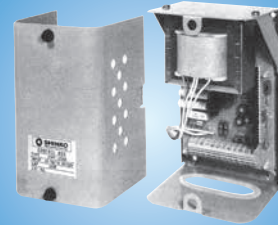


POWER BOX AND CONTROLLER

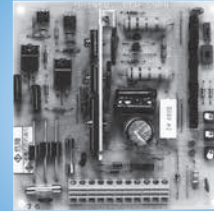
DMP TYPE POWER BOX



EMP TYPE CONTROLLER
DOUBLE OVEREXCITATION



CSM TYPE CONTROL BOARD
QUADRUPLE OVEREXCITATION
PRINTED CIRCUIT TYPE



**MICRO DEVIATION
AUTOMATIC TENSION
CONTROL SYSTEM
PCF TYPE**



**ROLL DIAMETER
PROPORTIONAL TYPE
AUTOMATIC TENSION
CONTROL SYSTEM
PCD TYPE**



**CONSTANT VOLTAGE/
CONSTANT CURRENT
POWER SOURCE
PS TYPE**



ELECTROMAGNETIC CLUTCHES AND BRAKES



For safe and reliable operation, it is essential to read the user's manual carefully before using this equipment.

We have a new slogan in Japan; "ECOing" a combination of "eco" and "ing". This is to promote eco-friendly technological development and manufacturing. Our ecological activities are of course not limited to Japan and practiced in many countries around the world.

SINFONIA TECHNOLOGY CO., LTD. continually upgrades and improves its products. Actual features and specifications may therefore differ slightly from those described in this catalog.

Formerly SHINKO ELECTRIC CO., LTD.

SINFONIA SINFONIA TECHNOLOGY CO., LTD.

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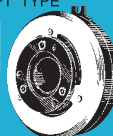
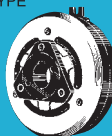

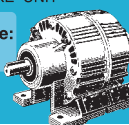
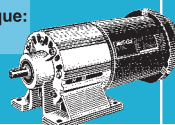





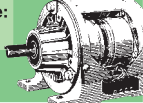
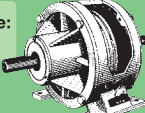
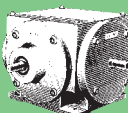
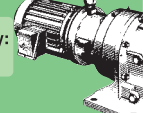


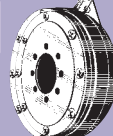
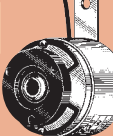
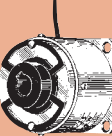
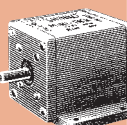

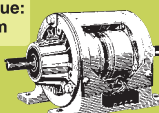

ELECTROMAGNETIC CLUTCHES AND BRAKES

We are an all-around maker of electromagnetic clutches and brakes, amply meeting all kinds of requirements of its customers on a firm technological basis, allowing the development and production of superlative clutches and brakes.

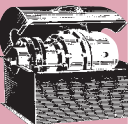
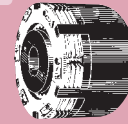
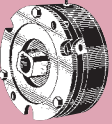


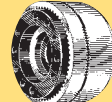
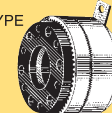
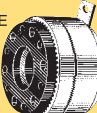
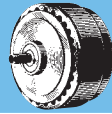
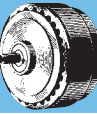
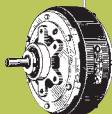


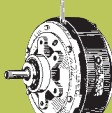



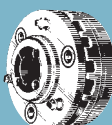
Our clutches and brakes used in various equipment including industrial equipment, information equipment and recreation facilities play an important part in automation or motion control systems in terms of power transmission and control.

The machines shown here are only a sampling of what is available.

For Automation of All Kinds of Mechanisms

SELC&B DRY, SINGLE-PLATE CLUTCHES/BRAKES <ul style="list-style-type: none"> • Spring drive with auto-gap device. • Highly responsive and accurate in action. • Distinguished in heat dissipation. • Silent construction with no squeal noise. • Asbestos-free facing. 	SELC&B CLUTCH JC SERIES THROUGH SHAFT TYPE Rated Torque: 6~400Nm 	SELC&B CLUTCH JCC SERIES SPRIT SHAFT TYPE Rated Torque: 6~400Nm 	SELC&B BRAKE JB SERIES Rated Torque: 6~400Nm 	
	SELC&B UNIT JEP SERIES EASILY MOUNTED CLUTCH/BRAKE UNIT Rated Torque: 6~400Nm 	SELC&B UNIT WITH MOTOR JEM SERIES Rated Torque: 6~50Nm 		
WARNER DRY, SINGLE-PLATE CLUTCHES/BRAKES <ul style="list-style-type: none"> • Equipped with an auto-gap device which eliminates the need for troublesome adjustment during whole life. • Extremely accurate; in response and quick permit wide torque control. • Large heat-radiation capacity and can withstand exceedingly frequent operation and heavy use. • Compact and easy to install; long life ensured by their unique construction and materials. • Easy to use and easy to install; can be readily mounted on the machine. • No need for combination design, machining or centering. • Wide variety of compound product series which combine motor, reduction gear, speed change gear, etc. into single units. 	WARNER CLUTCH SFC SERIES BUFF SHAFT TYPE Rated Torque: 7~1800Nm 	WARNER CLUTCH SF SERIES THROUGH SHAFT TYPE Rated Torque: 7~1800Nm 	WARNER BRAKE PB/RF SERIES FRICTION DISC UNTITTED WITH FIELD Rated Torque: 7~1800Nm 	
	ARM-BRAKE AR SERIES SHAFT MOUNTED BRAKE WITH HOLDING ARM Rated Torque: 7~180Nm 	ELECTRO-SHEAVE ES SERIES SHAFT MOUNTED CLUTCH WITH PULLEY Rated Torque: 70~650Nm 	ELECTRO-PACK EP SERIES EASILY MOUNTED CLUTCH/BRAKE UNIT Rated Torque: 7~1800Nm 	
	CLUTCH-COUPLER CLC SERIES EASILY MOUNTED CLUTCH UNIT Rated Torque: 7~1800Nm 	REVER-PACK RP SERIES NORMAL AND REVERSAL DRIVE UNIT WITH BEVEL GEARS Rated Torque: 7~28Nm 	CYCLE-PACK CHCM SERIES MOTORIZED CLUTCH/BRAKE UNIT WITH CYCRO REDUCER Motor Capacity: 0.2~7.5kW 	
		PAN-CAKE TYPE CLUTCH NC SERIES Rated Torque: 3~200Nm 	PAN-CAKE TYPE BRAKE NB SERIES Rated Torque: 3~200Nm 	
		ENGINE CLUTCH SF SERIES Rated Torque: 130~3000Nm 		
MICRO DRY, SINGLE-PLATE CLUTCHES/BRAKES <ul style="list-style-type: none"> • Smallest of all dry, single-disk clutches. • Quick in response and extremely accurate; no drag torque. • Need no adjustment and maintain stable characteristics for a long time. • Feature most suitable for highly frequent operation. 	MICRO CLUTCH BO SERIES Rated Torque: 0.25~15Nm 	MICRO BLAKE BB SERIES Rated Torque: 0.25~15Nm 	MINI PACK MP SERIES MICRO CLUTCH/BRAKE UNIT Rated Torque: 0.5~15Nm 	
	FAIL-SAFE BRAKES/HOLDING BRAKES <ul style="list-style-type: none"> • Non-exciting electromagnetic brakes. • ERS series features permanent magnet; SBR is spring-activated. • ERS are dry, single-face brakes; SBR are dry, dual-plate brakes. • Most suitable as emergency brakes, safety brakes, or holding brakes for motors and robots. 	FAIL SAFE BRAKE ERS SERIES Rated Torque: 2~350Nm 	SER-PACK EPR SERIES CLUTCH (SFC) /BRAKE (ERS) UNIT Rated Torque: 7~650Nm 	HOLDING BRAKE SBR SERIES Rated Torque: 0.3~53Nm 

Electromagnetic Clutches and Brakes

DRY TYPE MULTIPLE-DISC CLUTCHES/BRAKES <ul style="list-style-type: none"> • Small in size, yet large in torque capacity. • Most suitable for cases where clutch/brake installation space is limited. • Most suitable for cases where clutch/brake dimensions are limited. 	DRY TYPE, MULTIPLE-DISC LARGE SIZE CLUTCH SE SERIES NON-EXCITING DRIVE TYPE ROTATING COIL TYPE Rated Torque: 1250~16600Nm 	DRY TYPE, MULTIPLE-DISC BRAKE SBS SERIES SPRING ENGAGED TYPE Rated Torque: 15~1500Nm 	DRY TYPE, MULTIPLE-DISC BRAKE SBM SERIES SPRING ENGAGED TYPE Rated Torque: 2~37Nm 	
	TOOTHED CLUTCH TO SERIES STATIONARY COIL TYPE Rated Torque: 20~800Nm 	TOOTHED CLUTCH TR SERIES ROTATING COIL TYPE Rated Torque: 20~50000Nm 	SINGLE-POSITION CLUTCH SPO SERIES STATIONARY COIL TYPE Rated Torque: 20~800Nm 	
TOOTHED CLUTCHES <ul style="list-style-type: none"> • Toothed clutches/brakes small in size yet capable of transmitting great torque reliably. • No drag torque; no drag or heat generation even under light load. • Trapezoidal tooth profile ensures smooth coupling and outstanding ON/OFF characteristics. • Single-position type which simplifies coupling at a fixed position. 	SINGLE-POSITION CLUTCH TZ SERIES BALL BEARING ATTACHMENT TYPE Rated Torque: 63~400Nm 	SINGLE-POSITION CLUTCH STZ SERIES BALL BEARING ATTACHMENT TYPE Rated Torque: 63~1600Nm 		
	HYSTERESIS CLUTCH HO SERIES STATIONARY COIL TYPE Rated Torque: 0.06~1Nm 	HYSTERESIS BRAKE HB SERIES Rated Torque: 0.06~1Nm 		
PARTICLE CLUTCHES/BRAKES <ul style="list-style-type: none"> • Permit wide-range, high-accuracy torque control through current control. • Outstanding in response and highest in constant-torque characteristic regardless of slip speed. • Available in continuous slip operation and most suitable for highly frequent operation. • Long life because of their excellent durability. • No shock when coupling or braking; outstanding in torque repeatability. 	PARTICLE CLUTCH POC SERIES NATURAL COOLING WITH SHAFT Rated Torque: 3~800Nm 	PARTICLE CLUTCH PHC-R SERIES SELF-VENTILATION WITH HOLLOW SHAFT Rated Torque: 6~200Nm 	MICRO TYPE PARTICLE CLUTCH PMC SERIES STATIONARY COIL Rated Torque: 1~4Nm 	
	PARTICLE BRAKE POB SERIES NATURAL COOLING WITH SHAFT Rated Torque: 3~800Nm 	PARTICLE BRAKE PHB SERIES NATURAL COOLING WITH HOLLOW SHAFT Rated Torque: 6~200Nm 	PARTICLE BRAKE PTB SERIES HEAT PIPE COOLING TYPE Rated Torque: 25~200Nm 	
	PARTICLE BRAKE PRB-H SERIES NATURAL COOLING BRAKE (WITH SIDE FIN) Rated Torque: 12~200Nm 			
	TENSION BRAKE TB SERIES PIN DRAIVE TYPE OPTIMUM FOR WINDING BRAKE Rated Torque: 3~380Nm 			
	TENSION BRAKES <ul style="list-style-type: none"> • Incorporate a friction disk and an armature for slip service. • Feature great durability and fully withstand continuous slip service. • Permit wide-range torque control, and hence highly accurate control. • Various types of control systems available so that outstanding tension control systems can be designed. 			