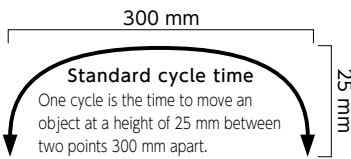


# VS Series

## VS050 / 060 / 068 / 087

Boasts top-performing speed in its class to greatly improve productivity. Slim arm of wide movable range enables various types of robot layouts.

Maximum arm reach	505 / 605 / 710 / 905 mm
Maximum payload	4 / 4 / 7 / 7 kg
Standard cycle time	0.35 / 0.35 / 0.31 / 0.34 sec
Position repeatability	±0.02 / 0.02 / 0.02 / 0.03 mm



VS060

VS087

### Specifications

Item		Specifications			
Model		VS050	VS060	VS068	VS087
Axes		6			
Position detection method		Absolute encoder			
Drive motor / brake		All-axis AC servo motor / all-axis brake with brakes			
Total arm length (No. 1 arm + No. 2 arm)		505 (250 + 255) mm	605 (305 + 300) mm	680 (340 + 340) mm	875 (445 + 430) mm
Maximum motion area (Point P)		505 mm	605 mm	710 mm	905 mm
Motion range	J1 (No. 1 axis)	±170° *5			
	J2 (No. 2 axis)	±120°		+135°, -100°	
	J3 (No. 3 axis)	+151°, -120°	+155°, -125°	+153°, -120°	+153°, -136°
	J4 (No. 4 axis)	±270°			
	J5 (No. 5 axis)	±120° *6		±120°	
	J6 (No. 6 axis)	±360°			
Maximum payload		4 kg		7 kg	
Maximum joint speed	J1	425 deg/sec		356.25 deg/sec	285 deg/sec
	J2	340 deg/sec	283.33 deg/sec	303 deg/sec	252.5 deg/sec
	J3	385.72 deg/sec	309.35 deg/sec	378.75 deg/sec	303 deg/sec
	J4	425 deg/sec		475 deg/sec	378.75 deg/sec
	J5	327.01 deg/sec		475 deg/sec	378.75 deg/sec
	J6	680 deg/sec		760 deg/sec	606 deg/sec
Standard cycle time *1		0.35 sec		0.31 sec	0.34 sec
Position repeatability (center of end-effector mounting face) *2		±0.02 mm			
Maximum allowable moment of inertia	J4, J5	0.2 kgm <sup>2</sup>		0.45 kgm <sup>2</sup>	
	J6	0.05 kgm <sup>2</sup>		0.1 kgm <sup>2</sup>	
Maximum allowable moment	J4, J5	6.66 Nm		16.2 Nm	
	J6	3.13 Nm		6.86 Nm	
Signal lines		10 (for proximity sensor signals, etc.) *7,8			
Signal lines / Air pipe solenoid valve (option)	Air pipe solenoid valve	5 systems (ø4 × 4, ø4 × 1) <sup>13</sup> 2 × solenoid valves (2 position, double solenoid) Cleanroom type has 4 systems (ø4 × 4).		7 systems (ø4 × 6, ø6 × 1) <sup>14</sup> [solenoid valves can be selected from 1 to 3] 1. 3 × solenoid valves (2 position, double solenoid) 2. 3 × solenoid valves (3 position, exhaust center solenoid) 3. 3 × solenoid valves (3 position, closed center solenoid) Cleanroom type has 6 systems (ø4 × 6).	
	Communication interface flange-A (option) *Standard type only	17 (power wire for cameras, etc.) *8 LAN×1 (1000BASE-T) *9			
Air source	Normal pressure	0.20 to 0.39 MPa			
	Maximum allowable pressure	0.49 MPa			
Airborne noise (equivalent continuous A-weighted sound pressure level)		65 dB or less			
Protection grade		Protected type: IP67 *10 (option) Dust & splash proof type: wrist IP65 / unit IP54 (option) Cleanroom type: ISO class 3 / 5 (option)			
Weight		Approx. 27 kg	Approx. 28 kg	Approx. 49 kg	Approx. 51 kg

\*1: Time required for a robot to move a 1 kg payload between two points 300 mm apart at a height of 25 mm. \*2: Position repeatability is the precision at constant ambient temperature.

\*3: Controllable by use of the embedded solenoid valve only for ø4×4. \*4: Controllable by use of the embedded solenoid valve only for ø4×6. \*5: Limited motion range when wall mounted. For details, please contact our sales representative.

\*6: When communication interface flange-A is selected, the motion range of J5 is +120° and -110°. \*7: There are 4 of these lines (for proximity sensor signals, etc.) when selected together with communication interface flange-A.

\*8: Allowable current is limited. \*9: The LAN cable to connect to the connector panel is 20 m or shorter.

\*10: The robot interior is air-pressurized to maintain protective class IP67. Use the air-purge unit to remove air. Do not use the robot underwater.

## Options

### Connector panel



Rear connector panel Bottom connector panel

Choose from two mounting orientations when connecting cables (main unit connecting cable, etc.) to the robot for increased flexibility to accommodate the robot installation conditions.

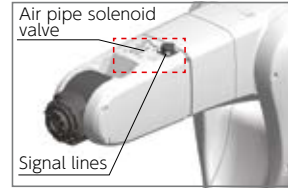
### Flange



Communication interface flange-A

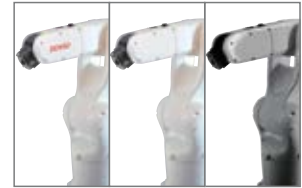
The flange has connectors for electrical signal lines and EtherNet, allowing wiring to be embedded in the robot unit.

### Signal lines / Air pipe solenoid valve



Signal lines and air pipe solenoid valves are embedded in the top of the second arm. Three varieties are available for VS068 / 087 and one for VS050 / 060.

### Paint / Surface finish



Standard type Cleanroom, IP54 IP67

If the protected type (IP67) is selected, the unit is left as aluminum. Standard paint is available in the special specification (option) when selecting IP67.

## User options

### External battery extension unit



Encoder backup battery installed outside the robot. Facilitates replacement of batteries and improves maintainability.

### Brake release unit



A switch that allows you to release the brake of each axis (the wiring of this switch is directly connected to the brake release signal of each axis).

### Air purge unit



The protected type (IP67) maintains an IP67 protect grade by air pressure produced inside the robot.

### Second arm cover (right-hand, with tapped holes)



This cover has tapped holes to secure wires for the robot's second arm.

Category	Part Name Specification / Type	VS050 / 060					VS068 / 087				
		Standard	Protected (IP67)	Dust & splash proof (Wrist: IP65) Unit: IP54	Cleanroom (ISO Class 5)	Cleanroom (ISO Class 3)	Standard	Protected (IP67)	Dust & splash proof (Wrist: IP65) Unit: IP54	Cleanroom (ISO Class 5)	Cleanroom (ISO Class 3)
Connector panel	Rear connector panel	√	√	√	√	√	√	√	√	√	√
	Bottom connector panel	√	√	√	√	√	√	√	√	√	√
Flange	Standard flange	√	√	√	√	√	√	√	√	√	√
	Communication interface flange-A	√	—	—	—	—	√	—	—	—	—
Signal lines / Air pipe solenoid valve	2 x solenoid valves (2 position, double solenoid)	√	√	√	√	√	—	—	—	—	—
	3 x solenoid valves (2 position, double solenoid)	—	—	—	—	—	√	√	√	√	√
	3 x solenoid valves (3 position, exhaust center solenoid)	—	—	—	—	—	√	√	√	√	√
	3 x solenoid valves (3 position, closed center solenoid)	—	—	—	—	—	√	√	√	√	√
User option	Air purge unit	—	√	—	—	—	—	√ <sup>*3</sup>	—	—	—
	Brake release unit <sup>*1</sup>	√	√	√	√	√	√	√	√	√	√
	External battery extension unit	√	√	√	√	√	√	√	√	√	√
	Main unit connecting cable angle	√	√	√	√	√	√	√	√	√	√
	Second arm cover (right-hand, with tapped holes) <sup>*2</sup>	√	—	—	—	—	√	—	—	—	—

\*1: The brake release unit provides IP67 and IP54 protection for the connection area and unit, respectively.

\*2: This cover is already mounted on the protected type, dust & splash proof type, and cleanroom type when shipped. The cover is an option on the standard type.

\*3: An air purge unit is necessary to keep the protection level, IP67.

## Legend

<b>Model:</b> VS: 5- and 6-axis robots  <b>Total arm length:</b> 050 A3: 505 mm 060 A3: 605 mm 068 A4: 680 mm 087 A4: 875 mm	<b>Mounting orientation:</b> A: All directions  <b>Protected:</b> NN: Standard type W7: Protected type (IP67) W4: Dust & splash proof type (wrist: IP65, unit: IP54) C3: Cleanroom type (ISO class 3) C5: Cleanroom type (ISO class 5)	<b>Axes:</b> V6: 6-axis	<b>Compliant standard:</b> N: Standard specification U: UL specification	<b>Flange:</b> N: Standard flange A: Communication interface flange-A <sup>*1</sup>	<b>Paint / Surface finish:</b> N: Standard colors <sup>*2</sup> A: Unpainted <sup>*3</sup>	<b>Signal lines / Air pipe solenoid valve:</b> A: 2 x solenoid valves (2 position, double solenoid) B: 3 x solenoid valves (2 position, double solenoid) C: 3 x solenoid valves (3 position, exhaust center solenoid) D: 3 x solenoid valves (3 position, closed center solenoid) N: Specification without signal lines / air pipe solenoid valve	<b>Connector panel:</b> N: Rear connector panel A: Bottom connector panel
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\*1: Available when standard type is selected \*2: When standard type is selected \*3: When protected type (IP67) is selected (Standard colors are a special specification (option).) For details, please contact our sales representative.

The data listed on this page is for the standard type. For other options, see our website.