

SGNR

Type M Type S

High Performance Nutrunner



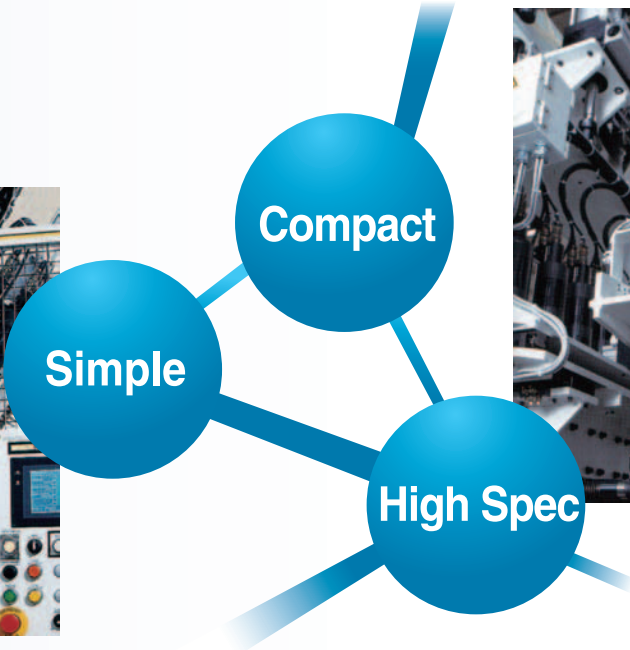
New Global SGNR Fastening System

Sanyo Machine is a comprehensive, technology centered manufacturer in the automobile, consumer-electronics and the railway industry. We develop and manufacture assembly lines and fastening systems from concept to installation with continuous support and service.

The SGNR fastening systems meet the demands and production volumes of the modern world by reducing cycle times and increasing data speeds. With the flexibility these tools provide, a wide array of products can be fastened, cost effectively.

From a proven track record and over 35 years in the industry, the SGNR Nutrunners have evolved into a new high-quality industrial tool with high-durability and accuracy. The SGNR series integrates a high-speed CPU for fast data processing and transmission speed.

By controlling the high speed and high performance servo motor, it can be used by various manufacturing systems.

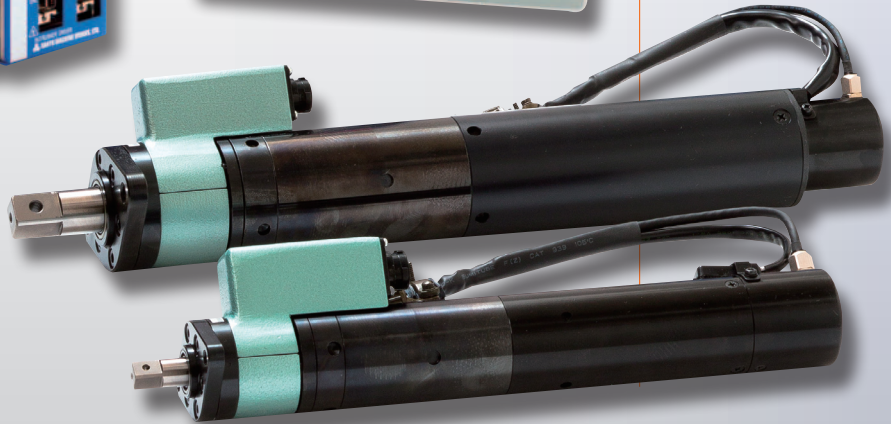


SNR
The First Production (since 1976)

SCRH
The 2nd Nutrunner

SGNR

New
Generation
Nutrunner



SVNR

The 4th Nutrunner



SDNR

The 5th Nutrunner

STNR

The 3rd Nutrunner

Keep High-Quality
ISO 9001



JQA-QM3832



CM009

Features

Multi-Controller and Driver

Compact Size Saves Space

Newly designed SGNR Multi-Controller and Drivers reduce size by 30mm from our previous model.

- The compact size of our Multi-Controller and Driver allows for efficient use of space.

High Precision Fastening

Accuracy of fastening is +/-4% or less.
(6 Sigma / rated torque)

High Durability and Excellent Reliability

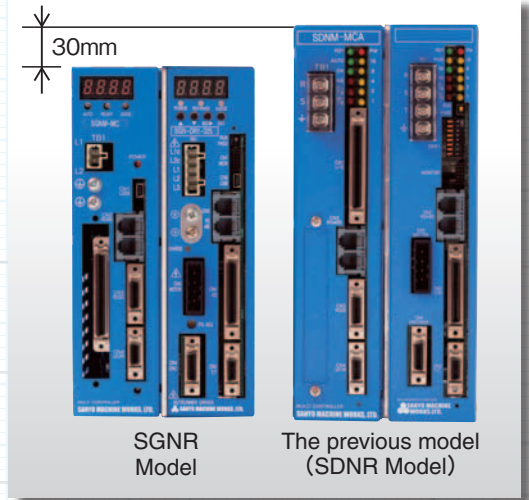
Spindles Assembly have been tested for 1 million cycles, at rated torque, to ensure outstanding durability.

- For traceability and ISO 9000 compliance, all units are tested for durability and tightening accuracy before shipment.

Interface Options

The Multi-Controller has multiple option card interfaces to correspond to various manufacturing systems and global networks.

- RS232C, USB interface and 1 option card slot come standard.



Optional Expansion Unit

Optional Expansion Unit allows for up to 4 additional option cards for increased flexibility.

Option Expansion Unit (shown here) is required when 4 additional option cards are being used.

Input / Output card	Sink input (NPN)
	Source input (PNP)
Field bus card	CC-Link
	CC-Link Ver.2
	DeviceNet
	Profibus
Data-communications card	Ethernet/IP
	Ethernet

Power Supply Separation

To respond to global safety standards, the Drivers power supply was divided into control and drive power supply. This allows for setting up and monitoring when the machine is in an E-stop condition.

■ Development of a High-power and High-speed Fastening Motor

The new generation high-power and high-speed motor shortens cycle times. The maximum free speed of our model SGN-SP1-010 is over 3 times faster than our previous model.

- SGNR utilizes a high speed CPU for increased processing speed of motor control and fastening operations.

■ New On-Board 7-segment LED Display for Easy Status Results

By using a 7 segment display, fastening judgement and results are now intelligible.

- The Multi-Controller displays program No. and parameter No. during the fastening process.
- The Driver displays the fastening torque or angle in the fastening process.
- When fastening abnormalities occur, an error message is displayed.



■ Flexible Fastening Settings

Eight different fastening programs and 32 independent fastening parameters can be pre-programmed for each connected spindle.

Flexible program settings allow for different models and different parts to be fastened by one machine.

- Various selectable and changeable settings such as fastening speeds, sequences, strategies, operation parameters, and output shaft rotation direction can be customized for your application.
- This flexibility even makes it possible to mix fastening methods such as the torque control and angle control and allows for simultaneous and/or sequential tightening operations.
- Various fastening options can be performed, such as double tightening and torque retention.

■ Process Quality Monitoring

SGNR system performs process management and continuous monitoring during the entire tightening process to ensure high-quality fastening.

- Judgement function detection features over 59 fastening errors which can be monitored.
- Over 45 items can be selected for end-of-cycle fastening data such as various torque, time and angle judgements.

■ Various Fastening Methods

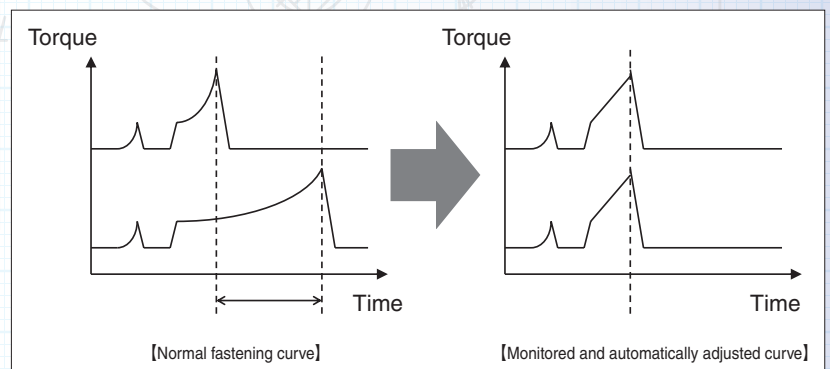
SGNR allows for multiple fastening methods from basic to advanced.

The following fastening methods can be performed.

- Angle monitoring torque control
- Torque-turn control
- Torque-tension control
- Yield point detection control
- Angle monitoring timed torque control

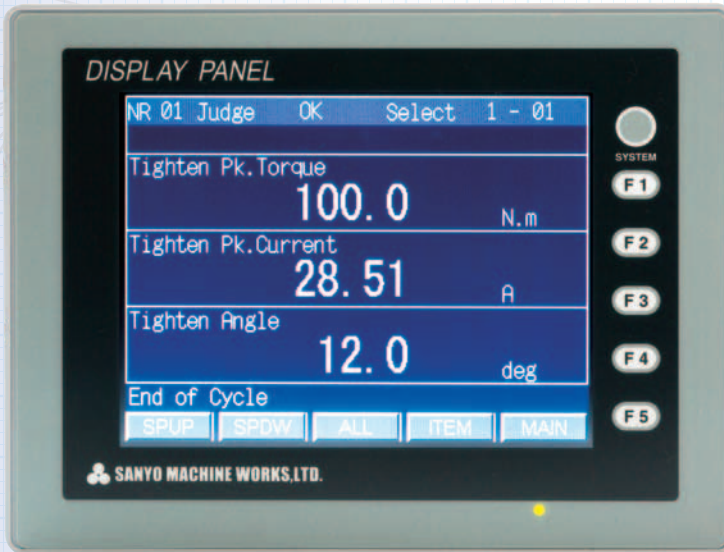
■ Monitored and Automatically Adjusted Torque Control

When fastening, Sanyo's patented control method, measures and monitors angle and time to adjust motor speed automatically to insure the fastening process is completed in the set amount of time.



Component Descriptions

Display Panel



182.5

Features

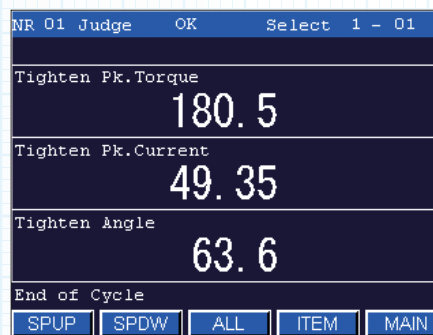
In addition to displaying Nutrunner functions, the user can configure the screen to display PLC operations.

(Screen configuration software is required)

- You can choose from 5.7 inches TFT color, STN color, STN monochrome or 12 inches TFT color according to your budget.
- There are multiple display languages; Japanese, English and Korean.
- PLC is able to accept fastening data from this machine.
- With the use of a high-speed CPU and highly efficient depiction LSI, information is displayed at near real-time.

Nutrunner Operation

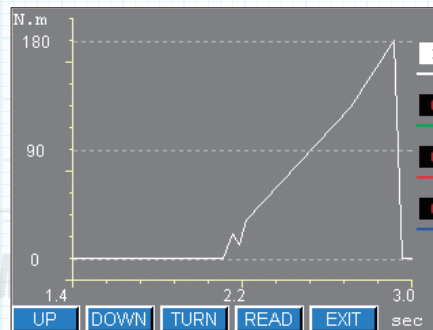
- Fastening setting (Program & Parameters)
- Data display
- Torque curve monitoring
- NG and fastening reports
- USB port for saving settings
- Maintenance mode for diagnostics
- Manual operation mode
- Back-Up settings to memory
- Password protection option
- Key lock protection option
- Type M/S switching



Fastening Data Display Mode

CONTROL PARAMETER		EXEC		QUIT	
NR 1 Prm No.	1				
Unit N.m		Maximum	180		
		Minimum	0		
Seating Torque	10	Input	10		
Snug Torque	30				
Control Torque	180	7	8	9	^
Control Angle	0				
Trq.Ten.Meas.Ang.	0	4	5	6	v
Yield Pt.Det.Level	0				
Slp.Mon.Samp.Ang.	10	1	2	3	CLR
Slope 1 Start Trq.	180				
PR EV	NE XT	0	.	+/-	ENT

Fastening Settings Display Mode



Torque Curve Display

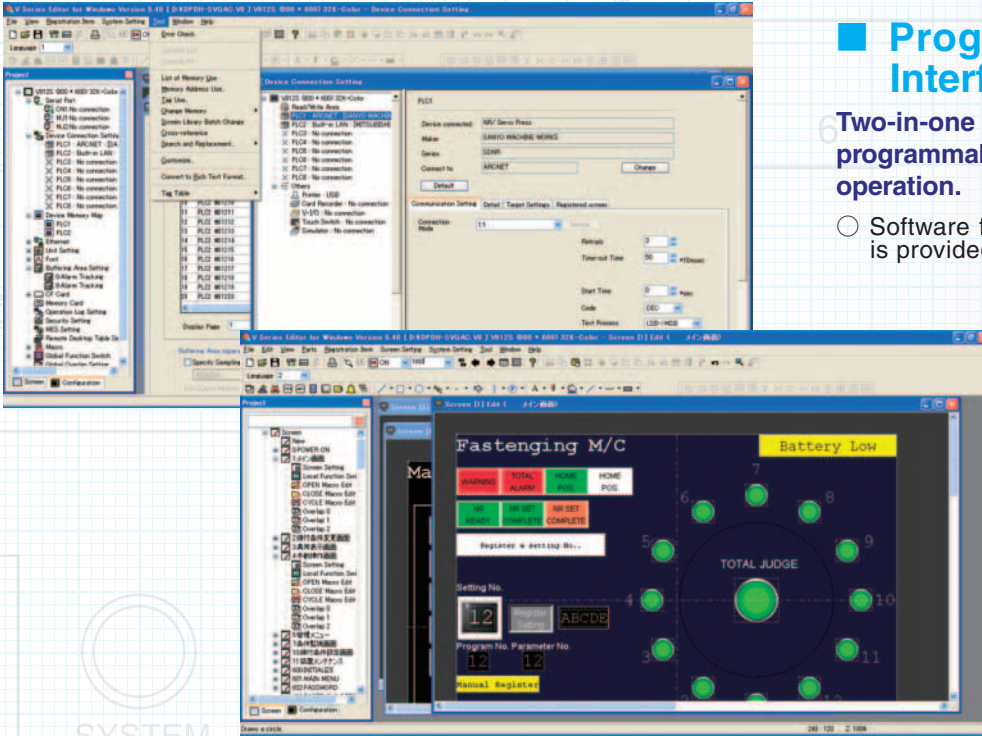
Unit	Contents	Time
MC	Cycle Time Max TR10/12/	8 09:51
NR01	Tight Time Up NG 10/12/	8 09:48
NR01	Peak Torque Lo NG10/12/	8 09:48

NG Report Display

Programmable Operator Interface

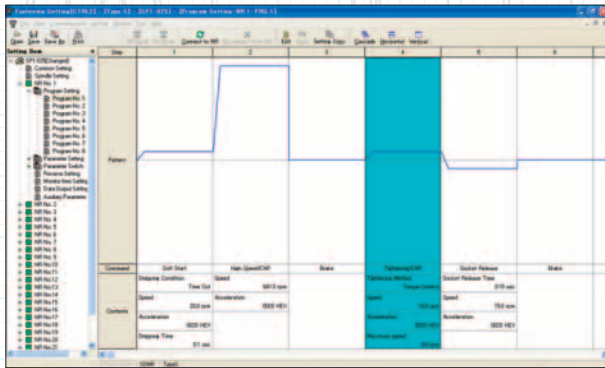
Two-in-one Display Panel allows for programmable PLC interface and Nutrunner operation.

- Software for configuring the interface screen is provided.



User Interface Terminal Software (Option)

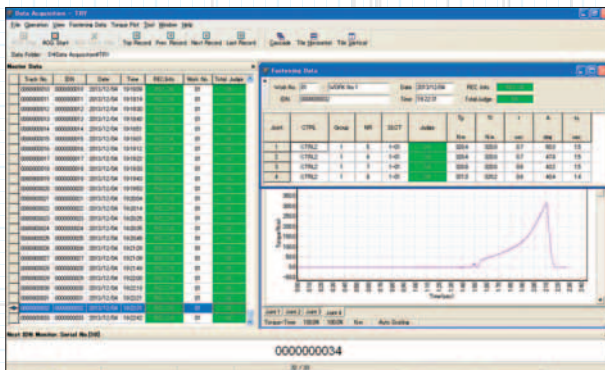
The User Interface Terminal Windows based software is a useful tool for the initial configuration of a fastening system, collecting fastening data, displaying torque curves, and saving settings.



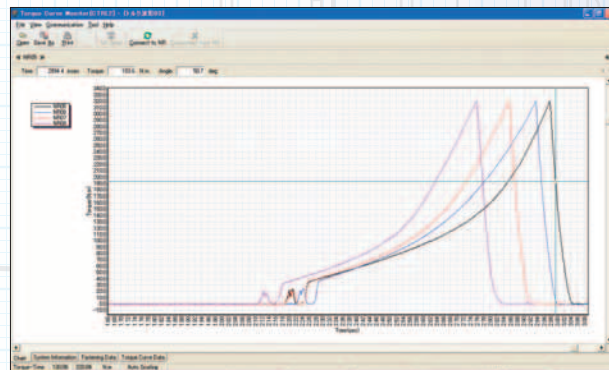
Fastening Settings Display Mode

Features

- System configuration (programming)
- Fastening data acquisition
- Torque curve acquisition and display
- Display of reject history (NG Report)
- System maintenance
- Data acquisition and exportation
- Communicate with a PC via RS232C Serial Communications, USB cable and/or optional high speed ARCNET unit.



Fastening Data Acquisition Display



Torque Curve Display

Peripheral Equipment

Manually Operated Articulating Arm

- Ultra-Light and high-rigidity body.
- Eliminates torque reaction to the operator.
- You can choose within position detection or without.
- Error proofing through the use of position detection.
- The automatic change of a fastening parameter is possible either by position location or fastener number.
- A maximum of 32 positions can set up.
- Space saving design.
- Easy installation.
- Piping of air is not required.



Manually Operated Articulating Arm

Automatic Smart Arm

- Compact design allows for multiple arms to be installed per station.
- Cycle times reduced over manually operated arms.
- Its simple design allows it to operate at high speed.
- Ultra-Light and high-rigidity body.
- Easy installation.



Automatic Smart Arm

Options

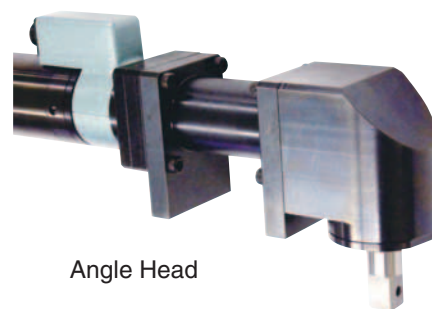
- Many end-of-tool options to choose from.



Gear Socket



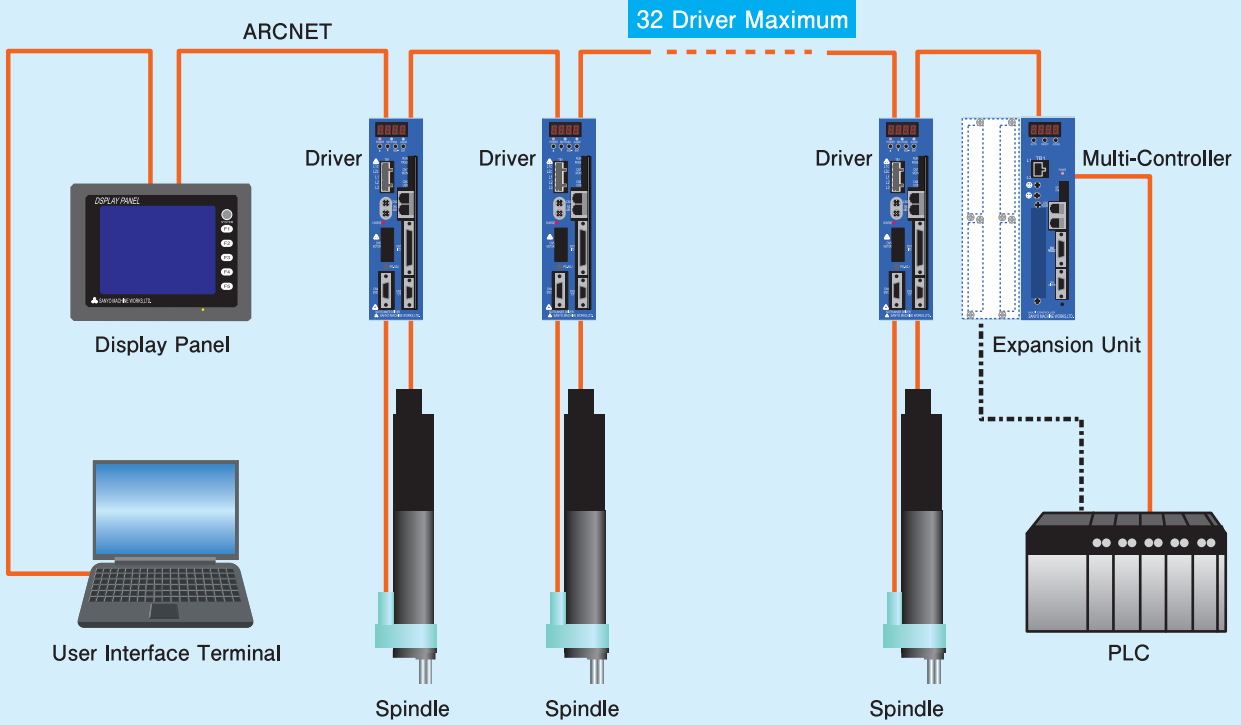
Socket Extension



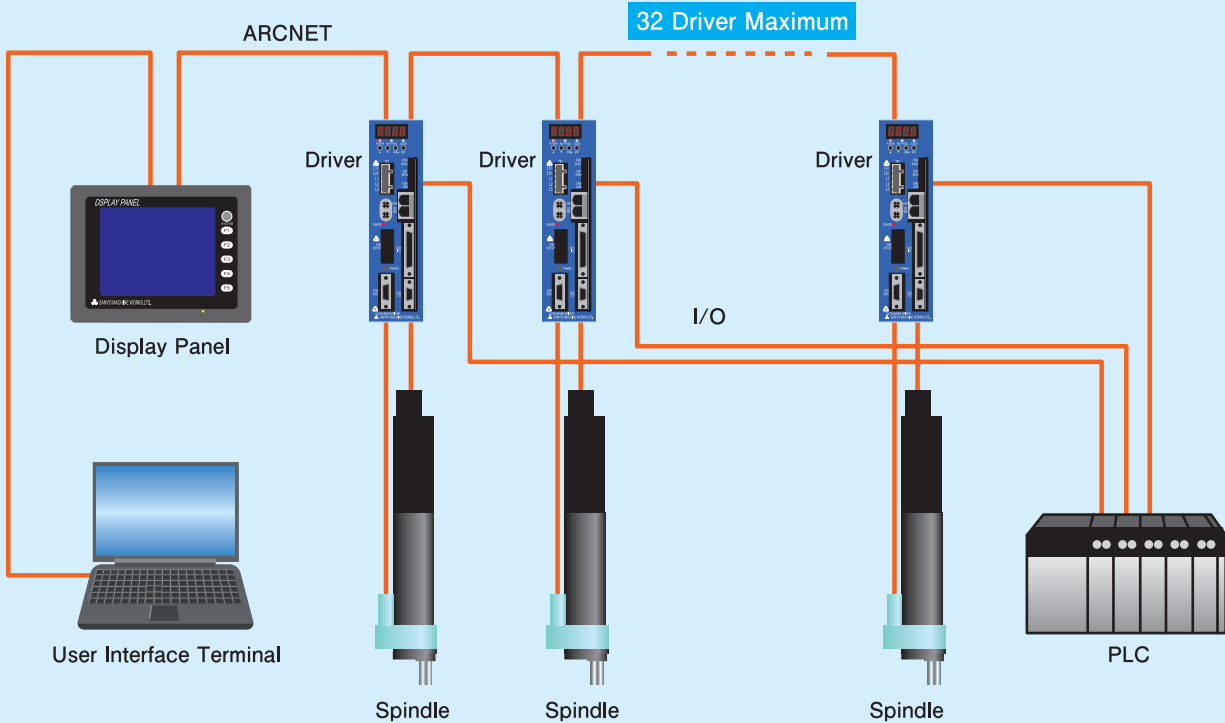
Angle Head

System Configuration

SGNR typeM



SGNR typeS



Specifications

Nutrunner Set Models			Multi-Controller	Rated Torque (N·m)	Torque Range (N·m)	Tightning Accuracy	Free Speed (rpm)	Ave Power Consumption (W)	Peak Power Consumption (W)	Temp (°C)
	Spindle Assembly	Driver								
SGNR(T※1)-005S	SGN-SP1-005S	SGN-DR1-005	SGNM-MC (TypeM)	5.00	1.50 ~ 5.00	≤4% (6σ / Rated Torque)	3570	70	500	0~50 (Non condensing)
SGNR(T※1)-005F	SGN-SP1-005F									
SGNR(T※1)-010S	SGN-SP1-010S	SGN-DR1-010		10.0	3.0 ~ 10.0		2200			
SGNR(T※1)-010F	SGN-SP1-010F									
SGNR(T※1)-025S	SGN-SP1-025S	SGN-DR1-025		25.0	7.5 ~ 25.0		750			
SGNR(T※1)-025F	SGN-SP1-025F									
SGNR(T※2)-050S	SGN-SP2-050S	SGN-DR2-050		50.0	15.0 ~ 50.0		750	250	1900	
SGNR(T※2)-050F	SGN-SP2-050F									
SGNR(T※2)-100S	SGN-SP2-100S	SGN-DR2-100		100	30 ~ 100		750			
SGNR(T※2)-100F	SGN-SP2-100F									
SGNR(T※3)-180S	SGN-SP3-180S	SGN-DR3-180		180	54 ~ 180		465	390	2500	
SGNR(T※3)-180F	SGN-SP3-180F									
SGNR(T※3)-320S	SGN-SP3-320S	SGN-DR3-320		320	96 ~ 320		300			
SGNR(T※3)-320F	SGN-SP3-320F									
SGNR(T※3)-580S	SGN-SP3-580S	SGN-DR3-580		580	174 ~ 580		155			
SGNR(T※3)-580F	SGN-SP3-580F									
SGNR(T※3)-1000S	SGN-SP3-1000S	SGN-DR3-1000	1000	300 ~ 1000	85					
SGNR(T※3)-1800S	SGN-SP3-1800S	SGN-DR3-1800	1800	540 ~ 1800	50					

※ It is "M" when using with a Multi-Controller. It is "S" when using without Multi-Controller.

◆ Multi-Controller · Driver

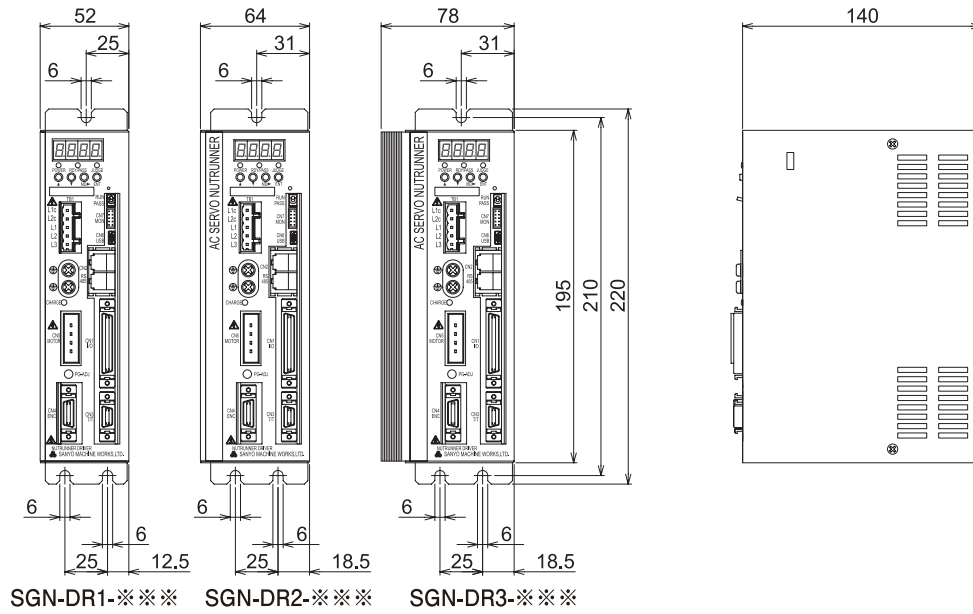
Item	Specification				
	Multi-Controller		Driver		
Name	SGNM-MC		SGN-DR1-※※※	SGN-DR2-※※※	SGN-DR3-※※※
Model	SGNM-MC		SGN-DR1-※※※	SGN-DR2-※※※	SGN-DR3-※※※
Weight (kg)	1.1		1.0	1.4	1.7
Power Supply (V)	AC180~242, Single-phase 50/60Hz		Control power : AC180~242, Single-phase 50/60Hz Drive power : AC180~242, Three-phase 50/60Hz		
Power Consumption (W)	Approx. 7		Approx. 500	Approx. 1900	Approx. 2500
Interface for external device	USB (mini USB_5pin) RS232C RS485 For Option board		USB (mini USB_5pin) I/O (It corresponds to the polarity of NPN and PNP.) RS485 Monitor terminal (Torque, Rotation pulse and Speed etc.)		
Representational function	<ul style="list-style-type: none"> 3-color LED admission decision of fastening 7-segments LED Multi-Controller condition abnormal message etc. 		<ul style="list-style-type: none"> 3-color LED admission decision of fastening 7-segments LED fastening data abnormal message etc. 		

◆ Display Panel

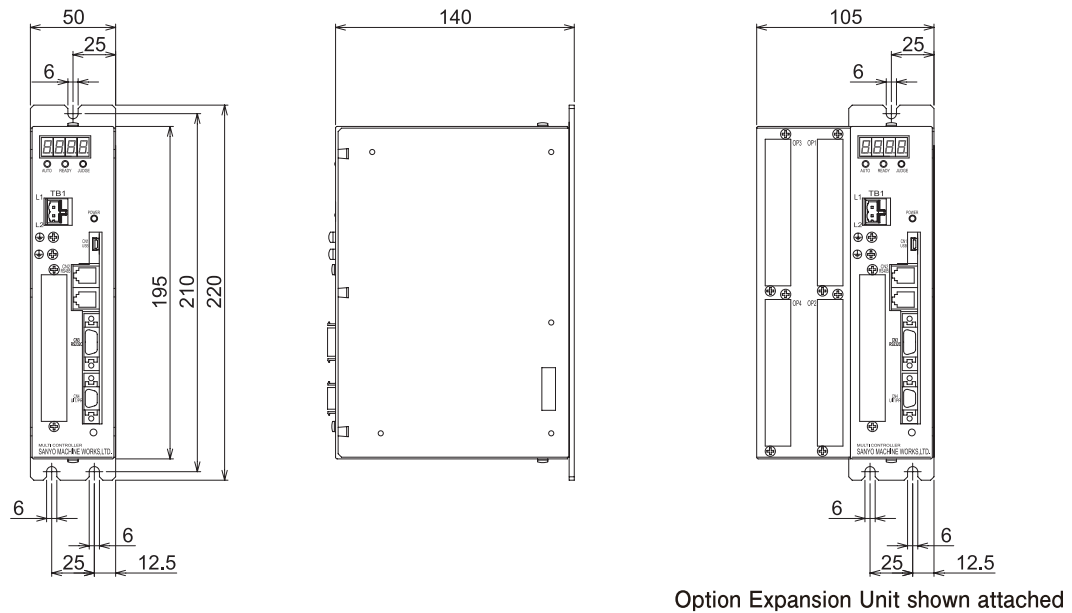
Item	Specification			
	SGN-DP06M	SGN-DP06C	SGN-DP06T	SGN-DP12T
Model	SGN-DP06M	SGN-DP06C	SGN-DP06T	SGN-DP12T
Display Device	STN monochrome	STN color	TFT color	TFT color
Color	16-grade (with blinks)	65,536 colors (without blinks) / 32,768 colors (without blinks) / 128 colors (with 16-color blinks)		
Screen size (inches)	5.7			12
Display Resolution (dots)	320 × 240			800 × 600
Weight (kg)	0.8			2.9
Power Supply (V)	DC24 ± 10%			
Power Consumption (W)	Approx. 17			Approx. 30
Interface for NR	ARCNET			
Interface for external device	Two serial ports (modular jack) for connecting with PLC or other external devices are equipped. MJ1 ... RS-232C, RS-485 (2-wire connection) MJ2 ... RS-232C, RS-485 (2-wire connection), RS-422 (4-wire connection)			

Dimensions

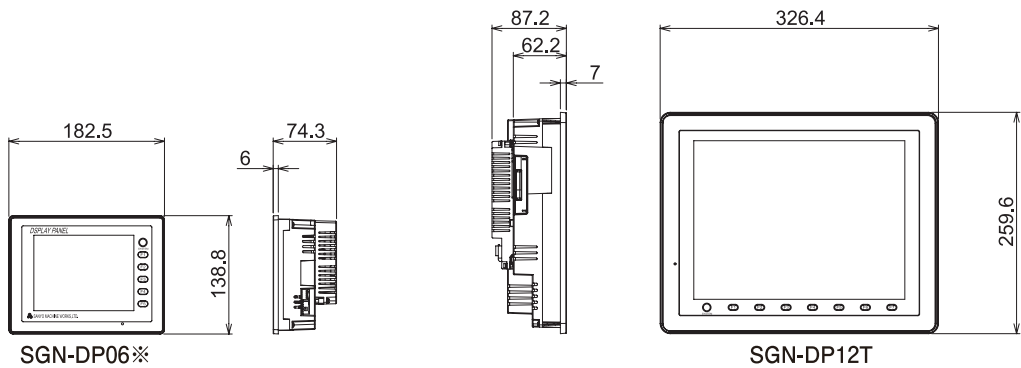
● Driver



● Multi-Controller

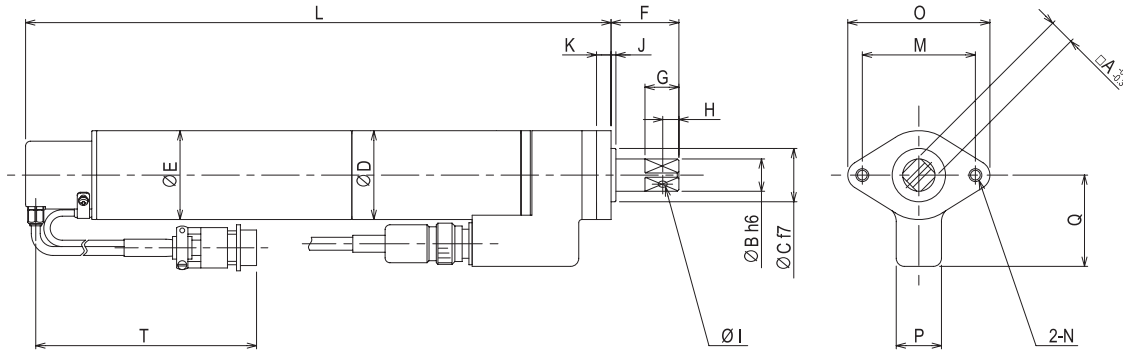


● Display Panel



Dimensions

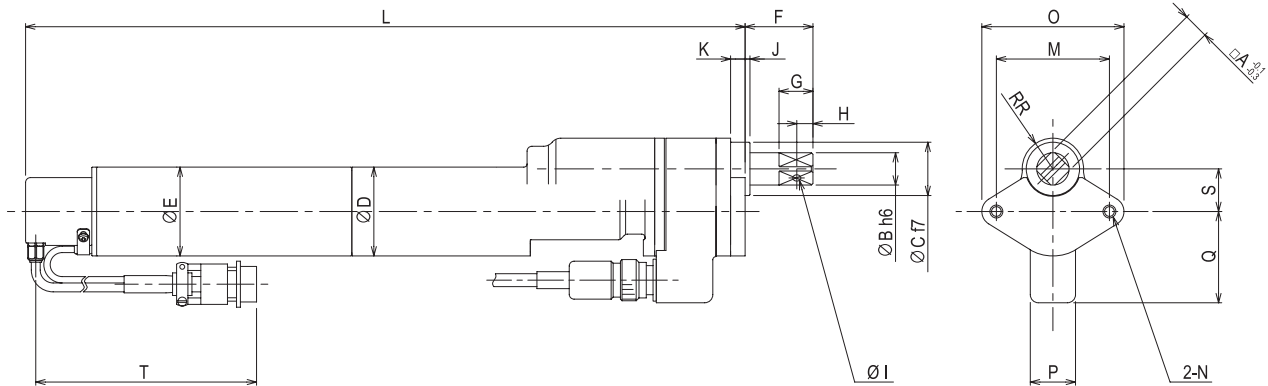
● Spindle Assembly (Straight type)



MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	T	Wt(kg)
SGN-SP1-005S	9.52	12	22	42	42	25	12	5.5	3	3	7	256	54	M6	66	28	50	250	1.5
SGN-SP1-010S	9.52	12	22	42	42	25	12	5.5	3	3	7	256	54	M6	66	28	50	250	1.5
SGN-SP1-025S	9.52	12	22	42	42	25	12	5.5	3	3	7	279	54	M6	66	28	50	250	1.7
SGN-SP2-050S	12.7	15	28	55	55	32	15	7	4	3	9	362.5	70	M8	88	28	56.5	250	3.9
SGN-SP2-100S	15.88	20	33	55	55	42	21	10	5.5	3	9	362.5	70	M8	88	28	56.5	250	3.9
SGN-SP3-180S	15.88	20	35	75	75	42	21	10	5.5	3	10	376.5	96	M10	115	28	66.5	250	7.4
SGN-SP3-320S	19.05	25	40	75	75	50	25	12	6.5	3	12	391.5	96	M10	115	28	66.5	250	8
SGN-SP3-580S	25.4	32	50	103	75	60	33	16	6.5	3	16	446.5	128	M12	150	28	80.5	250	16.1
SGN-SP3-1000S	31.75	40	64	128	75	65	41	20	6.5	3		488.5				30	94	250	23.5
SGN-SP3-1800S	38.1	50	75	150	75	75	50	26	8.5	5		513.5				30	105	250	34

All dimensions in Millimeters.

● Spindle Assembly (Offset type)



MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Wt(kg)
SGN-SP1-005F	9.52	12	22	42	42	25	12	5.5	3	3	7	314	54	M6	66	28	50	13	17	250	1.9
SGN-SP1-010F	9.52	12	22	42	42	25	12	5.5	3	3	7	314	54	M6	66	28	50	13	17	250	1.9
SGN-SP1-025F	9.52	12	22	42	42	25	12	5.5	3	3	7	337	54	M6	66	28	50	13	17	250	2.1
SGN-SP2-050F	12.7	15	28	55	55	32	15	7	4	3	9	445.5	70	M8	88	28	56.5	19	26.4	250	5.1
SGN-SP2-100F	15.88	20	33	55	55	42	21	10	5.5	3	9	445.5	70	M8	88	28	56.5	19	26.4	250	5.1
SGN-SP3-180F	15.88	20	35	75	75	42	21	10	5.5	3	10	465.5	96	M10	115	28	66.5	23	32.4	250	9.5
SGN-SP3-320F	19.05	25	40	75	75	50	25	12	6.5	3	12	503.5	96	M10	115	28	66.5	27	38.2	250	11
SGN-SP3-580F	25.4	32	50	103	75	60	33	16	6.5	3	16	537	128	M12	150	28	80.5	30	41	250	22

All dimensions in Millimeters.

Special/custom designed Nutrunners may also be supplied.
Specifications subject to change without notice.



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