

# Body-in-White Product Range

Simple, standard, cost-efficient and reliable



**ABB**



*« From component assembly to body complete, ABB offers a range of lean products and solutions to be more competitive and in the same time fulfill your customers demands! »*

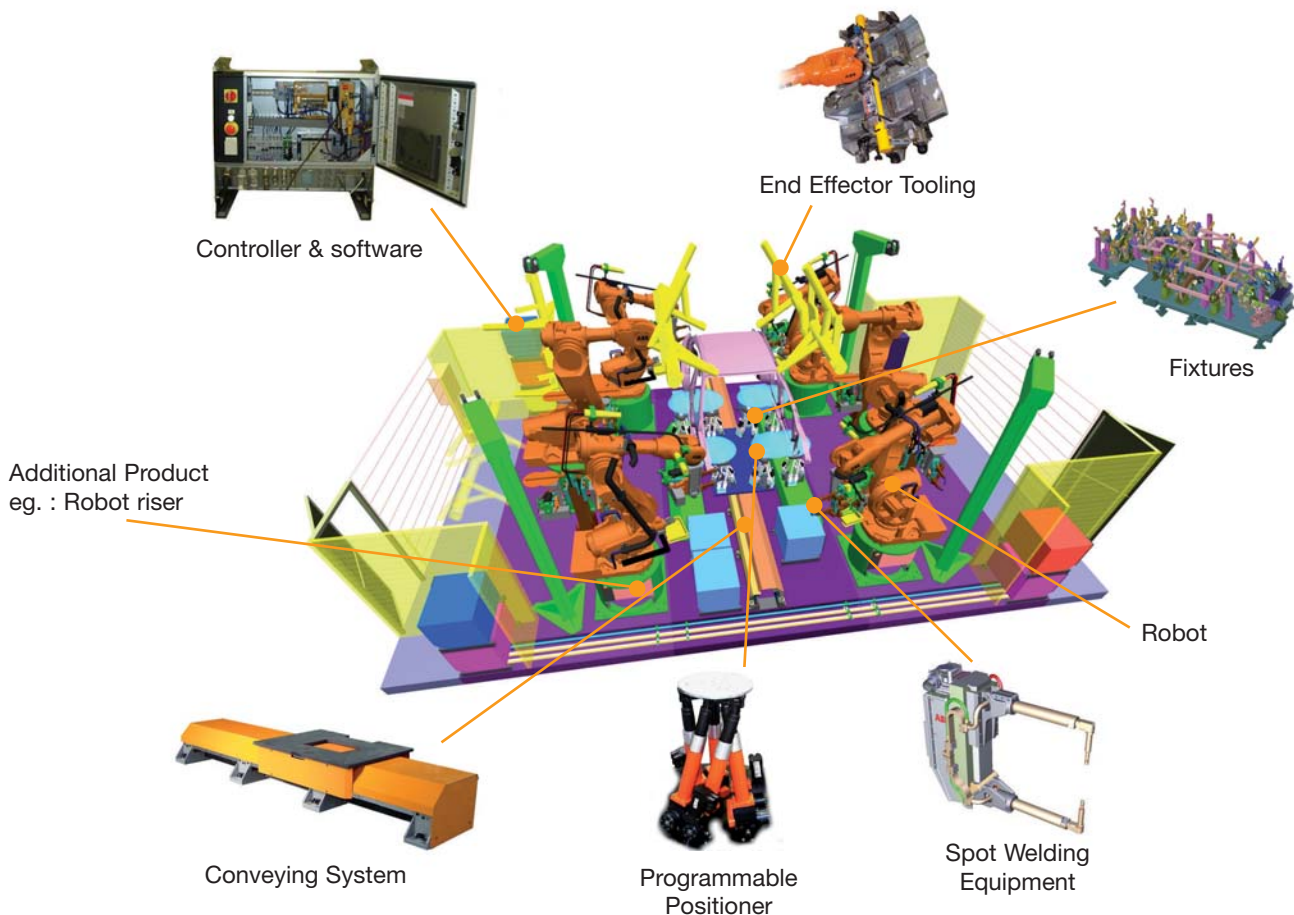
## **ABB robotized solutions challenge low cost labor in Body-in-White**

The automotive industry is generally credited with having pioneered the large scale use of robots. Long production runs of identical vehicles were the ideal field of application for these untiring and reliable workers. Today's market is increasingly putting automotive manufacturers under pressure to offer customers more choice, while at the same time demanding lower production costs. To fulfill these apparently contradictory requests, a single line must be able to produce a mix of different models, and must "learn" to make new models without calling for a total re-design of its equipment – and preferably without even stopping production.

ABB has responded to these demands by making robot cells more adaptable, easier to install and more space saving. The new generation of cells can produce so cheaply that they can match manual labor in low-cost countries – providing manufacturers with an alternative to outsourcing while in the mean time raising the quality supplied to local markets.

ABB is now proposing a standard cost-effective solution to compete with manually operated body shops: FlexLean. This new concept is based on a range of innovative, cost-optimized products which can be used for a lean Body shop.

# Standard solutions for flexible body shop



## The FlexLean solution allows to have a new generation of robot cells




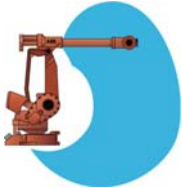
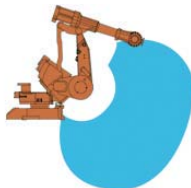

### ■ As cells are **more robotized**, they offer important assets:

- Flexibility: no skids, no pallets are in the cell
- Ease of use: no specific programming start-up is required
- Easy carry-over
- Simplified maintenance: less spare parts are required
- Less specific referencing system: no additional tooling or tool changers are necessary
- Improved quality thanks to quick adjustment and set-up with programmable tooling
- Improved uptime thanks to the 80% robotized tasks







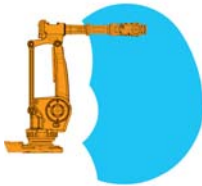

### ■ Cells are also **more standardized** and their main key features are:

- Short lead-time: all equipment are already on the platform
- Easy to add new car model
- Simple HMI
- Easy to program
- Quick start-up
- No specific conveying system is required by this solution
- Lean

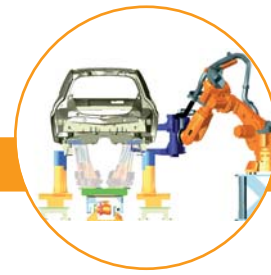
# Robots

			
	<b>IRB 4400</b>	<b>IRB 4450S</b>	<b>IRB 6640</b>
			
A complete range of robots adapted to the different main applications of the automotive industry	<ul style="list-style-type: none"> <li>Arc Welding</li> <li>Assembly</li> <li>Cleaning/Spraying</li> <li>Cutting/Deburring</li> <li>Gluing/Sealing</li> <li>Grinding/Polishing</li> <li>Machine Tending</li> <li>Material Handling</li> <li>Packing</li> <li>Palletizing</li> <li>Press Brake Tending</li> </ul>	<ul style="list-style-type: none"> <li>Assembly</li> <li>Cutting/Deburring</li> <li>Grinding/Polishing</li> <li>Machine Tending</li> <li>Material Handling</li> <li>Spraying</li> </ul>	<ul style="list-style-type: none"> <li>Machine Tending</li> <li>Material Handling</li> <li>Spot Welding</li> </ul>
<b>Load (kg)</b>	10 - 60	30	130 - 235
<b>Reach (m)</b>	1.95 - 2.55	2.4	2.55 - 3.2
<b>Protection</b>			
<b>IP-Class</b>	54 - 67	54 - 67	67
<b>Clean Room ISO Class</b>	5		5
<b>Foundry Plus/Prime</b>	Foundry plus/Prime	Foundry Plus	Foundry Plus/Prime
<b>Wash/Wash Down</b>	Wash	Wash	
<b>High Pressure Steam Washable</b>		Yes	
<b>Mounting</b>	Floor Shelf	Shelf	Floor
<b>Models</b>	IRB 4400-45-60 IRB 4400L-10-30 IRB 4450S	IRB 4450S	IRB 6640-180/2.55 IRB 6640-235/2.55 IRB 6640-205/2.75 IRB 6640-185/2.8 IRB 6640-130/3.2 IRB 6640ID-200/2.55 IRB 6640ID-170/2.75

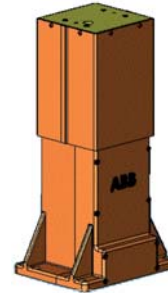
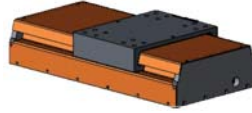
# Robots

			
<b>IRB 6620</b>	<b>IRB 6650S</b>	<b>IRB 6660</b>	<b>IRB 7600</b>
			
<p>Assembly Cleaning/Spraying Cutting/Deburring Gluing/Sealing Grinding/Polishing Machine Tending Material Handling Packing Palletizing Press Brake Tending Spot Welding</p>	<p>Assembly Cutting/Deburring Grinding/Polishing Machine Tending Material Handling Spraying</p>	<p>Material Handling Machine Tending Press Tending</p>	<p>Assembly Cast Cleaning Machine Tending Material Handling Press Brake Tending Spot Welding</p>
150	90 - 200	130	150 - 500
2.2	3.0 - 3.9	3.1	2.55 - 3.50
54	66 - 67	67	67
	Foundry Plus/Prime		Foundry Plus/Prime
Yes	Yes		
Floor Tilted Inverted	Shelf		Floor
IRB 6620	IRB 6650S-90/3.9 IRB 6650S-125/3.5 IRB 6650S-200/3.0	IRB 6660	IRB 7600-500/2.55 IRB 7600-400/2.55 IRB 7600-340/2.8 IRB 7600-150/3.50

# Programmable Positioners



3 axes programmable positioner, with linear axis, designed for positioning (programmed paths of parts and equipment)

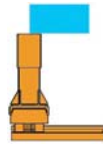


**FlexPLP Linear**

**FlexPLP Linear horizontal**

**FlexPLP Linear vertical**

**FlexPLP Tripod**



	IRPLP Linear	IRPLP Linear H300	IRPLP Linear H400	IRPLP Linear V200	
<b>Repeatability</b>	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm
<b>Speed</b>	100 mm/s	100 mm/s	100 mm/s	100 mm/s	250 mm/s
<b>Strokes</b>	X = 400 Y = 300 Z = 200	300 mm	400 mm	200 mm	
<b>Length</b>		554 mm	654 mm		
<b>Weight</b>	130 kg	44 kg	46 kg	40 kg	50 kg
<b>Dynamic Load</b>	30 kg	50 kg	50 kg	50 kg	30 kg
<b>Static Load</b>	150 kg	150 kg	150 kg	150 kg	150 kg

Simple and flexible programmable gripper units avoids tool changing (on robot and on gripper)



**FlexGrip**

**FlexGrip HD**



	IRBG BW-S 3 axes / 1 axis		IRBG BW-L 3 axes
<b>Repeatability</b>	+/- 0.1 mm	+/- 0.1 mm	+/- 0.1 mm
<b>Speed</b>	100 mm/s	100 mm/s	100 mm/s
<b>Strokes</b>		150 mm	
<b>Weight</b>	35 kg	10 kg	40 kg
<b>Dynamic Load</b>	25 kg	30 kg	25 kg
<b>Static Load</b>	55 kg	70 kg	100 kg

# Conveying Systems

Material handling track motion: compact, entirely protected, heavy load capability, high transfer speed and acceleration and positioning of part and robot



## FlexTrack

	IRT 501-66	IRT 501-66R	IRT 501-90	IRT 501-90R
Repeatability	+/- 0.1 mm	+/- 0.1 mm	+/- 0.1 mm	+/- 0.1 mm
Acceleration	2.1 m/s	1.5 m/s	1.5 m/s	1 m/s
Travel Speed	2 m/s	1.5 m/s	1.5 m/s	1.2 m/s
Weight	439kg + 96kg/m	439kg + 96kg/m	559kg + 112kg/m	559kg + 112kg/m
Maximum Payload	900 kg	2000 kg	2000 kg	2950 kg

Track motion for robots



## IRBT X004

	IRBT 4004	IRBT 6004	IRBT 7004
Speed	2.0 m/s	1.6 m/s	1.2 m/s
Protection	'Foundry Plus'	'Foundry Plus'	'Foundry Plus'
Robots	IRB 4400 IRB 4450S	IRB 6600/IRB 6600ID IRB 6650/IRB 6650S IRB 6650ID	IRB 7600

The high speed roller table improves pallet positioning and reduces wear on rollers, pins and bushings



## Roller Table

	STANDARD	WITH LIFT
Repeatability	+/- 5 mm (+/- 0.1 mm Pallet on Datum Frame)	+/- 5 mm (+/- 0.1 mm Pallet on Datum Frame)
Speed	1.8 m/s	1.8 m/s
Acceleration	1.6 m/s	1.6 m/s
Weight	850 kg	850 kg
Maximum Payload	2000 kg	2000 kg

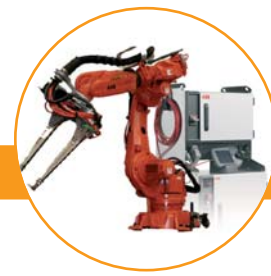
For Large tools and parts handling



## Geo Pallet

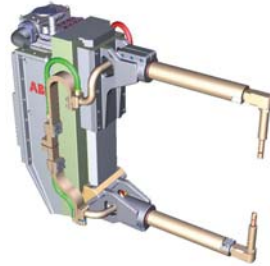
Weight	700 kg
Maximum Payload	800 kg

# Spot Welding Equipment



**Dress Pack**

A range of dress packs for spot welding and material handling



**Gun**

The Electric Servo Gun is used for spot welding application with parallel arm movements



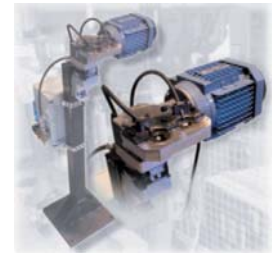
**Spot Welding Cabinet**

Dedicated controller cabinet for spot welding processes  
It can be equipped with options for controlling either pneumatic or electric servo welding guns, whether robot carried or stationary mounted



**Water and Air Unit**

A fully integrated water and air unit for spot welding processes



**Tipdresser**

ABB tipdresser is electrical driven and exists in single or double cutter, mounted horizontally or vertically on stand, and also for swingarms mounting in different lengths

# Other Process Tools



**Rollerhemming Tool**

ABB has developed and patented a unique Rollerhemming tool, adapted to the robotics process. This tool allows to hem easily and with a high quality thanks to a simple and efficient force control system. A standard dresspack is also available



**True View**

It allows you to easily create robot guidance application for part uncracking and positioning, process monitoring, assembly...



**DispensePac**

This ABB Integrated Dispensing System improves sealing application by controlling the material flow rate with (PID) closed loop



# Controllers

## Robot Controller

The controller allows cost reduction, improvement of quality and increases the number of robot applications



**IRC5**

<b>Size H x W x D</b>	970 x 725 x 710 mm
<b>Electrical connection</b>	200 - 600V, 50 - 60 Hz
<b>Number of drives</b>	36
<b>Applicable for</b>	Robots, positioners

## Stand-alone controller

Automation control software and hardware. Stand-alone controller for servo axes (monitors up to 200 axes)



**FlexNC**

<b>Size H x W x D</b>	680 x 700 x 630 mm
<b>Electrical connection</b>	380 V
<b>Number of drives</b>	256
<b>Applicable for</b>	Positioners only

# Software Products

## RobotWare



### RobotStudio

RobotStudio is the ABB innovative software that allows robot programming to be done from your PC, at anytime, from anywhere, without shutting down production, making your company's operating systems more efficient, more productive and more profitable



### Spot Welding

RobotWare Spot Welding options are designed to be both general and flexible software platforms for creating customized and easy-to-use programming for all types of spot welding systems. Each program provides powerful spot welding instructions for fast and accurate positioning, combined with gun manipulation, process initiation and supervision of the welding equipment



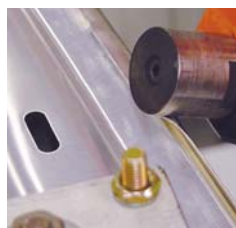
### Laser

RobotWare Laser is available both for welding and brazing. The platform includes the interfaces for the most famous laser equipment, such as Trumpf's laser source or HighYag process tool. This software is also ready to drive the beam switching unit, allowing the share of laser source between 2 to 4 robots with IRC5



### WebWare

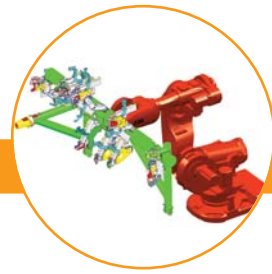
WebWare is a software product that allows you to be in control of your production data, to increase the uptime of your robot system. Once your ABB robots are attached to your network, WebWare allows you to safeguard and optimize your investment in robotics



### Rollerhemming

RobotWare Rollerhemming is offering an efficient user interface to speed-up the creation and tuning of Rollerhemming robot programs. From the first path, it is for instance possible to generate the other paths with different roller angles

# End Effector Tooling



All grippers are compatible with tool changer to enhance the future flexibility of the solution



	IRB Gripper - Small	IRB Gripper - Medium	IRB Gripper - Large	IRB Gripper - XLarge
Part weight	1 to 10 Kg	5 to 30 Kg	20 to 80 Kg	60 to 90 Kg
End effector weight	30 to 50 Kg	50 to 120 Kg	150 to 350 Kg	300 to 400 Kg
Number of clamping and locating units	4 to 6	6 to 8	8 to 14	14 to 18

# Fixtures



The IRB Tool fixtures are designed to improve the modularity of jig by using standard components, without compromise on stiffness

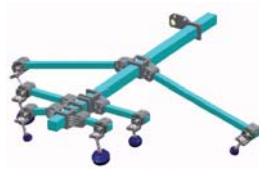


	IRB Tool - Small	IRB Tool - Medium	IRB Tool - Large
Part weight	1 to 10 Kg	5 to 25 Kg	20 to 80 Kg
Number of clamping and locating units	4 to 6	8 to 10	10 to 20

# Material Handling



Simple, economic and standard for material handling applications: stamping, packaging and palletizing, handling, etc...



	IRB Gripper Small	IRB Gripper Medium / Large	IRB Gripper Large / XLarge
<b>Part weight</b>	1 to 10 Kg	5 to 25 Kg	20 to 40 Kg
<b>End effector weight</b>	3 to 7 Kg	6 to 15 Kg	20 to 40 Kg
<b>Number of suction cups and locating units</b>	3 to 6	4 to 8	6 to 12

## Additional Products

The risers allow to increase the height of the robot required for some applications in the automotive industry



	Robot Risers
<b>Height</b>	250 mm to 2500 mm

Standard modular electro-pneumatical manifold allows reduction of time for cabling, piping, tests, and reduction of stocks



	Flexair
<b>Number of sequences</b>	1 to 5
<b>Number of cylinders per module</b>	8
<b>IP Class</b>	65

The pivot arm allows an angular movement of a reference support, and is operated by a cylinder with blocking and locked with a 3 point system in working position



	Locking Pivot Arm	
	T 100	T 130
<b>Repeatability</b>	+/- 0.05 mm at 400 mm	+/- 0.05 mm at 400 mm
<b>Number of cycles</b>	> 1 500 000	> 1 500 000
<b>Payload</b>	35 kg at 400 mm	50 kg at 500 mm
<b>Opening Time 45°</b>	2.3 sec	2.8 sec
<b>Opening Time 90°</b>	2.6 sec	3.2 sec

Over the last three decades, ABB has remained committed to building and strengthening relationships with customers, integrators and partners throughout the world. Underpinning this commitment is our belief that at the heart of innovative robotics lie mutual trust and confidence.



This belief has helped us to achieve clear leadership in a demanding field. Today, in the automotive, metal fabrication, foundry, plastics and consumer industries, our wide range of products and solutions help to pave the way for optimised production. Across the world, our global network of sales and service centres, and our carefully selected partners, make ABB products, systems and services available wherever they are needed.

## **Welcome to ABB**

