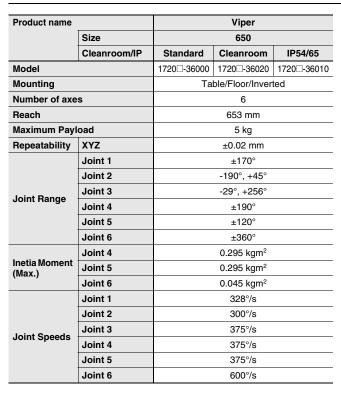# Articulated Robots
# Viper 650

## Articulated robot for machining, assembly, and material handling

- Ethernet capability to control the robot through the familiar programming language (IEC 61131-3) of Machine Automation Controller NJ/NX/NY Series
- Diagnostics display enables faster trouble shooting
- High-resolution, absolute encoders to provide high accuracy, superior slow-speed following, and easy calibration
- High-efficiency, low-inertia Harmonic Drives and a lightweight arm to deliver maximum acceleration
- Reach 653 mm
- Maximum payload 5 kg
- Weight 34 kg

## Specifications

| Product name | | Viper | | |
|---|---|---|---|---|
| | Size | 650 | | |
| | Cleanroom/IP | Standard | Cleanroom | IP54/65 |
| Model | | 1720□-36000 | 1720□-36020 | 1720□-36010 |
| Mounting | | Table/Floor/Inverted | | |
| Number of axes | | 6 | | |
| Reach | | 653 mm | | |
| Maximum Payload | | 5 kg | | |
| Repeatability | XYZ | ±0.02 mm | | |
| Joint Range | Joint 1 | ±170° | | |
| | Joint 2 | -190°, +45° | | |
| | Joint 3 | -29°, +256° | | |
| | Joint 4 | ±190° | | |
| | Joint 5 | ±120° | | |
| | Joint 6 | ±360° | | |
| Inetia Moment (Max.) | Joint 4 | 0.295 kgm$^2$ | | |
| | Joint 5 | 0.295 kgm$^2$ | | |
| | Joint 6 | 0.045 kgm$^2$ | | |
| Joint Speeds | Joint 1 | 328°/s | | |
| | Joint 2 | 300°/s | | |
| | Joint 3 | 375°/s | | |
| | Joint 4 | 375°/s | | |
| | Joint 5 | 375°/s | | |
| | Joint 6 | 600°/s | | |

| Product name | | Viper | | |
|---|---|---|---|---|
| | Size | 650 | | |
| | Cleanroom/IP | Standard | Cleanroom | IP54/65 |
| Power Requirements | | 24VDC: 6A 200 to 240VAC: 10A, single-phase | | |
| Protection | Base | IP40 | IP40 | IP54 |
| | Robot Joints (J4, J5, J6) | IP40 | IP40 | IP65 |
| Clean Class | | --- | Class10 | --- |
| Environment Requirements | Ambient Temperature | 5 to 40°C | | |
| | Humidity Range | 5 to 90% (non-condensing) | | |
| Weight | | 34 kg | | |
| cULus Compliant | | (Yes) *1 | | |
| Basic configuration | Controller | eMotionBlox-60R | | |
| | On-board I/O (Input/Output) | 12/8 | | |
| | Conveyor tracking input | 2 | | |
| | RS-232C serial communications port | 1 | | |
| | Programming environment | ACE, PackXpert, ePLC | | |
| | ACE Sight | Yes | | |
| | ePLC Connect | Yes | | |
| | ePLC I/O | Yes | | |
| Connectable controller *2 | | eMotionBlox-60R, SmartController EX, NJ/NX/NY Series *3 | | |

*1. cULus option
*2. Choose a controller to suit your application.
*3. The robot version 2.3.C or later is required to connect with the NJ/NX/NY Series.

OMRON

# Dimensions

### Viper 650



Workable space defined by point P

### eMotion Blox -60R



### Front panel



### Flange



40 dia. H8 $^{0}_{-0.039}$

20 dia. H7 $^{+0.021}_{0}$ 6 Deep

4×M5×0.08 8 Deep (31.5 B.C)

Hole for Register-pin 5 dia. H7 $\left(^{+0.012}_{0}\right)$ 7 Deep

65 dia.

### Footprint



(with room for power cables : 200 x 430)

# Robot Parts Code and Bundled Accessories

| Type | Viper | | | Viper Add-On | | |
|---|---|---|---|---|---|---|
| Cleanroom/IP | Standard | Cleanroom | IP54/65 | Standard | Cleanroom | IP54/65 |
| Viper 650 | 17201-36000 | 17201-36020 | 17201-36010 | 17203-36000 | 17203-36020 | 17203-36010 |
| Overview | Robot + eMotionBlox60N amplifier with fully integrated controls | | | Robot + eMotionBlox60N + required connection cables | | |
| Purpose | Typical for use in single robot system | | | Typically added to systems with an existing SmartController EX to create multi-robot systems | | |
| Bundled Accessories | • XSYS cable with jumpers, 1.8m/6ft (13323-000)<br>• Front panel kit (90356-10358)<br>• Arm power/signal cable, 4m (05020-000) | | | • XSYS cable with jumpers, 1.8m/6ft (13323-000)<br>• XSYS cable, 5m/15 ft (11585-000)<br>• DB9 splitter (00411-000)<br>• 1394 latch cable, 5m/15 ft (13632-045)<br>• eV+ license to connect to controller (14529-103) | | |