

## The new IRB 580

Top model functions - compact design



ABB Automation





# PRECISION

ABB Flexible Automation proudly presents IRB 580, an exciting addition to our line of high precision paint robots.

## Precision - our commitment to quality

Precision has always been our primary goal and the common denominator of our globally renowned paint robots. IRB 580 takes precision painting a step further by combining the advanced functions of the IRB 5400 series with a compact design. The result is a highly flexible, cost-effective and accurate paint robot system, which compliments our 540 and 5400 series with the same relentless commitment to quality that our customers have relied on since 1969.

## Why choose IRB 580 over its competitors

- \* High precision and efficiency - ABB's Paint Saving Technology, low overspray, reduced cycle time.
- \* Increased flexibility - two different arm lengths and ABB's patented Hollow Wrist Technology.
- \* Energy saving - fully balanced construction, low power consumption, 30-50% less than our competitors.
- \* Increased productivity - quicker installation and online software editing, ABB's Superior Control Technology.

## 140° unsurpassed flexibility

The ABB Hollow Wrist can rotate 140° in any direction. This unsurpassed flexibility makes IRB 580 one of the most versatile and easy to program paint robots in its class.

## Straight wrist, no off-set

The main feature of robot arms with ABB's Hollow Wrist Technology is that all paint- and air supply hoses are encapsulated in the arm and wrist. This prevents damage to the hoses, and the straight design eliminates wear and tear thus increasing overall reliability.

## High precision

The Hollow Wrist is built around three wedge-shaped rotating links, controlled by three axis motors, enclosed in the rear end of the horizontal arm. This design combined with our advanced software solutions gives greater accuracy and payload capability.

**1**  
With 140° rotation in any direction IRB 580 will fully coat even the most complicated parts.

**2**  
The straight design of the wrist increases durability.

**3+4**  
The ABB Hollow Wrist can be fitted with a number of different applicators, including bells and various guns.

## ABB's Hollow Wrist Technology:

# The highly accurate Hollow Wrist





## ABB's Paint Saving Technology:

# IPS - the intelligent paint solution

### Fast and accurate

ABB's unique Integrated Process System features closed loop regulation and high-speed control for paint and airflow adjustment. The system ensures a uniform film build with a specified thickness over the entire object. This assures a high finish quality and optimum use of paint material.

### Significant paint savings

The IPS system increases transfer efficiency by synchronising the gun needle and paint flow triggering with the robot arm motion, keeping overspray to an absolute minimum. This saves paint and increases your cost-effectiveness.

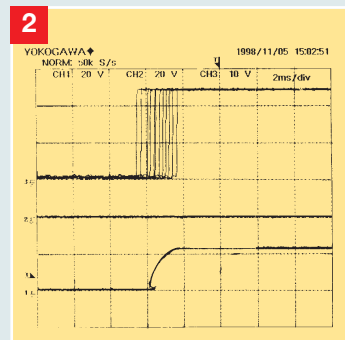
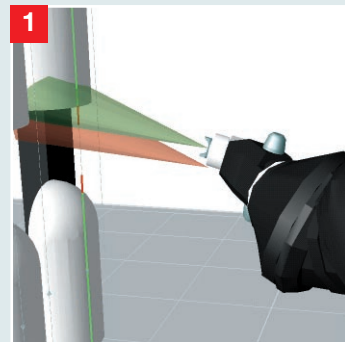
### Increased uptime

The IPS system will automatically compensate for physical changes in the environment or the equipment, always keeping the commanded flow rate within strict tolerances. The system will monitor all the set limits and warn the operator of any equipment wear over time. It can also detect a broken cable or defective sensor and automatically enter open loop operation mode, if so configured. The system can operate in this mode until it is convenient to enter the booth and perform the necessary maintenance. This will drastically increase uptime in case of sensor or cable failure.

1

Accurate paint flow triggering saves paint. An adjustment of 2 cm for the gun triggering points of a program will typically save you 14 litres per day \*) for one robot only.

\*) (@ 1000 mm/sec, 1000 ml/min, 45 racks/hour, 4 parts/rack, 2 shifts)



2

Triggering is typically better than +/- 2ms. This shows the accurate repeatability of the IPS with 12 gun «on» and «off».

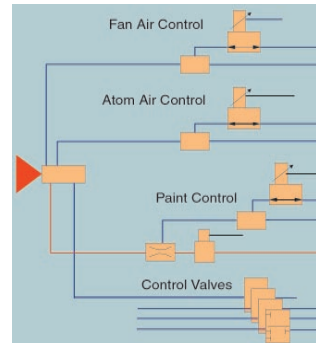
3

Built in know-how. The IPS software is integrated in the robot arm.



4

IRB 580 - paint robot by design. By integrating the paint process equipment in the robot arm, we have significantly increased the process response time and have reduced paint and solvent waste.





## ABB's Superior Control Technology:

# Increased productivity and cost-effectiveness

### Superior reliability and safety

The S4P controller is modular and designed to the highest level of operational reliability. The twin channel safety system is continuously monitored and complies fully with international safety standards. The balanced arm, which has brakes on all axes, improves ease of use and personnel safety.

### Substantial energy savings

Energy consumption is 50 - 70% that of other robot systems, and is achieved by well-balanced robot arms and an optimised drive-train design. Motors and drives are the same modern types as in our top-line IRB 5400 robots giving high speed and precision.

### Increased productivity

With powerful PC software tools like CAP and FlexUI you can optimise your paint programs without interrupting production. This will ensure a continuously improved finish quality, optimised use of paint material and increased production uptime.

### Flexible connectivity

Using standard, popular industrial communication protocols, IRB 580 communicates easily with your factory network, PLC's and line controllers. This capability allows you to monitor and control your paint cell and to collect production data and paint statistics.

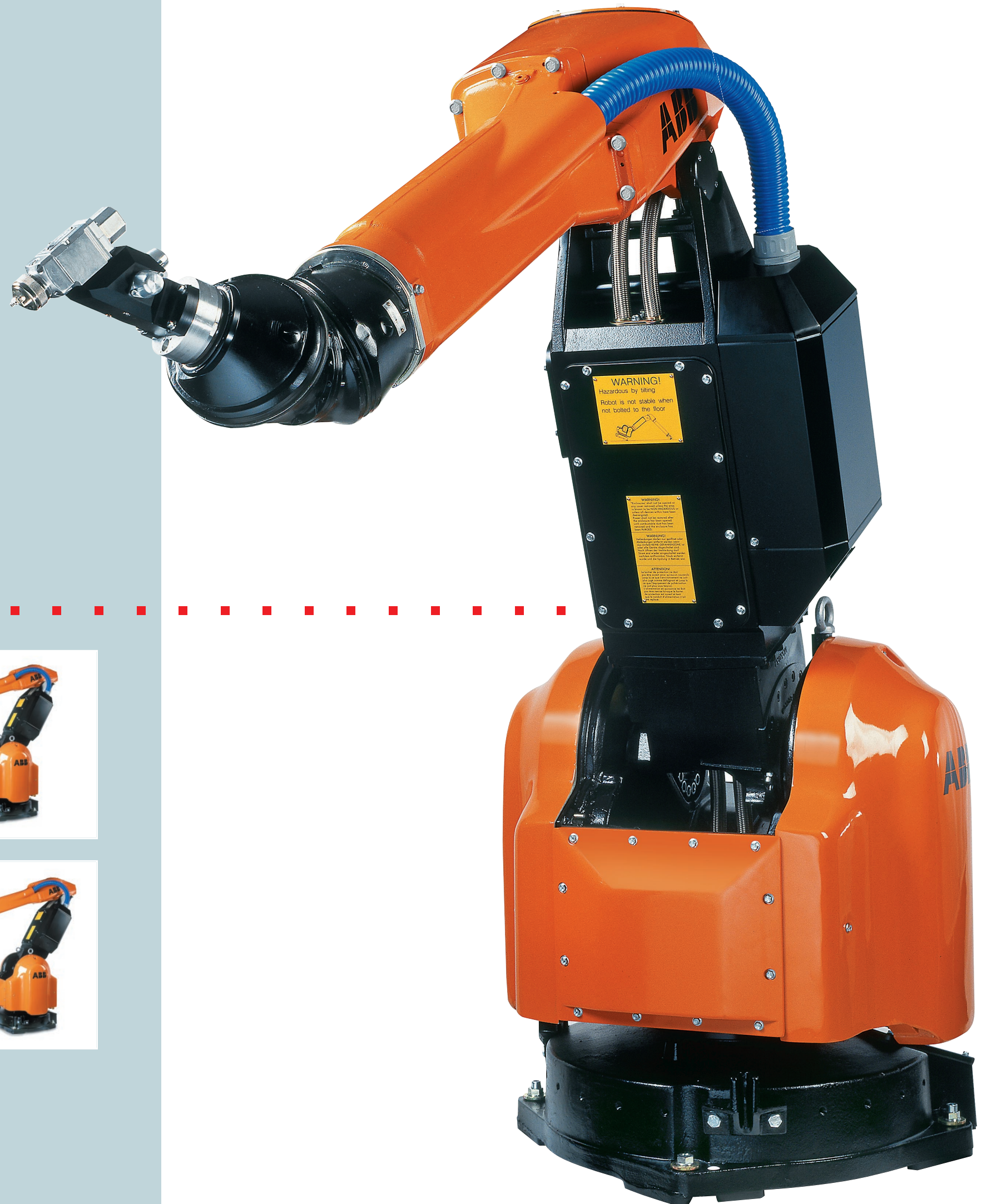
### Faster installation

IRB 580 comes pre-configured, ready to install with its integrated paint process equipment and interface for PLC's. Just start adding the robot paint commands in the powerful RAPID programming language and you're quickly up and running.

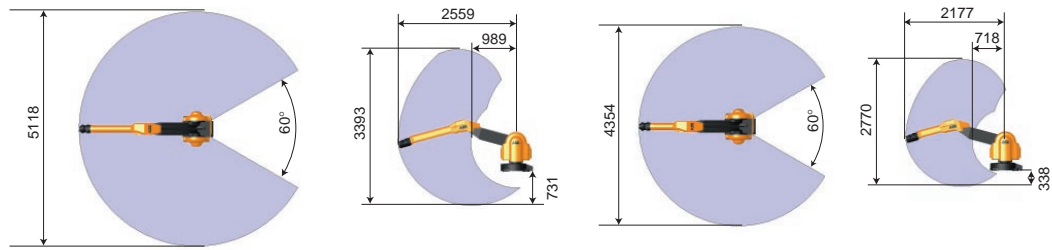
**1**  
Powerful PC software tools allow process tuning without interrupting production.

**3**  
Because of the S4P, ABB's Global Controller Platform, training, service and engineering costs can be significantly reduced.

**2+4**  
IRB 580 is available with two different arm lengths, 1220 mm and 1620 mm.







LOKOMOTIV - ROTATIM

## IRB 580 TECHNICAL DATA

### SPECIFICATION IRB 580

Handling capacity	10Kg
Number of axes	6
Diskette drive	3.5" MS-DOS format

Axis movements	Working range	Max. speed
Axis		
1. Rotation	300°	112°/sec
2. Vertical arm	145°	112°/sec
3. Horizontal arm	95°	112°/sec
4. Inner wrist	=indefinite	415°/sec
5. Wrist bend	=indefinite	400°/sec
6. Outer wrist	920°	560°/sec
Pose accuracy	0,3mm	
Path accuracy	+/- 3mm	

### ELECTRICAL CONNECTION

Supply voltage	3phase 200V-600V 50/60Hz
Power consumption	Max. peek effect 4.5KVA
Power consumption during production	<700W
Power consumption «stand by»	<0.3KVA

Electrical safety according to international standards

### PHYSICAL

Dimensions		
Robot footprint	600mm x 700mm	
Robot main axes	Base	630mm (High), Ø800mm
	Vertical arm	1000mm
	Horizontal arm	1220mm
		1620mm
Cabinet	Height	1280mm
	Width	800mm
	Depth	850mm
Weight	Robot unit 1220mm	657Kg
	Robot unit 1620mm	660Kg
	Robot controller	240Kg

### ENVIRONMENT

Explosion protection		
North America	Class 1, Div. 1, Group C&D	
Japan	IIGT4 (pending)	
Europe	IIBT4	
EMC	Electro Magnetic Compatibility certificate	
Ambient temperature	Robot unit	5-45°C
	Robot controller	5-52°C
Relative humidity	Max. 95% Non condensing	
Degree of protection	Robot unit	IP 67
	Robot controller	IP 54



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### ABB Flexible Automation AS

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### USER INTERFACES

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

### MACHINE INTERFACES

Digital input/output	512/512
Analogue inputs/outputs	16/12
Remote I/O	Interbus-S 64/64
	Allen Bradley RIO 128/128
	Profibus DP 128/128
	CC-Link 128/128
Serial channels	RS-232, RS-422, RS-485
Network	Ethernet NFS/FTP
	RAP Robot Application protocol
	FactoryWare interface

### BASEWARE

BaseWare OS	Robot Operating System, multitasking capability
RAPID	Powerful application programming language
Conveyor tracking	Accurate synchronisation of robotic motion, paint process regulation and the moving object. For both linear and circular conveyors in any direction

### PROCESSWARE

APR	Analogue Paint Regulation of process parameters as fluid, air and electrostatic voltage
IPS	Integrated Process System. Unique system for closed loop regulation and high-speed control for paint and airflow adjustments. Based on an open, flexible and adjustable architecture philosophy

### PC TOOLS

CAP for S4P	A bundle containing the ShopFloor Editor and RobView
ShopFloor Editor	Off-line editing of programs using 3D graphics for path and process adjustments
RobView	Monitoring of robots and process in production. Easy design of user screens
RobLog	Logging of robot and process data into a standard PC database-file for trending and analysis