership driven by greatly reduced maintenance requirements, less process down-time, and a reduction in energy consumption.

Industries currently installed in:

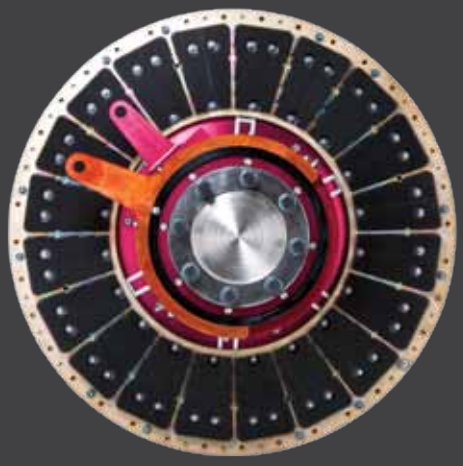
- Mining & Cement
- Power Generation
- Oil & Gas
- Chemical Processing
- Pulp & Paper
- HVAC
- Water & Wastewater
- Irrigation
- Maritime
- General Manufacturing
- And many more

Equipment most commonly used on:

- Conveyor Belts
- Bucket Elevators & Other Bulk Handling Equipment
- Pumps
- Compressors
- Centrifuges
- Fans
- Blowers
- Chippers
- Crushers
- Hammermills
- Mixers

Benefits of All MagnaDrive Couplings

- Reduced vibration
- Cushioned starts
- Mechanical stresses reduced
- "Slips through" load seizures protecting system components
- Cushions shock-loadings
- Tolerance of misalignment
- Allows for thermal expansion
- Low or no maintenance
- Tolerates dirty environments
- Energy savings with speed reduction of variable torque loads
- Easy installation
- No fluids, oils, chemicals
- No EMI (Electromagnetic interference)
- Suitable for both constant and variable torque applications



MagnaDrive Standard Couplings FGC & MGD

MagnaDrive manufactures a family of permanent magnet couplings used to connect a load shaft to electric motors, diesel engines or other drive shafts. These couplings have been successfully used across the world in multiple industries for conveyors, pumps, fans, crushers, chippers, a variety of bulk handling equipment, etc. The MagnaDrive couplings have replaced fluid couplings as well as traditional rigid and flexible couplings and offer benefits no other coupler can match. The couplings transmit torque without any physical connection of the drive and load shafts, virtually eliminating problems and accelerated wear caused by misalignment, vibration, shock loading and load seizures. The ability of the MagnaDrive couplings to rotate with no mechanical connection protects against expensive repairs and unwanted down time and has been shown to increase the life expectancy of attached equipment.

- Proven Energy Savings
- "Green" Disconnected TorqueTechnology
- No Physical Connection Between Motor and Load
- No Lubrication Required
- Lowest Total Cost of Ownership
- Efficient Torque Transfer
- Accepts Misalignment
- Cushioned Start
- Eliminates Vibration Transfer Between Motor and Load
- Low Maintenance
- Simple Installation & Operation
- Increases Seal & Bearing Life
- Reduces Equipment Down Time
- Protects Connected Equipment

FGC (Fixed Gap Coupling)

- 3 - 4200 HP (1800 rpm)*
- 2 - 3133 kw (1800 rpm)*
- Torque rating can be fine tuned with many available air gaps
- Shafts: standard or special sizes available
- Distance Between Shaft Ends (DBSE): within or beyond standard range
- Most customizable with regard to shaft sizes and DBSE
- Perfect for equipment that experiences:
  - Vibration
  - Periodic Load Seizure
  - Pulsating Loads
  - Thermal Expansion
  - Shock Loading
  - Tight Space Constraints
  - Fluid Coupling Problems

MGD (MagnaGuard Dual)

- 23 - 990 HP (1800 rpm)*
- 17 - 739 kw (1800 rpm)*
- Ideal for low to medium inertia system
- Corrosive resistant
- Motor and gear box protection
- Dual Magnet Rotors
- Reduced torque at start-up provides additional cushioning for smooth start
- Reduced torque during load upsets provides partial disconnection feature
- Air gap automatically increases 1.6 mm at start-up and during load seizures
- Torque reduced at start-up

***Sample Rating Only.** Consult MagnaDrive Corp. for your specific application or use MagnaDrive selection software.

Technical Data

FGC

	Conductor Side Assembly					Magnet Side Assembly				Coupling				
	Ø	Length L	Weight	Driver Shaft End to CG*	WR2	MAX RPM	Weight	Load Shaft end to CG*	WR2	DBSE (Typical)*	"Coupling OAL"*	Angular Misalignment Capacity	Coupling Internal Radial Clearance	Peak Torque (at min. Air-gap)
Model	(inch)	(inch)	(lb)	(inch)	(lbf*inch^2)		(lb)	(inch)	(lb*inch^2)	(inch)	(inch)	(degrees)	(inch)	(inch*lb)
4.5S		2.91	9	0.75	35	3,600	5	0.61	10	2.63	5.16	2.39	0.25	215
6.5S		2.91	15	0.75	330	3,600	7	0.61	58	1.91	4.61	1.65	0.25	484
8.5S	11.00	3.81	36	1.40	550	3,600	12	0.91	85	3.20	5.97	1.68	0.25	1,377
10.5S	13.00	3.69	55	1.38	1,165	3,600	20	0.90	195	3.23	6.29	1.36	0.25	2,667
12.5S	15.00	3.69	71	1.75	2,025	3,600	28	0.73	379	3.28	6.17	1.15	0.25	4,130
14.5S	17.00	3.94	96	1.16	3,340	3,600	39	0.60	725	2.79	6.52	0.99	0.25	6,309
16.5S	19.00	3.94	110	1.65	5,025	3,600	55	0.46	1,310	3.35	7.05	0.87	0.25	8,947
18.5S	21.00	3.94	147	1.44	7,990	3,000	76	1.30	1,900	4.36	8.00	0.77	0.25	12,045
20.5S	23.00	3.94	173	1.38	11,140	3,000	76	0.59	2,590	3.04	6.50	0.87	0.25	13,931
22.5S	25.00	3.94	201	1.55	15,650	3,000	101	0.64	4,130	4.44	9.49	0.80	0.25	17,517
24.5S	27.00	3.94	224	1.32	20,380	2,800	107	1.14	5,250	3.87	8.14	0.73	0.25	21,512
26.5S	29.00	3.94	300	1.32	28,500	2,800	160	1.14	8,480	3.87	8.14	0.81	0.25	22,918
28.5S	31.00	3.94	309	1.32	37,890	2,800	150	1.14	10,130	3.87	8.14	0.75	0.25	27,175
10.5D	13.00	5.44	80	2.25	1,500	3,600	40	2.00	700	5.00	9.00	1.36	0.25	5,334
12.5D	15.00	5.44	105	2.67	3,500	3,600	52	2.19	800	5.50	9.00	1.15	0.25	8,259
14.5D	17.00	5.44	140	2.50	5,000	3,600	60	2.25	1,100	6.00	9.00	0.99	0.25	12,618
16.5D	19.00	5.44	160	2.50	8,000	3,000	90	2.25	2,500	6.00	9.00	0.87	0.25	17,895
18.5D	21.00	5.44	187	2.31	11,787	3,000	108	2.17	3,645	6.00	9.50	0.77	0.25	24,089
20.5D	23.00	5.69	224	2.66	16,630	3,000	123	1.80	5,270	6.00	10.50	0.87	0.25	27,863
22.5D	25.00	5.69	273	2.27	23,103	3,000	148	1.27	7,590	6.00	11.00	0.80	0.25	35,033
24.5D	27.00	5.69	290	2.30	29,866	2,800	160	1.40	10,335	6.00	11.00	0.73	0.25	43,023
26.5D	29.00	5.94	320	2.25	35,000	2,800	190	1.40	15,000	6.00	11.00	0.81	0.25	45,836
28.5D	31.00	5.94	390	2.38	50,000	3,600	240	1.40	20,000	6.00	11.00	0.75	0.25	54,351
17.0S	20.75	6.38	214	2.51	10,830	3,600	92	2.12	2,590	6.00	10.38	0.84	0.25	14,353
19.0S	22.75	6.38	271	2.55	15,840	3,600	126	2.51	4,030	6.32	10.17	0.75	0.25	20,184
21.0S	24.75	6.38	313	2.55	23,000	3,600	170	2.51	6,050	6.32	10.17	0.85	0.25	23,579
25.0S	28.75	6.38	428	3.19	41,860	3,600	256	2.79	13,700	8.38	13.30	0.72	0.38	42,667
29.0S	32.75	6.38	535	3.03	69,340	3,000	297	2.05	22,560	7.37	12.88	0.74	0.38	57,757
33.0S	36.75	6.38	674	2.69	108,000	1,800	403	1.40	38,060	6.17	11.83	0.65	0.38	81,910
37.0S	40.75	6.38	876	2.44	170,610	1,800	586	1.98	67,060	7.39	14.05	0.58	0.38	110,262
21.0D	24.75	12.50	500	5.00	41,000	3,600	250	5.00	12,000	12.00	20.00	0.85	0.25	47,158
25.0D	28.75	13.50	640	5.25	80,000	3,600	300	4.50	26,000	12.00	20.00	0.72	0.38	85,334
29.0D	32.75	13.50	865	5.95	126,427	3,600	565	4.00	47,280	12.75	20.00	0.74	0.38	115,515
33.0D	36.75	13.50	1020	6.00	191,890	3,600	750	5.50	76,630	14.00	21.00	0.65	0.38	163,821
37.0D	40.75	13.50	1300	6.00	250,000	3,600	900	5.50	100,000	14.00	22.00	0.58	0.38	220,528

MGD

	Conductor Side Assembly					Magnet Side Assembly				Coupling				
	Ø	Width	Weight	Driver Shaft End to CG*	WR2	MAX RPM	Weight	Distance to CG*	WR2	DBSE*	"Coupling OAL"*	Angular Misalignment Capacity (Limit)	Coupling Internal Radial Clearance **	Peak Torque (at min. Air-gap)
Model	(inch)	(inch)	(lb)	(inch)	(lbf*inch^2)		(lb)	(inch)	(lb*inch^2)	(inch)	(inch)	(degrees)	(inch)	(inch*lb)
12/20	11.75	6.21	37	2.41	615	3,600	39	2.55	420	6.86	10.05	1.46	0.16	1,250
14/30	14.50	6.21	55	2.71	1,340	3,600	53	2.81	880	6.86	10.05	1.75	0.25	2,240
14/40	14.50	6.21	55	2.71	1,340	3,600	58	2.86	970	6.86	10.05	1.17	0.25	3,130
14/50	14.50	6.21	55	2.71	1,340	3,600	60	2.88	1,010	6.86	10.05	1.17	0.25	3,580
16/60	16.50	6.21	71	2.87	2,280	3,600	74	3.00	1,790	6.86	10.05	0.99	0.19	4,380
16/75	16.50	6.21	71	2.87	2,280	3,600	78	3.02	1,920	6.86	10.05	0.99	0.19	5,470
16/100	16.38	7.09	79	3.30	2,510	3,600	97	3.79	2,230	8.82	12.02	0.99	0.13	6,580
16/125	16.38	7.09	79	3.30	2,510	3,600	103	3.84	2,390	8.82	12.02	0.99	0.13	8,780
16/150	16.38	7.09	79	3.30	2,510	3,600	109	3.89	2,550	8.82	12.02	0.99	0.13	11,000
16/200	16.38	7.09	79	3.30	2,510	3,600	115	3.93	2,700	8.82	12.02	0.99	0.13	13,200
18/250	18.50	7.09	101	3.48	4,070	3,600	132	3.72	4,310	8.43	11.63	0.87	0.19	18,400
18/300	18.50	7.09	101	3.48	4,070	3,600	138	3.74	4,530	8.43	11.63	0.87	0.19	21,100
20/350	22.13	7.26	175	3.53	10,160	3,600	205	3.46	7,540	8.64	12.78	0.76	0.13	25,100
20/400	22.13	7.26	175	3.53	10,160	3,600	211	3.49	7,850	8.64	12.78	0.76	0.13	28,200
22/450	24.13	7.26	203	3.65	14,120	3,600	232	3.55	10,420	8.64	12.78	0.70	0.13	31,600
22/500	24.13	7.26	203	3.65	14,120	3,600	238	3.57	10,820	8.64	12.78	0.70	0.13	35,200
22/600	24.13	7.26	203	3.65	14,120	3,600	244	3.58	11,220	8.64	12.78	0.70	0.13	38,700
24/700	27.80	8.14	299	4.08	27,320	3,600	393	4.07	25,800	10.14	15.60	0.58	0.25	67,600
24/1000	27.80	8.14	299	4.08	27,320	3,600	419	4.11	28,090	10.14	15.60	0.58	0.25	87,000

These dimensions may vary per application | *at min. shaft engagement | **For Parallel Shaft MAL

MagnaDrive couplings transmit torque between the motor and load without physically connecting the shafts.

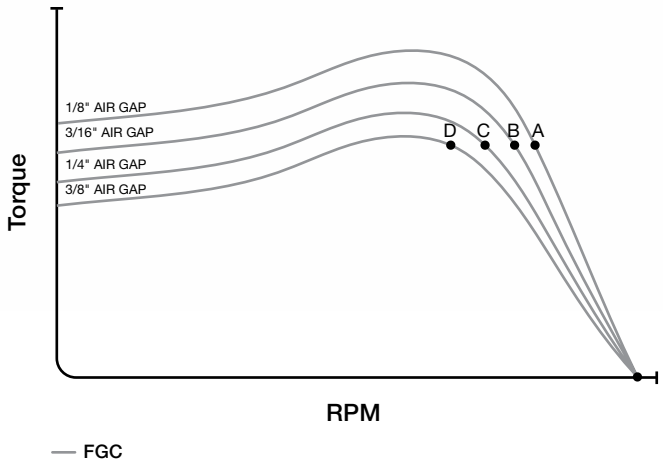
Torque is force times distance. An interaction between permanent magnets and copper creates the force. The strength of the force depends upon the strength of the magnet, the thickness of the copper and the air gap between the magnet and the copper. The distance in the torque equation is the distance between the center of the shaft and the permanent magnet. By adjusting the air gap, the number of magnets and the strength of the magnet, MagnaDrive provides a large range of couplers with capabilities and applications that go well beyond what a standard coupler can offer.

FGC & MGD

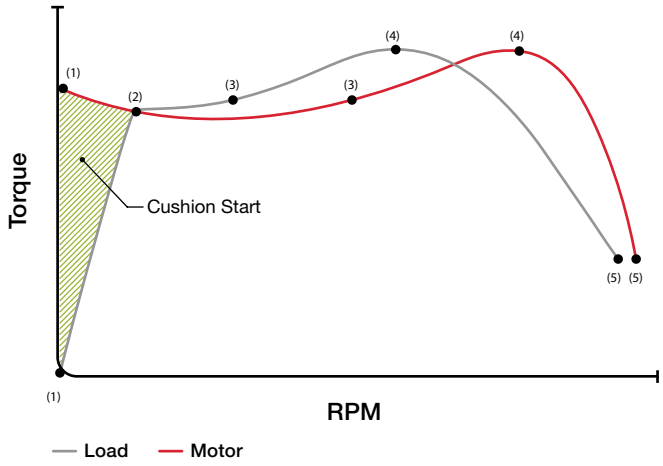
The simplest of our couplings with no moving parts, the FGC is a highly reliable unit used on both variable and constant torque applications. The FGC is available over a wide power and RPM range and is the coupling of choice for high inertia loads. Figure 1 shows the effect changing the air gap has with all our couplings; as the air gap is increased, the peak torque is reduced and the slip that occurs at a given output torque increases. This air gap adjustment in combination with the unit selected is used to tune the starting and operating characteristics.

Figure 2 shows the interaction of the coupling and a typical Nema B motor. Unlike starting a motor across the line, the torque transmitted to the load ramps up from zero resulting in a cushioned start. The torque then tracks the motor torque curve until operating speed and torque is achieved. The unit can be selected to have very little slip – typical on constant torque loads, or a greater degree of slip to intentionally slow the load often used on centrifugal pumps to save energy instead of trimming the impeller. In all cases, the air gap isolates the motor and load shafts allowing: misalignment; significant vibration reduction; and the elimination of side loads. All these benefits increase the up-time of the system.

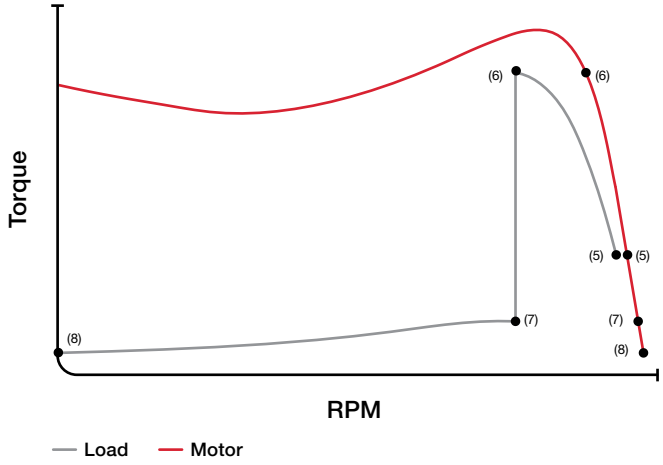
FGC Figure 1



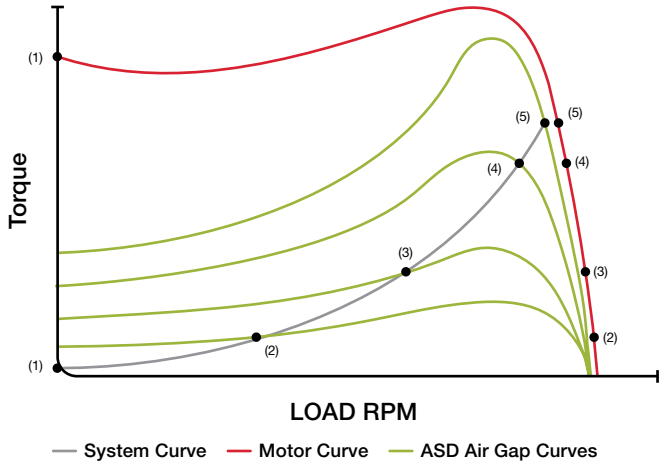
FGC & MGD Figure 2



MGTL Torque Limiting Figure 3



ASD Figure 4



MGD

Similar to the FGC, the MGD is used on variable and constant torque applications. The MGD is ideally suited for low and medium inertia systems. The MGD is a lighter weight unit using dual magnet rotors and comes standard with encapsulated magnets, hard anodized aluminum and cadmium plated steel for some corrosive environments. The MGD utilizes a repulsive force that is generated under high slip conditions between the permanent magnets and the copper to increase the air gap slightly should the load seize. This allows the unit to protect the motor or gearbox from damage in these situations.

MGTL

The TL stands for Torque Limiting. The MGTL operates on the same principle as the FGC and MGD, but is intentionally sized with a peak torque less than the motors or gearbox peak torque rating. The MGTL utilizes the same repulsive force as the MGD, but the design allows for the dual magnet rotors to recede far enough into the product that an insignificant amount of torque is transmitted. This allows the unit to protect the motor and gearbox from load seizures without requiring additional monitoring. As figures 1 and 2 demonstrate, after the load is brought up to speed, should the peak torque of the MGTL be reached, the air gap opens up fully and the transmitted torque drops to near zero. This allows the motor and load to be fully disconnected and allows for continuous operation without running into thermal constraints. The cause of the load seizure can then be addressed. The MGTL resets itself automatically once the motor is stopped.

ASD

The Adjustable Speed Drive is suitable for variable torque loads. The air gap on this product can be continuously adjusted during operation using an actuator. Figure 4 demonstrates how adjusting the air gap adjusts the torque transferred to the load. The load will operate at the speed where the torque required equals the torque transmitted. In addition to the benefits the couplings provide, the ASD's ability to vary the speed of centrifugal loads allows for process control and potentially significant energy savings.

MagnaGuard Torque Limiting Coupling (MGTL)

MagnaGuard Torque Limiting Coupling (MGTL)

The MGTL coupling has two hubs that are connected to the motor and load shafts with a unique locking mechanism called a shrink disc. The shrink disc is a compression fitting that grips the shaft with tremendous compression forces. No keyways or pins are required. Some applications, such as bulk handling conveyors, require a delayed start capability in order to extend system equipment life. MagnaDrive's advanced cushioned start and stop coupling has all of the benefits of the standard coupling.

In torque overload situations, the MGTL automatically disengages, shutting down the system and preventing damage or even destruction of the motor and driven equipment. When the jam is cleared, the coupling automatically resets itself to resume operation. MagnaDrive's advanced overload protection coupling family has all the benefits of the advanced cushioned start and stop couplings.

MGTL Additional Benefits

- 46 - 990 HP (1800 RPM)*
- 34 - 739 kw (1800 RPM)*
- Completely disconnects load during load seizures or jams
- Protects the MGTL from overheating during load seizures
- Automatically resets when motor is turned off

***Sample Rating Only.** Consult MagnaDrive Corp. for your specific application or use MagnaDrive selection software.

Technical Data

MGTL

	Conductor Side Assembly					Magnet Side Assembly				Coupling				
	Ø	Width	Weight	Driver Shaft End to CG*	WR2	MAX RPM	Weight	Distance to CG*	WR2	DBSE*	"Coupling OAL"*	Angular Misalignment Capacity (Limit)	Coupling Internal Radial Clearance	Peak Torque (at min. Air-gap)
Model	(inch)	(inch)	(lb)	(inch)	(lbf*inch^2)		(lb)	(inch)	(lb*inch^2)	(inch)	(inch)	(degrees)	(inch)	(inch*lb)
14/40	14.50	7.84	56	3.38	1,390	3,600	59	3.53	970	8.49	11.68	1.17	0.25	3,130
14/50	14.50	7.84	56	3.38	1,390	3,600	61	3.55	1,020	8.49	11.68	1.17	0.25	3,580
16/60	16.50	7.84	72	3.56	2,350	3,600	75	3.69	1,800	8.49	11.68	0.99	0.19	4,380
16/75	16.50	7.84	72	3.56	2,350	3,600	79	3.73	1,930	8.49	11.68	0.99	0.19	5,470
16/100	16.38	9.22	81	4.12	2,590	3,600	99	4.64	2,240	10.94	14.14	0.99	0.13	6,580
16/125	16.38	9.22	81	4.12	2,590	3,600	105	4.70	2,400	10.94	14.14	0.99	0.13	8,780
16/150	16.38	9.22	81	4.12	2,590	3,600	111	4.76	2,560	10.94	14.14	0.99	0.13	11,000
16/200	16.38	9.22	81	4.12	2,590	3,600	117	4.81	2,710	10.94	14.14	0.99	0.13	13,200
18/250	18.50	9.22	102	4.34	4,170	3,600	135	4.64	4,330	10.55	13.75	0.87	0.19	18,400
18/300	18.50	9.22	102	4.34	4,170	3,600	141	4.67	4,550	10.55	13.75	0.87	0.19	21,100
20/350	22.13	9.39	180	4.37	10,620	3,600	218	4.38	7,680	10.76	14.90	0.76	0.13	25,100
20/400	22.13	9.39	180	4.37	10,620	3,600	224	4.40	7,990	10.76	14.90	0.76	0.13	28,200
22/450	24.13	9.39	207	4.52	14,640	3,600	245	4.48	10,570	10.76	14.90	0.70	0.13	31,600
22/500	24.13	9.39	207	4.52	14,640	3,600	251	4.49	10,960	10.76	14.90	0.70	0.13	35,200
22/600	24.13	9.39	207	4.52	14,640	3,600	257	4.51	11,360	10.76	14.90	0.70	0.13	38,700
24/700	27.80	10.76	302	5.02	27,950	3,600	414	5.22	26,170	12.76	18.22	0.58	0.25	67,600
24/1000	27.80	10.76	302	5.02	27,950	3,600	440	5.27	28,450	12.76	18.22	0.58	0.25	87,000

These dimensions may vary per application | *at min. shaft engagement | **For Parallel Shaft MAL

The MagnaDrive Adjustable Speed Drive when variable speed is needed:

The MagnaDrive Adjustable Speed Drive (ASD) works by transmitting torque from the motor to the load across an air gap. There is no mechanical connection between the motor and load sides of the equipment. The torque is created by the interaction of powerful rare-earth magnets on one side of the drive with induced magnetic fields on the other side. By varying the air gap, the amount of torque transmitted can be controlled by varying the air gap, thus permitting speed control.

The MagnaDrive ASD consists of three sets of components. A magnet rotor assembly, containing rare-earth magnets, is attached to the load. A copper conductor rotor assembly is attached to the motor. Actuation components control the air gap between the magnet rotors and the conductor rotors. Relative rotation of the copper conductor and magnet rotor assemblies induces a powerful magnetic coupling across the air gap. Varying the air gap between the magnet rotors and conductor rotors results in controlled output speed that is also adjustable and repeatable.

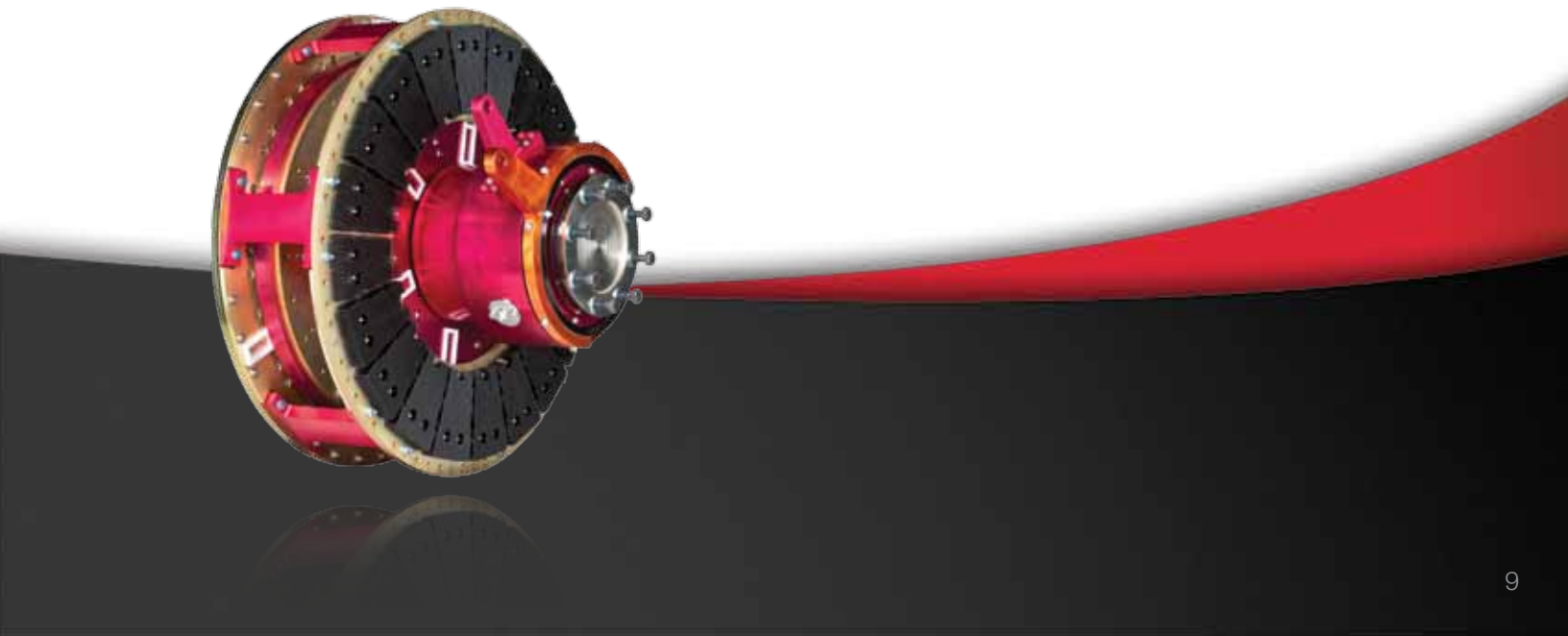
The principle of magnetic induction requires relative motion between the magnets and the conductors. This means that the output speed is always less than the input speed. The difference in speed is known as slip. Typically, when the MagnaDrive ASD is operating at full rated motor speed, the slip is between 1% and 3%.

The output torque of a MagnaDrive ASD is always equal to the input torque. The motor is only required to produce the amount of torque needed by the load. The efficiency of the system is calculated by dividing the output (load) speed by the input (motor) speed.

The ability of the ASD to transmit power or to control speed is not affected by minor angular or offset alignment between the motor and load. Vibration due to misalignment is virtually eliminated. Transmission of vibration across the drive is also eliminated due to the air gap configuration.

When installed in a system, the MagnaDrive ASD is controlled from a process signal. The pressure, flow, level or other process control signal is provided to the MagnaDrive ASD actuator. The drive will then modulate the speed of the load to satisfy the control needs.

The MagnaDrive ASD is easily retrofitted to existing installations. No modifications to the power supply are necessary, minimizing capital and installation costs. No Electro-Magnetic Interference (EMI) or Harmonic Distribortion is created by the system. In many cases, the existing process control hardware can be inactivated or removed. The load is operated at its optimum speed, increasing energy efficiency and reducing operating and maintenance costs.



Benefits of the MagnaDrive ASD

- Increased drive, coupling and system reliability.
- Lower maintenance expense on the drive or constant torque coupling, as well as on the motor, load, seals and bearings.
- Reduced system operational downtime. The MagnaDrive product family minimizes the need for maintenance, repair and drive or coupling replacement due to longer life. Consequently, the system requires less capital and operating expense and it is free to generate more revenue for the owner.
- Substantial energy savings in operations, depending on system duty cycles.
- Longer asset life (motor, load, seal and bearing) due to minimized vibration transfer and the ability to accept some misalignment.
- Offers industry the best solution to damaging machine vibration.
- Can tolerate shaft misalignment up to .200 inch and have no vibration increase. This is over 100 times the misalignment acceptable in most conventional installations. The MagnaDrive ASD generates none of the damaging electronic harmonics created by Variable Frequency Drives (VFDs). VFDs are known to cause harmonics and voltage transients that can disrupt electronic equipment and cause overheated motor windings. With MagnaDrive technology, motors run at their nameplate speed allowing more effective cooling and longer life.
- Research funded by the U.S. Dept. of Energy demonstrated that MagnaDrive products reduce energy usage by up to 70%.

Technical Data

ASD

		Conductor Rotor Assembly (See Note 3)					Magnet Rotor Assembly			Torque (ft*lb)			Coupling	
		Ø	Width	Weight (Cu/Al)	Distance to CG (Cu/Al)	WR2 (Cu/Al)	Weight	Distance to CG*	2 WR2	Peak Linear	Per Slip RPM	MAX RPM	Arm Length	Linear Force
ASD Size	**DBSE (in)**	(inch)	(inch)	(lb)	(inch)	(lbf*inch^2)	(lb)	(inch)	(lbf*inch)				(inch)	(lbf)
6.5	8.52	8.10	6.76	11	1.61	86	25	3.57	110	30	0.108	3600	4.0	20
8.5	8.61	10.10	6.76	16	1.79	187	34	4.12	264	60	0.291	3600	4.0	20
10.5	12.11	13.50	8.91	54	2.52	1,235	99	4.82	823	90	0.52	3600	6.0	60
12.5	12.11	15.75	8.91	73	2.64	2,157	118	5.26	1,342	210	1.65	3600	6.0	80
14.5	12.11	17.75	8.91	90	2.76	3,528	134	5.66	2,136	315	3.09	3600	6.0	100
16.5	12.96	20.00	9.54	137	2.59	6,429	194	5.89	3,831	450	5.18	3600	6.0	130
18.5	14.43	22.00	9.11	155	2.45	9,218	199	7.33	5,260	600	8.04	3600	8.0	150
20.5	14.43	24.00	9.11	178	2.36	12,890	228	7.60	7,879	780	11.80	3600	8.0	180
22.5	16.71	24.63	10.25	202 177	2.88 2.72	16,532 14,587	327	8.97	12,730	1,020	22.00	1800	10.0	350
24.5	18.50	28.63	10.60	286 254	2.39 2.17	29,464 25,837	510	9.30	25,004	1,240	40.46	1800	11.0	500
26.5	18.50	28.63	10.60	286 254	2.39 2.17	29,464 25,837	522	9.42	26,347	1,500	47.82	1800	11.0	500
20.5 w/ 22.5 Conductor	14.48	24.63	9.25	200 175	2.48 2.34	16,329 14,384	229	7.61	7,890	780	11.80	1800	8.0	180
22.5 w/ 24.5 Conductor	16.71	28.63	10.25	304 255	3.02 2.83	33,061 27,392	333	8.74	12,843	1,020	22.00	1800	10.0	350
24.5 w/ 28.5 Conductor	18.50	30.63	10.60	347 298	2.64 2.39	42,031 35,085	510	9.30	25,004	1,240	40.46	1800	11.0	500
26.5 w/ 28.5 Water-Cooled ASD's	18.50	30.63	10.60	347	2.64	42,031	522	9.42	26,347	1,500	47.82	1800	11.0	500

Horizontal Water-Cooled ASD's								Vertical Water-Cooled ASD's						
	Length (L)	Height (H)	Width (W)	Weight	Torque Per Slip RPM	Torque Peak Linear	Cooling Water Flow		Diameter (D)	Height (H)	Weight	Torque Per Slip RPM	Torque Peak Linear	Cooling Water Flow
Model	(inch)	(inch)	(inch)	(lb)	(ft-lb)	(ft-lb)	(gal/min.)	**Model**	(inch)	(inch)	(lb)	(ft-lb)	(ft-lb)	(gal/min.)
WH-1000	60.3	68.3	44.1	5,123	88	3,160	15	WV-1000	40.0	62.2	5,300	88	3,160	15
WH-2500	60.3	68.3	44.1	5,123	177	7,860	35	WV-2500	40.0	62.2	5,544	177	7,860	35
WH-4000	74.3	81.3	56.2	11,368	575	18,195	64	WV-4000	52.0	79.0	10,405	575	18,195	50

MagnaDrive patented technology uses high power permanent magnets to create an induced electromotive force used for torque transfer. This system physically separates the two elements of the motor and the load. Motor torque is transferred to the load across an air gap.

- Significant reduction of vibration transfer
- Easy to Install and Retrofit
- No Alignment Issues
- Cushioned Delayed Start
- Very Low Maintenance
- Nominal oil or grease required
- Safer Work Environment
- Low Total Cost of Ownership
- Rapid Return on Investment
- Minimal Spare Parts to Inventory
- Limited routine Maintenance required
- Extended Life Expectancy of Equipment
- Not effected by power surges or lapses affected

Green Disconnected Torque Technology

MagnaDrive products for variable torque equipment continually demonstrate a significant reduction in energy consumption. We can achieve such great reduction because most of the centrifugal equipment installed worldwide is oversized by 10%-15%. No engineer wants to run the risk of undersizing equipment. That's why most valves and dampers on a pump or fan are always partially closed. In effect, this is like running your car with one foot on the gas pedal and the other on the brake. A great deal of energy is completely thrown away. If a system is oversized, flow must be reduced to reach optimum operating capacity. In addition to closing a valve or damper, some operators create a bypass system where the excess flow is returned to circulation. This is inefficient and consumes more energy than necessary. Another way to reduce flow is to trim the impeller on the pump or fan, which is expensive and is a permanent change to the system. VFDs (Variable Frequency Drives) are yet another option to reduce speed. This is also an expensive proposition, especially if the system is running at a constant speed most of the time. MagnaDrive couplings can be adjusted (depending on the application) to reduce costly power wasted by an oversized system, thus maximizing system efficiency. The resulting savings in power can be substantial.

MagnaDrive couplings are the only couplings that can be adjusted to meet the exact performance demands of a system and give customers energy savings as a by product. Additionally, the air gap can be returned to the minimum position if additional flow is required. If desired, the air gap on a MagnaDrive coupling can be changed various seasons to accommodate higher flow rates required during other times of the year

"Green" Energy Saving Product

An extraordinary value for most process control

The company's breakthrough magnetic technology provides a cost effective solution to increase reliability and lower maintenance expense while achieving energy savings and process control.

- Delivers savings in maintenance and operating costs that are not possible with other technologies
- Durable with a 20+ year lifetime
- No requirement for protection from harsh, humid or dusty environments
- Maximizes uptime for continuous duty operations
- Minimizes vibration
- Tolerates misalignment, increasing equipment life
- Requires minimal infrastructure, simple mechanical installation
- Limited spare parts to inventory
- No endless maintenance
- Does not require special cooling environments, associated wiring and additional power control equipment
- Does not generate harmonic interference that can reduce system efficiencies and interfere with other electronic equipment
- Tolerates "dirty" power and is not affected by electrical storms, surges or drops
- ASDs have no Distance limitation
- No inadvertent destruction of VFDs
- No longer need to interlock load disconnect with control system
- Unlike VFDs there is no limit on number of ASDs that can be installed

MagnaDrive Corporation | U.S.
14660 NE North Woodinville Way, Suite 100
Woodinville, WA 98072
425.463.4700

MagnaDrive Corporation | China
89 Jianguo Rd. Huamao Gongyu
Bldg. 4, STE 1506
Chaoyang Dist. Beijing, China 100025

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