

Technical data

Sub-assemblies produced on Modulflex	Floors, engine compartment, side panels, closures and roof
Tool set length	4M
Tool set width	1.26M
Max. weight of tooling	1,200KG
Max. weight of tooled set	2,000KG
Tooling number	3+3 randomly
Off-line setup of tools	Yes
Max. nbr of robots at tacking station	6
Handling and inter-station infeding robots	2+2
Positional repetability	+/-0.5mm

Floor surface

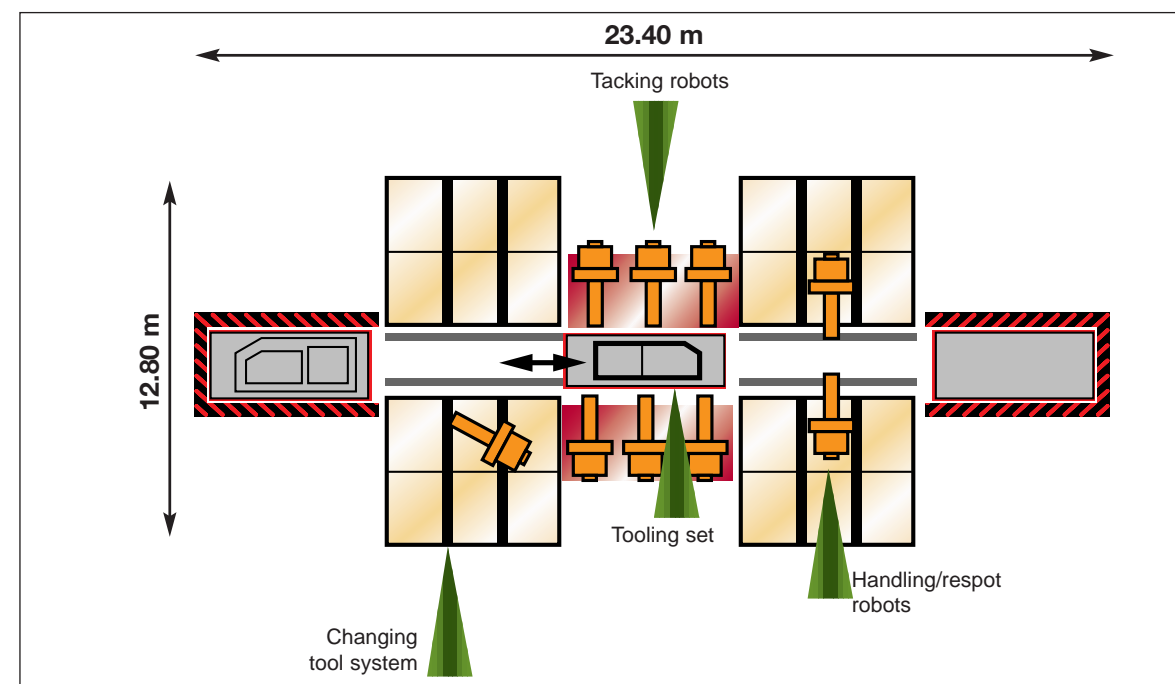


ABB Flexible Automation is the world leading supplier of flexible automation products, systems and services, with more than 55,000 industrial robots installed worldwide and Flexible Automation Centers in 26 countries.



ABB Body-in-White S.A.
 14, rue Denis Papin
 F - 95250 Beauchamp - France
 Tel : +33 (1) 30 40 47 00
 Fax : +33 (1) 30 40 47 01
 Web : www.abb.com

ABB Flexible Automation local offices

Argentina Asea Brown Boveri S.A. Buenos Aires +54 11 4 229 5500, **Australia** ABB Industrial Systems Pty Ltd. Lilydale Victoria +61 3 9735 7222, **Austria** ABB Industrie & Gebäudesysteme GmbH Perchtoldsdorf +43 1 60109 3721, **Benelux** Asea Brown Boveri S.A. - N.V. Zaventem +32 2 718 6311, **Brazil** Asea Brown Boveri Ltda. Sao Paulo +55 11 7088 9111, **Canada** Asea Brown Boveri Inc. Brampton +1 905 460 3000, **China** ABB Engineering Ltd. Shanghai +86 21 504 80 101, **Czech Republic** Asea Brown Boveri s.r.o. Praha +420 2 2283 2111, **Denmark** ABB Energi & Industri A/S Odense +45 66 14 7008, **Estonia** ABB Esti AS Tallinn +372 6 711 800, **Finland** ABB Service OY Helsinki +358 10 222 000, **France** ABB Flexible Automation s.n.c. St Ouen L'Aumône +33 1 34 40 25 25, **Germany** ABB Flexible Automation GmbH Friedberg +49 6031 850, **Hungary** Asea Brown Boveri Ltd Győr +36 96 512 950, **India** Asea Brown Boveri Ltd. Bangalore +91 80 839 5181, **Italy** ABB Flexible Automation SpA Milano +39 02 26232 1, **Japan** ABB K.K. Tokyo +81 35482 2160, **Korea** Asea Brown Boveri Ltd. Seoul +82 2 528 3070, **Malaysia** ABB Industrial and Building Systems Sdn Bhd Kuala Lumpur +60 3 972 1888, **Mexico** ABB Sistemas S.A. de C.V. Tlalpan, Edo. de México +52 5 328 1400, **Norway** ABB Flexible Automation A/S Bryne +47 51 489 000, **Poland** ABB Automatyka Sp z o.o. Warszawa +48 22 6080 785, **Portugal** Asea Brown Boveri SA Amadora +351 21 425 6335, **Romania** Asea Brown Boveri S.R Bucharesta +40 1 310 43 80, **Slovak Republic** ABB Elektro s.r.o Bratislava +421 7 4926 6314, **Slovenia** Asea Brown Boveri d.o.o. Ljubljana +386 61 131 5126, **South Africa** ABB Flexible Automation Alrode +27 11 864 5340, **Spain** ABB Flexible Automation S.A. Sant Quirze del Vallés +34 93 728 8700, **Sweden** ABB Flexible Automation AB Västerås +46 21 344 500, **Switzerland** ABB Flexible Automation AG Zürich +41 1 435 6555, **Taiwan** Asea Brown Boveri Ltd. Linkou Hsiang +886 2 2577 6090, **Thailand** ABB Industry Ltd. Samutprakarn +66 2 709 3346, **Turkey** ABB Elektrik Sanayi S.A. Istanbul +90 216 365 29 00, **United Kingdom** ABB Industrial Systems Ltd. Milton Keynes +44 1908 350 300, **USA** ABB Flexible Automation Inc. Auburn Hills +1 248 391 9000.

PF - 01 - E - 2000

Sub-assembly System



ABB Automation



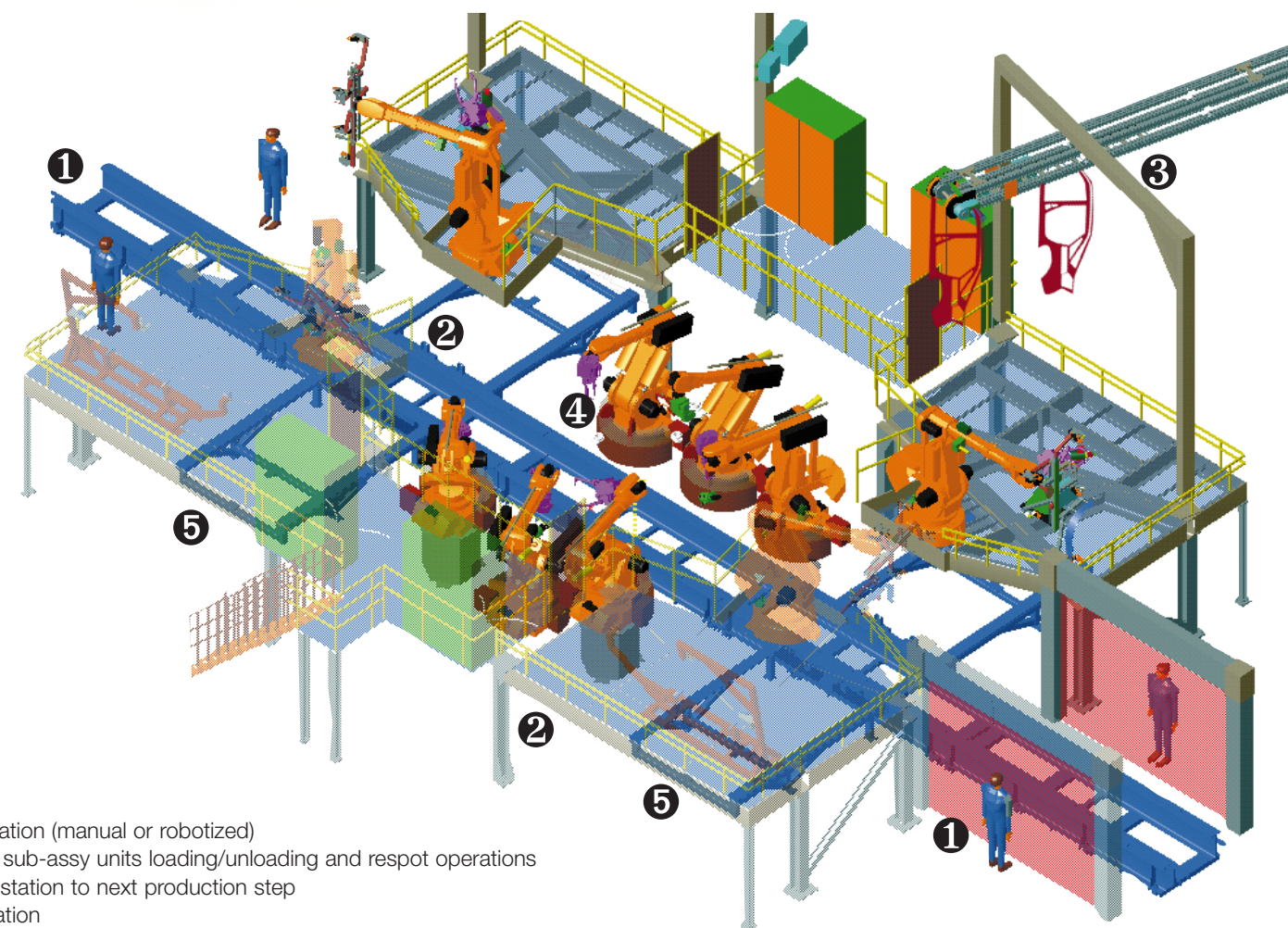
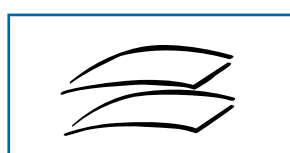
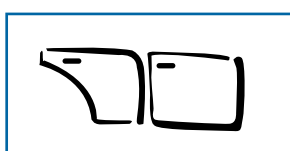
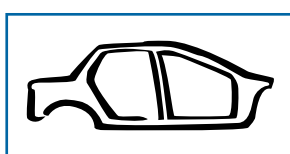
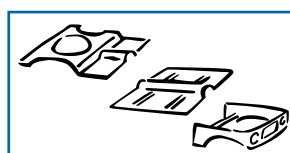
Your top priorities are equipment flexibility and reliability, as well as lower manufacturing costs.

Modulflex is the standardized system for main sub-assembly units : floors, engine compartment, side panels, closures and roof.

Due to its modular design, it can be quickly adapted to changing assembly requirements.



Modulflex System



- ❶ Loading station (manual or robotized)
- ❷ Station for sub-assy units loading/unloading and respot operations
- ❸ Unloading station to next production step
- ❹ Tacking station
- ❺ Changing tool system

Flexibility

■ Process flexibility

Modulflex handles any assembly task - not just welding operations, but also glueing tasks.

■ Model flexibility

Modulflex includes a high performance tool-change system, allowing for the insertion of different tools without disrupting the production flow rate.

With Modulflex, you can assemble three randomly scheduled models, or three steps of production.

■ Volume flexibility

Due to its modular design, Modulflex adapts to all production volumes, from prototype parts to large runs. High production rates can be achieved using several Modulflex, in serial.

■ Fast adaptation to the market demand

The tools fixed on a moving tool set are easily and quickly introduced in the system without-production disruption upon part type change. The simple tool design allows for their manufacture at a very early stage in the development of manufacturing equipment. These tools can thus be used off-line to produce prototypes or pilot lots.

Lower manufacturing costs

■ Organisation of the production flow

Loading/unloading stations are located at the ends of the system, permitting full access to all three sides of the line while enabling easy handling and maintenance operations within the entire bodyshop.

The Modulflex concept leads to a more uniform and efficient production process as compared to a conventional assembly line.

■ Equipment reliability

Dividing the body-in-white assembly process into three main operations - i.e. geometry, handling and assembly - Modulflex optimizes all processes and equipment associated with each function, while not interfering with the others.

The layout and streamlining of all equipment leads to an optimized use of production means.

Loading/unloading robots can thus perform added value operations such as glueing and weld finishing.

The highly standardized system is key to the overall reliability of component parts.