

# IRB 5400-12

## Enhanced IRB 5400



### The Superior Painter

The IRB 5400-12 is an enhanced version of the reliable workhorse IRB 5400-02. The significant improvements combined with the superior control and motion technology of the S4P+, with dynamic model, QuickMove (™) and TrueMove (™), makes the enhanced IRB 5400 the ultimate paint robot - always finishing best in class.

#### Shake hands with the world's best paint wrist

The diameter of the hollow wrist's internal opening has been doubled, allowing more hoses inside the wrist or increased hose size. Hoses for two bells can be accommodated for maximum flexibility, probably making it the world's best paint wrist!

#### Hollow wrist load capacity has been increased by more than 65%

This enables heavy atomizers or two-atomizer systems to operate with high acceleration and speed, thereby reducing cycle time and maintaining an even film build.

#### Superior Dynamics

By increasing the balancing capacity by more than 50% and doubling the capacity of the gear-transmission to the upper arm, the robot will maintain superior dynamics even

when loaded with process equipment close to the wrist.

#### Compact and Lightweight

To increase the dynamic performance further, the weight of the paint handling equipment like the color changers has been reduced. This means reduced cycle time and high finish quality, with power to spare.

#### Improved Serviceability - High Uptime

The design of the vertical arm and its electronics is extremely easy to access and service. For fast and easy diagnostics LED signals can be read without removing any covers. In addition to the increased maintenance intervals, this leads to very high uptime.

#### IPS

By merging the process control and the motion control ABB has a unique control over the complete paint process, providing superior quality.

#### User Benefits

- Low cycle times
- Even film build
- Low power consumption



### TECHNICAL DATA, IRB 5400-12

#### SPECIFICATIONS

|                   |                             |            |
|-------------------|-----------------------------|------------|
| Handling capacity | 25 kg                       |            |
| Number of axes    | 6                           |            |
| Axis movements:   |                             |            |
| Axis              | Working range               | Max. speed |
| Rotation          | 300° / 170° with riser foot | 137°/s     |
| Vertical arm      | 160°                        | 137°/s     |
| Horizontal arm    | 150°                        | 137°/s     |
| Inner wrist       | Unlimited                   | 440°/s     |
| Wrist bend        | Unlimited                   | 340°/s     |
| Outer wrist       | 920°                        | 500°/s     |
| Pose accuracy     | 0.15 mm (Repeatability)     |            |
| Path accuracy     | Ø 6 mm (+/- 3 mm)           |            |

#### ELECTRICAL CONNECTION

|                   |                           |         |
|-------------------|---------------------------|---------|
| Supply voltage    | 3 ph, 200-600 V, 50/60 Hz |         |
| Power consumption | Stand by                  | < 300 W |
|                   | Production                | ~1000 W |
|                   | Peak                      | 5000 W  |

#### PHYSICAL

|                                |                         |  |
|--------------------------------|-------------------------|--|
| Robot unit mounting            | Floor                   |  |
| Dimensions:                    |                         |  |
| Robot footprint:               |                         |  |
| Standard foot unit             | 660 X 750 mm            |  |
| Riser foot unit                | 660 X 775 mm            |  |
| Robot main axes:               |                         |  |
| Vertical arm                   | 1200 mm                 |  |
| Horizontal arm                 | 1620 mm                 |  |
| Robot Controller               | H 1280, W 800, D 550 mm |  |
| Weight:                        |                         |  |
| Standard robot excl. foot unit | 815 kg                  |  |
| Standard foot unit             | 150 kg                  |  |
| Riser foot unit                | 240 kg                  |  |
| Robot Controller               | 240 kg                  |  |

#### ENVIRONMENT

|                       |  |         |
|-----------------------|--|---------|
| Explosion protection: |  |         |
| North America         | Class 1, Division 1, Group C&D             |         |
| Japan                 | IIGT4                                      |         |
| Europe                | II B T4 (Zone 1)                           |         |
| EMC                   | Electro Magnetic Compatibility certificate |         |
| Ambient temperature   | Robot unit                                 | 5-45°C  |
|                       | Robot controller                           | 5-52°C  |
| Relative humidity     | Non condensing max.                        | 95%     |
| Degree of protection  | Protection standards                       | IEC 529 |
|                       | Robot Unit                                 | IP 67   |
|                       | Wrist                                      | IP 54   |
|                       | Robot Controller                           | IP 54   |

#### USER INTERFACES

|                  |   |
|------------------|---|
| Operator panel   | In cabinet or external  |
| Programming unit | EExi protected. Portable, joystick and keyboard.<br>Display 16 lines X 40 characters<br>Graphical 240 X 320 pixels<br>Distributed intelligence<br>Configurable on screen menus. |
| Safety           | EMY stop, Enable device, General mode stop, Auto mode stop, Test mode stop, Cabin interlock   |

#### MACHINE INTERFACES

|                        |  |
|------------------------|--|
| Digital inputs/outputs | 512/512  |
| Analog inputs/outputs  | 16/12  |
| Remote I/O             | Interbus-S 64/64<br>Allen Bradley RIO 128/128<br>Profibus DP 128/128<br>CC Link 128/128  |
| Serial Channels        | RS-232, RS-422, RS-485   |
| Network                | Ethernet NFS/FTP<br>RAP Robot Application protocol<br>Factory Ware interface<br>High speed IPS link - (OPC)<br>Real Time Data Logger<br>DDE Server<br>3.5" MS-DOS format |
| Diskette drive         |  |

#### BASEWARE

|             |  |
|-------------|--|
| BaseWare OS | Robot Operating System, multitasking capability. |
|-------------|--|

#### RAPID

Powerful application programming language.

#### Conveyor Tracking

Accurate synchronization of robotic motion, paint process regulation and the moving part for both linear and circular tracking in any direction.

#### PROCESSWARE

|     |  |
|-----|--|
| IPS | Integrated Process System. Unique system for closed loop regulation and high speed control for paint and air flow adjustments. Based on open, flexible and adjustable architecture philosophy. |
|-----|--|

#### PC TOOLS

|                  |   |
|------------------|---|
| CAP              | A Computer Aided Painting package containing ShopFloor Editor and RobView.  |
| ShopFloor Editor | Off-Line editing of programs using 3D graphics for path and process tuning. Graphical programming and tuning of color change sequences. |
| RobView          | Monitoring of robots and processes while in production. Easy design of user screens.  |
| FlexUI           | Custom built GUI application for system supervision and control.  |

Data and dimensions may be changed without notice.