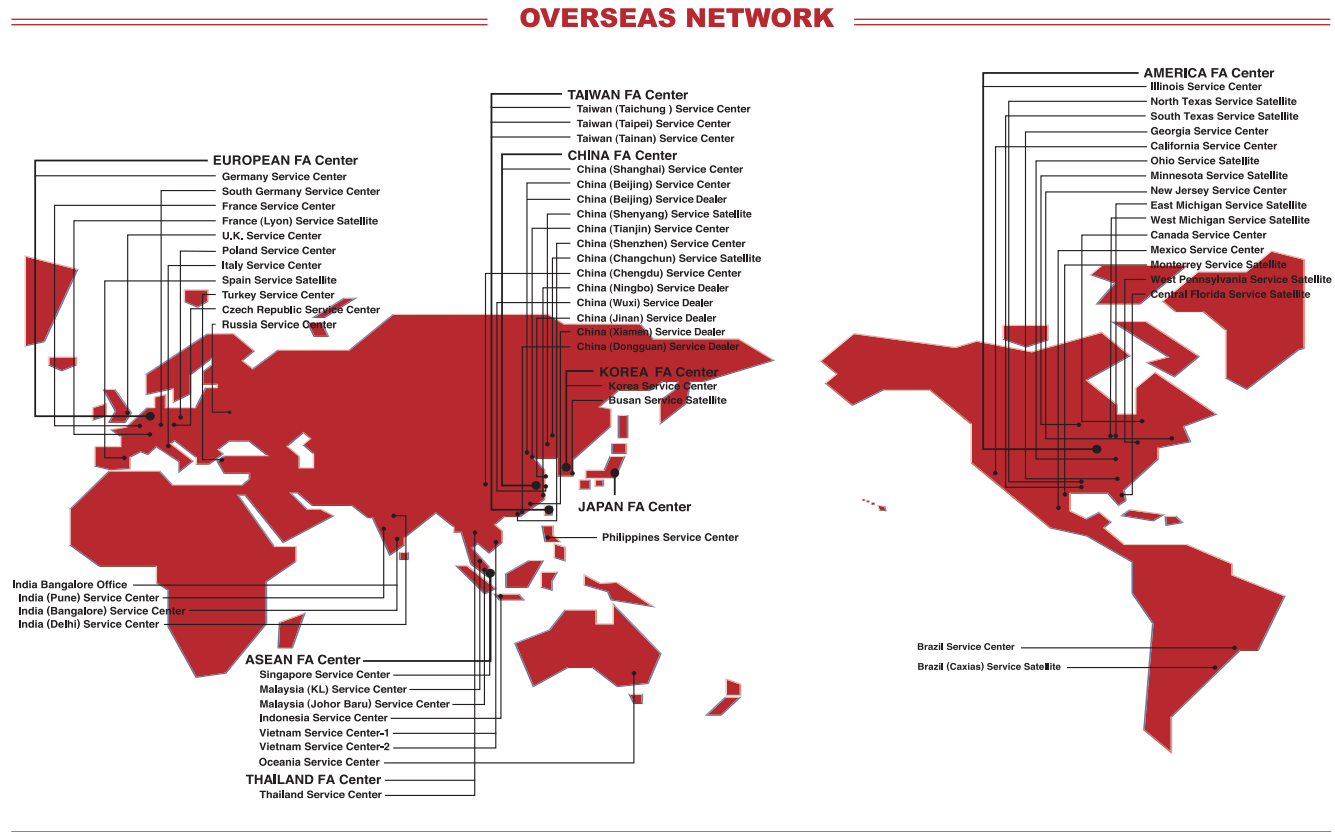




Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001(standards for environmental management systems)and ISO9001 (standards for quality assurance management systems)

! Safety Warning

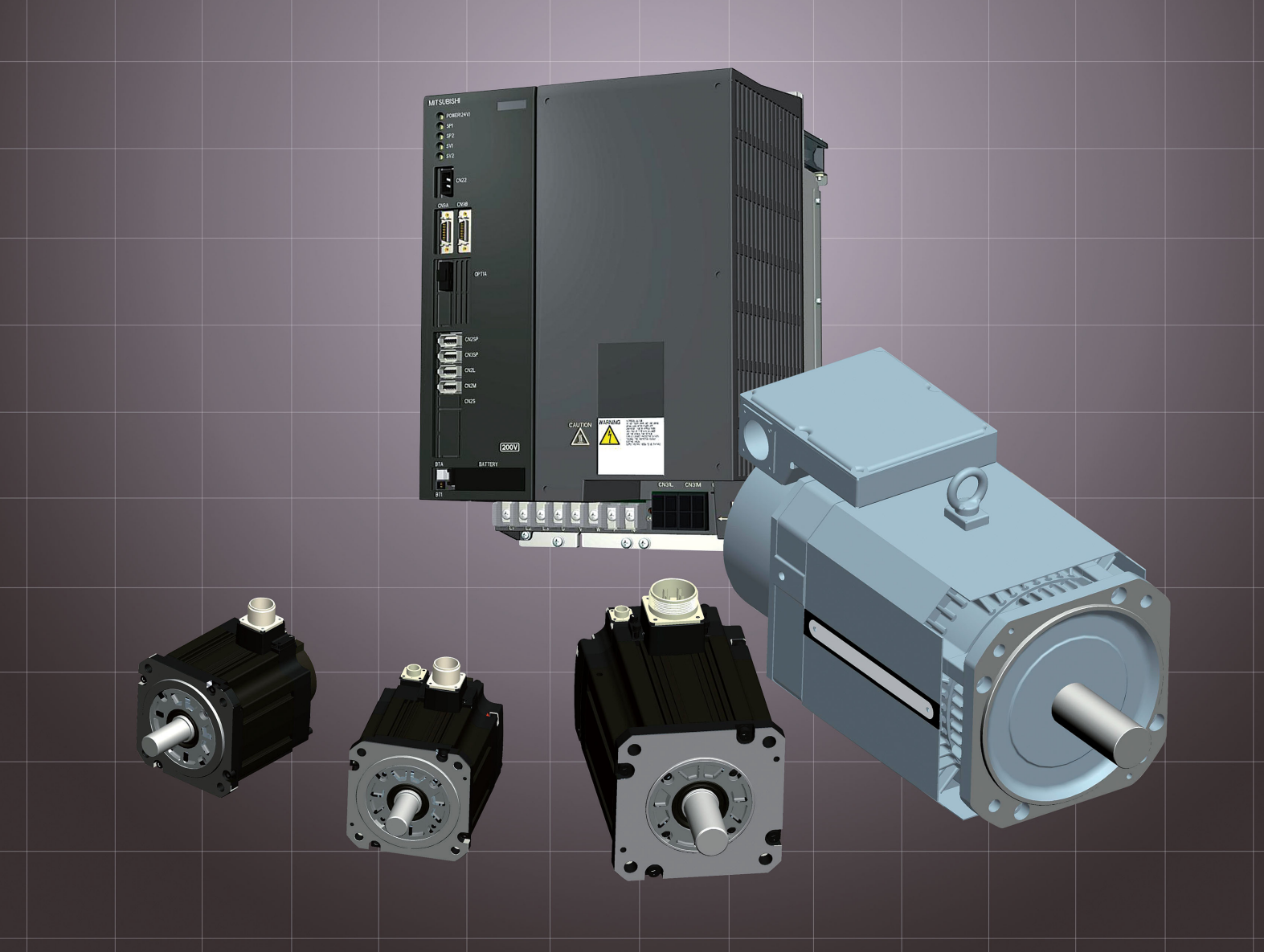
To ensure proper use of the products listed in this catalog, please be sure to read the instruction manual prior to use.

MITSUBISHI CNC WEB PAGE
Global.MitsubishiElectric.com/cnc/jp

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

CNC MDS-DM (ENGLISH)
BNP-A1204-C(ENG)

MITSUBISHI ELECTRIC
MITSUBISHI NUMERICAL CONTROL SYSTEM
MULTI-HYBRID DRIVE MDS-DM



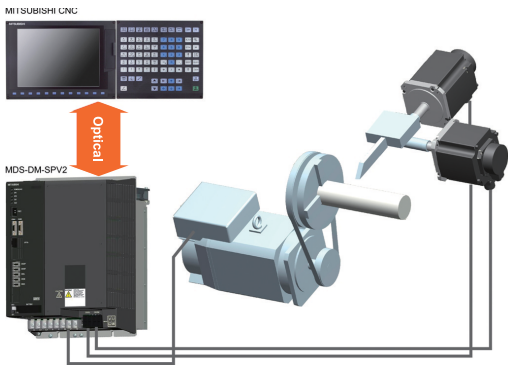
**MITSUBISHI CNC
MDS-DM**

Multi-hybrid drive MDS-DM Series

- The built-in converter regenerates energy to power supply. This drive is capable of frequent acceleration/deceleration, contributing energy saving.
- Connection between the drive and CNC is fast and reliable optical communication.

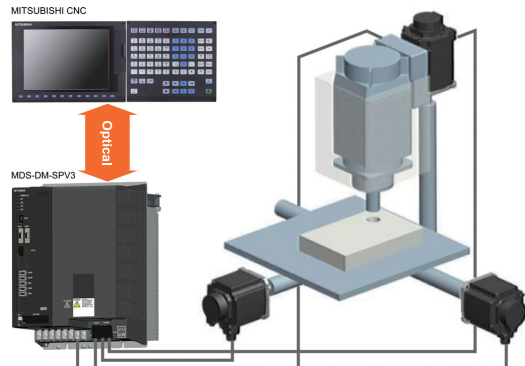
MDS-DM-SPV2 Series

- Multi-hybrid drive unit to control 2 servo motors and a spindle motor.
- Best suitable for high-speed compact lathe.



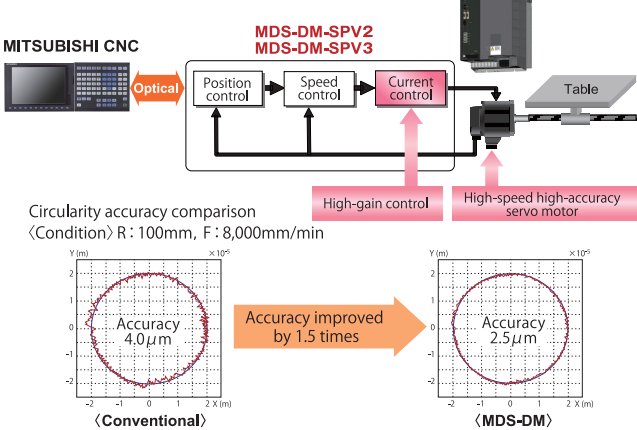
MDS-DM-SPV3 Series

- Multi-hybrid drive unit to control 3 servo motors and a spindle motor.
- Best suitable for high-speed medium/compact machining center/tapping center.



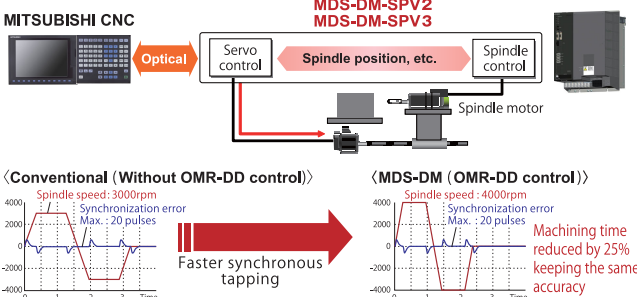
Servo control

- Combination of the fastest high-response current control (high-gain control) and high-speed high-accuracy servo motor drastically enhances the basic performance.



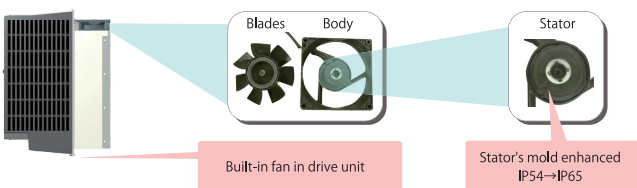
OMR-DD (Direct Detect) control

- The servo axis directly detects and compensates spindle's delay to minimize the synchronization error.



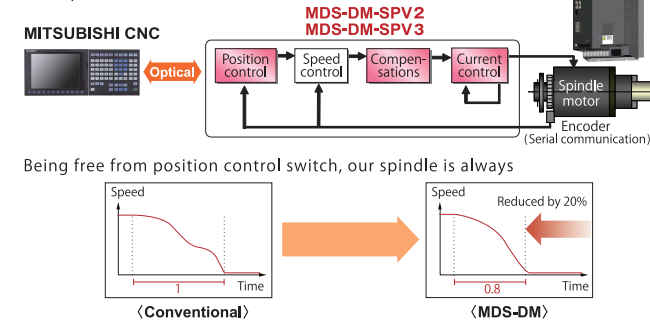
Cooling fan's environment resistance enhanced

- The drive unit has the fan with the IP65 stator inside.



Spindle control

- Our spindle is in constant position loop control, equipped with the fastest high-response current control, and lost motion compensation, adoptive resonance suppression filter, etc. Our spindle reduces machining time, suppresses machine vibration, and enhances machining accuracy.
- Connected with the encoder via fast and reliable data communication, our spindle doesn't require troublesome waveform tuning of encoder output.



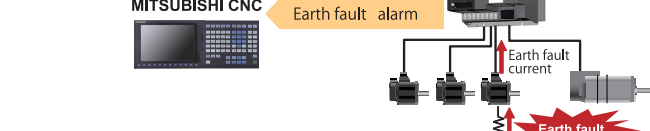
Capable of detecting if the drive unit cooling fan stops

- The drive unit monitors the cooling fan's rotation. If the rotation stops, "Fan stop warning" is output.
- This function is used as a warning before emergency stop (overheat alarm) due to built-in power module's rise of temperature after the fan stops.
- As "Fan stop warning" doesn't issue emergency stop, fans can be replaced according to your plan.



Capable of detecting which motor has earth fault

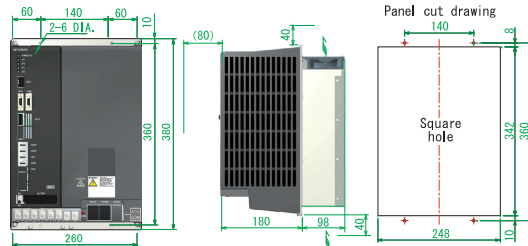
- Owing to earth fault alarm detection, motor with the fault can be immediately identified, which reduces the restoration time.



Specification

Drive unit type	MDS-DM-	SPV2-10080	SPV2-16080	SPV2-20080	SPV3-10080	SPV3-16080	SPV3-20080
Drive unit type		2-axis servo, 1-axis spindle with converter	3-axis servo, 1-axis spindle with converter	3-axis servo, 1-axis spindle with converter			
Nominal maximum current (spindle/servo) [A]		100/80 × 2	160/80 × 2	200/80 × 2	100/80 × 3	160/80 × 3	200/80 × 3
Power input							
Rated voltage [V]		200 AC (50Hz) / 200~230 AC (60Hz)					
Rated current [A]		65	65	65	65	65	65
Frequency [Hz]		50/60					
Power fluctuation rate within		+10%, -15%					
Control							
Voltage [V]		24 DC					
Current [A]		MAX. 4.0					
Control method							
Regeneration type							
Dynamic brakes (servo)							
Machine end detector (servo)							
Cooling method							
Unit weight [kg]		14.5	14.5	14.5	15	15	15

Outline dimension drawings (All capacities)



Compatible motors

Servo motor

Servo motor type	HF54	HF104	HF154	HF224	HF204	HF223	HF303	HF302
Output [N·m]	60	40	40	40	40	40	40	40
Stall torque	2.9	13.0	5.9	23.3	13.7	12.0	22.5	20.0
Max. torque	0	0	0	0	0	0	0	0
Rated output [kW]	0.5	1.0	1.5	2.2	2.0	2.2	3.0	3.0
Max. rotation speed [r/min]	4000	4000	4000	4000	4000	3000	3000	2000
Motor inertia [kg·cm ²]	6.1	11.9	17.8	23.7	38.3	23.7	75.0	75.0
Motor inertia with brakes [kg·cm ²]	8.3	14.1	20.0	25.9	48.0	25.9	84.7	84.7
Protection level (The shaft-through portion is excluded)	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Outline dimension drawings [mm]								
(Note) A51 encoder specification is 3.5mm longer in full length								
Flange fitting diameter [mm]	φ110	φ110	φ110	φ110	φ114.3	φ110	φ114.3	φ114.3
Shaft diameter [mm]	φ24	φ24	φ24	φ24	φ35	φ24	φ35	φ35
Weight without (with brakes) [kg]	4.8 (6.8)	6.5 (8.5)	8.3 (10.3)	10.0 (12.0)	12.0 (18.0)	10.0 (12.0)	19.0 (25.0)	19.0 (25.0)

Spindle motor

Spindle motor type	SJ-V5, 5-01ZT	SJ-V7, 5-01ZT	SJ-V7, 5-03ZT	SJ-V11-01ZT	SJ-V11-13ZT	SJ-V15-01ZT	SJ-V11-06ZT
Compatible drive unit	MDS-DM-SPV2-10080 MDS-DM-SPV3-10080	MDS-DM-SPV2-10080 MDS-DM-SPV3-10080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-20080 MDS-DM-SPV3-20080	MDS-DM-SPV2-20080 MDS-DM-SPV3-20080	MDS-DM-SPV2-20080 MDS-DM-SPV3-20080
Output [kW]	5.5	7.5	7.5	11	11	15	7.5
Short time rating (30min)	3.7	5.5	5.5	7.5	7.5	11	5.5
Continuous rating	3.7	5.5	5.5	7.5	7.5	11	5.5
Continuous rated torque [N·m]	23.5	35	35	47.7	47.7	70	35
Motor inertia [kg·cm ²]	147	245	245	300	300	575	245
Outline dimension drawings [mm]							
Flange fitting diameter [mm]	φ150	φ180	φ180	φ180	φ180	φ230	φ180
Shaft diameter [mm]	φ28	φ32	φ32	φ48	φ48	φ48	φ32
Motor weight [kg]	49	60	60	70	70	110	60

Spindle motor type	SJ-V11-01T	SJ-V11-09T	SJ-VL11-10FZT	SJ-VL11-10FZT	SJ-VL11-07ZT	SJ-VL11-07ZT
Compatible drive unit	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080	MDS-DM-SPV2-16080 MDS-DM-SPV3-16080
Output [kW]	7.5	7.5	11	11	11	11
Acceleration/Deceleration	3.7	5.5	3.7	5.5	5.5	5.5
Short time rating	3.7	5.5	3.7	5.5	5.5	5.5
Continuous rating	3.7	5.5	3.7	5.5	5.5	5.5
Short time rating (30min)	3.7	5.5	3.7	5.5	5.5	5.5
Continuous rated torque [N·m]	47.1	70	12.4	11.8	35	32.6
Motor inertia [kg·cm ²]	300	575	53	53	180	180
Outline dimension drawings [mm]						
Flange fitting diameter [mm]	φ180	φ230	φ150	φ150	φ180	φ180
Shaft diameter [mm]	φ48	φ48	φ28	φ28	φ32	φ32
Motor weight [kg]	70	110	40	40	70	70