




MILACRON®




S7 LINE

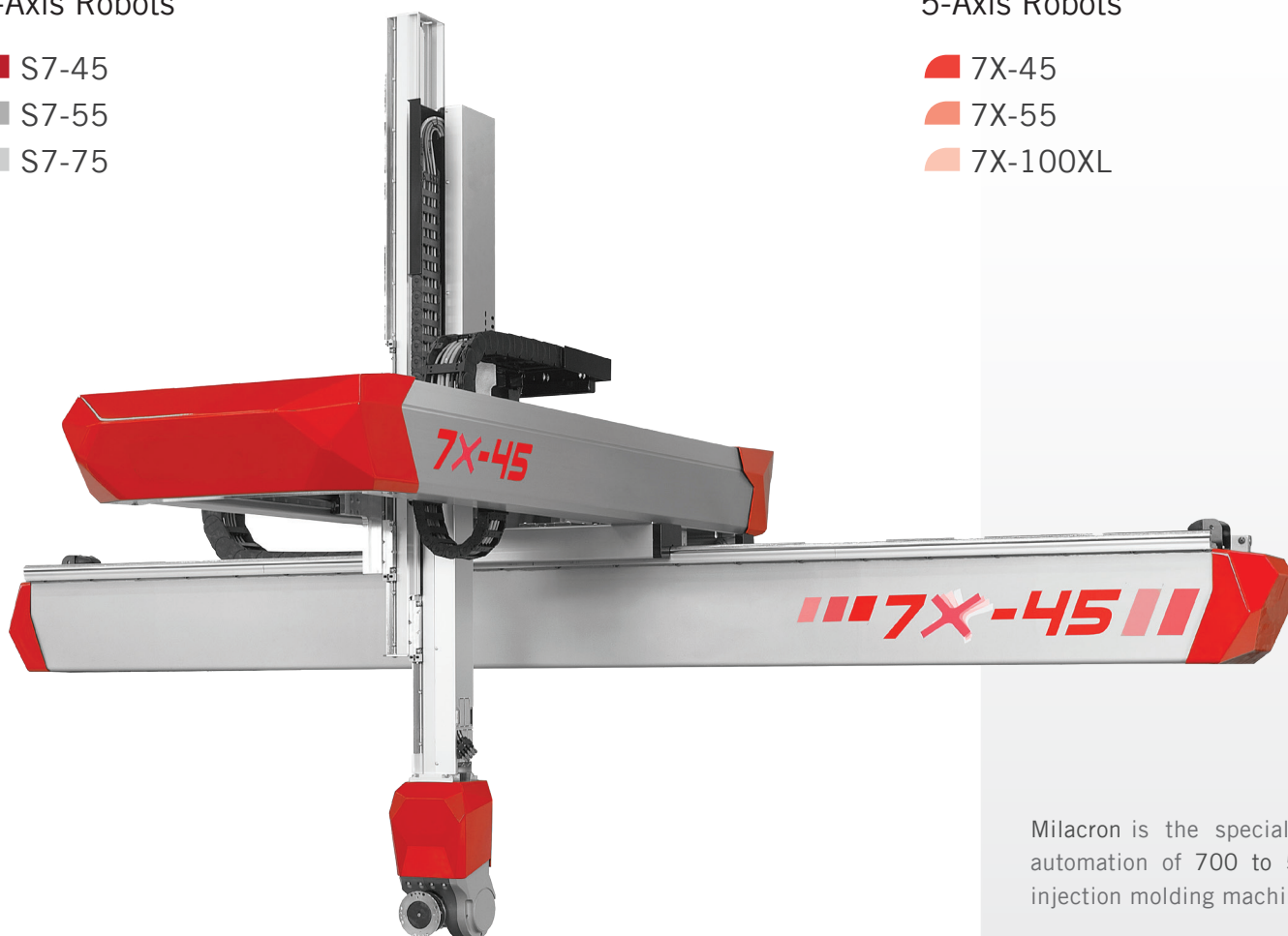
3-Axis Robots

-  S7-45
-  S7-55
-  S7-75

7X LINE

5-Axis Robots

-  7X-45
-  7X-55
-  7X-100XL



Milacron is the specialist in the automation of 700 to 5000 T injection molding machines.

Our large robots offer is designed around a unique technological platform of the latest generation to meet the most varied production requirements, such as yours.

From the 3-axis robot to the 5-axis robot, there is a solution for all your new or existing press equipment needs, for simple unloading or complex applications or for optimum adaptation to the most demanding applications.

For 700 to 5000 ton Injection Molding Machines

TECHNOLOGY

S7 Line and 7X Line benefit from the latest generation technologies of the new large capacity robot platform:

- A high level of component reliability due to shared designs and components with high technological value: Linear System (LS) guides on transverse and vertical axes and powerful servo-motors on all our models.
- Rationalization of basic components and a modular design for adapting the installation (transverse or axial, etc.), with strokes and loads tailored closely to your application needs.
- A modular assembly planned during the design phase for demolding and vertical arm functions which allow for pre-assembly in our factory and testing by module.
- Robot programming and operation is simple and flexible using Visual.

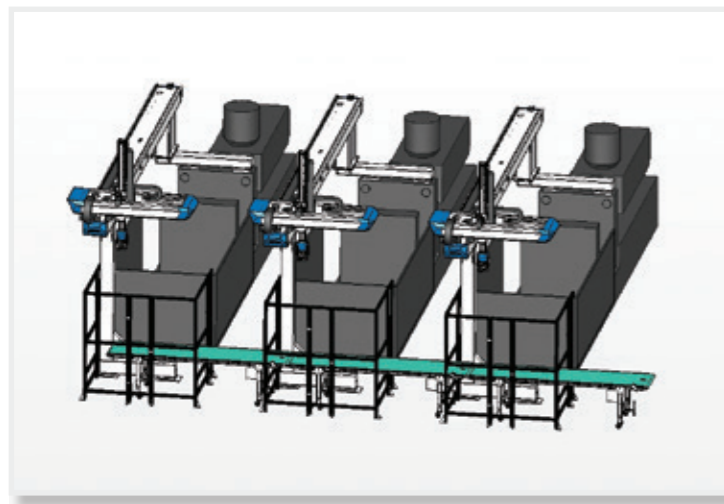
DESIGN AND STRENGTH

In terms of their design, S7 Line and 7X Line robots are stable and fast in order to optimize installation productivity during operation, 24/7.

- A vertical arm with aluminum profiles, provides an excellent mass/rigidity ratio and design optimized for high performance. The S7-45, S7-55, 7X-45 and 7X-55 models are designed without balancing cylinder. The intelligent servo control and brake, reduces noise, maintenance operations and power consumption (compressed air and electricity).
- S7-45, S7-55, 7X-45 and 7X-55 robots have a closed frame demolding structure made of aluminum profiles for high rigidity and low moving masses. S7-75 and 7X-100 XL have a single-beam, large section demolding structure to ensure stability and a long demolding stroke. For the demolding axis, the prismatic guide represents the optimal cost/rigidity solution.

AXIAL INSTALLATION

The choice of an axial installation on the large IMM optimizes the use of available floor space in your workshop:



- Three IMM instead of two over the same floor area (50% more IMM on average)
- The flow of parts is directly at the end of the IMM: no need for a conveyor between the IMM.
- The available space between the IMM is reserved for operator access and preparing the molds for a quick change of production.

UNIVERSAL CONTROL SYSTEM

Visual is a universal control system, specially designed for plastic injection molding machines. It simplifies the programming and operation of S7 Line 3-axis or 7X Line 5-axis robots.

S7 Line	Visual 2	Visual 3 (option)
7X Line	Visual 3	

VISUAL 2

It's so easy

- 3D Display: With the Simple Pick-and-Place Module: create your cycle by answering the questions the system asks you and see the result immediately in 3D on the video.
- Fine-tuning movements in the mold made easy thanks to the joystick.

Make your daily routine easier

- You can consult the full-screen documentation at any time.
- Transfer information from one team to another using the notepad function.
- Thanks to the USB key, operators, setters, programmers and maintenance personnel have direct access to the relevant data.
- Troubleshooting assistance from Sepro's Hotline : with the USB key, download and send the relevant information via internet for remote assistance.

Tried and tested ergonomics

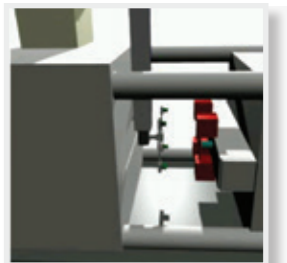
- Task-based navigation means you can directly access the job to be done.
- Eco Mode: after having programmed your cycle, you just need to press one key to reduce power consumption during the cycle.

VISUAL 3

The assurance of high performance and simplicity

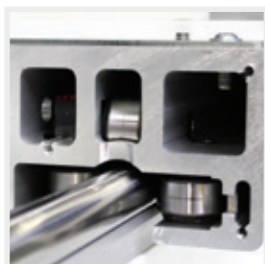
A perfect solution for the most complex automation systems with up to 16 axes.

- The standard Path Tracking function, as standard, can be used to demold undercut parts following curved paths, flame treat parts or cut sprues using simple, economical tooling systems.
- Thanks to the fast 20 ms PLC function, you can check intelligent peripheral systems, such as a camera to determine the position of a part, as well as external CNC axes.
- Use the Software studio on your PC to create, edit and manage your programs in a Windows environment. The robot's programs and data can be centralized via your company's IT network (TCP/IP Ethernet cable or Wifi as an option).
- The Digital vacuum switch is available as standard on Visual 3 to program and save your part grip settings for each mold.



A RANGE OF FAST AND PRECISE LARGE 3-AXIS SERVO ROBOTS

MULTIPLE CONFIGURATIONS



New LS guides (Linear System), with guide rails on the beam axis and the vertical arm

LS guides have an unrivalled service life and reliability, especially for large strokes and heavy loads. They are extremely sturdy in difficult environments: abrasive dust, oxidizing vapors (PVC) and water vapor. The integrated lubrication system offers the advantage of reduced maintenance (changing of grease sticks once a year only).



Powerful servomotors

Powerful servomotors allied with clever anti-vibration software ensure maximum accelerations and minimum intervention times.



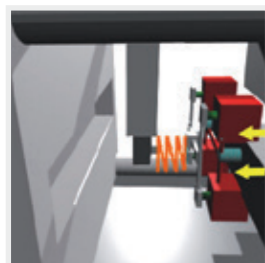
Y free function

The Y free-function is a Milacron manufacturing standard. It simplifies the programming of part ejection tracking and can reduce the gripper costs (simplified design).



High-torque pneumatic wrists

The high-torque pneumatic wrists available on the S7 line, R1 (0-90°) as standard and R2 (0-90-180°) as an option, are suited to heavy loads and provide considerable operational flexibility. The compact, integral design makes mold access easier. An R1 mechanical lock ensures the EOAT unit is held vertical in the mold whatever the load and speed.



Exclusive elastic mount of gripper (option)

The entire EOAT unit is mounted on a linear axis, parallel to the injection axis. A cylinder ensures the elastic pressure for the unit and a sensor detects any depressions to stop the robot. This mechanical device is used to protect the EOAT and the mold during part grip settings and to damp the contact between the EOAT and the part when there are slight variations (a few mm) on the ejection or mold opening stroke.

In standard configuration, the modular design can be used for transverse or axial installations. Long Vertical (LV), Long Demolding (LD) and Heavy Load (HL) versions allow for adaptation to all installations and meet the key requirements of your project without unnecessary over-specification. Dual-arm or dual-mobile versions are also available for stack mold applications.

	S7-45	S7-55	S7-75
Mold clamping force - Indication (metric Tons)	700-1300	1200-2500	2300-5000
Mold clamping force - Indication (US tons)	772-1433	1323-2756	2535-5512
Horizontal stroke (Can be adapted by 500 mm steps) (mm)	3000-10000	3500-10000	4000-10000
Maximum instantaneous speed (m/s)	3	2,5	2
Demold stroke - Transverse layout (mm)	1100 - 1300 (LD)	1500 - 1700 (LD)	2000-2500 (LD)
Maximum instantaneous speed (m/s)	2,5	2	1,8
Vertical telescopic arm	✓	✓	
Vertical telescopic compact arm			✓
Vertical stroke (mm)	2200 - 2500 (LV)	2500 - 3000 (LV)	3600-3200 (LD)
Maximum instantaneous speed (m/s)	3	3	3
Maximum load (parts + EOAT) (kg)	30 - 40 (HL)	40 - 60 (HL)	75
R1 pneumatic rotation (0-90°)	✓	✓	
R1 (0-90°) + R2 (0-90°-180°) pneumatic rotation			✓
Part grip - Vacuum and/or pressure circuit (more as option)	1	1	1
Floor-standing control cabinet	✓	✓	✓
VISUAL 2 control system	✓	✓	✓

OPTIONS

Vertical telescopic compact arm	✓	✓	
Vertical stroke (mm)	2200-2500 (LV)	2500-3000 (LV)	
Maximum instantaneous speed (m/s)	3	3	
Maximum load (parts + EOAT) (kg)	30 - 40 (HL)	40 - 60 (HL)	
R2 pneumatic rotation (0-90°-180°)	✓	✓	
Elastic mount of gripper	✓	✓	
VISUAL 3 control system	✓	✓	✓

LV: Long vertical Version
LD: Long demolding Version
HL: Heavy Load version

A RANGE OF LARGE 5-AXIS SERVO ROBOTS,
FOR INCREASED POWER AND FLEXIBILITY

7X Line 5-axis robots are a powerful combination of a 3-axis Cartesian robot and an accurate and reliable dual servo-rotation.

We are expanding the robotic range in the plastics industry with a unique and original combination ranging from a 3-axis Cartesian robot to a 5-axis robot, to equip large tonnage injection molding machines.



The servo wrist

The 2-axes compact servo rotations guarantee high precision, high speeds and can be easily adapted to even the most elaborate applications: insert placing, complex extraction paths in the mold, path tracking for flame treatment.

The 7X Line cartesian robot is equipped with powerful servo-motors and also has the flexibility of a polyarticulated robot wrist.

This hybrid configuration facilitates very precise settings to meet all the specific requirements of injection molding.

Robot programming and operation is made easy using Visual 3.

Accurate part gripping and stacking

Gripping and stacking swivel operations can be finely adjusted and stored in the memory for each application, while retaining a simple EOAT unit design.

Complex applications on large injection molding machines

High-torque servo rotations allow for heavy-duty and complex EOAT units. The wrist design has been tested and standardized for high-level performance (speed up to 270/s and accuracy and repeatability up to +/- 0.01°.

Path tracking

7X Line robots can process even the most specific applications, such as the complex extraction of parts from the mold or flame treatment beside the IMM. Path tracking is available as standard with Visual 3.

Milacron strives to answer the needs
of the world's plastic industry market.

	7X-45	7X-55	7X-100 XL
Mold clamping force - Indication (metric Tons)	700-1300	1200-2500	2300-5000
Mold clamping force - Indication (US tons)	772-1433	1323-2756	2535-5512
Horizontal stroke (Can be adapted by 500 mm steps) (mm)	3000-10000	3500-10000	4000-10000
Maximum instantaneous speed (m/s)	3	2,5	2
Demold stroke - Transverse layout (mm)	1100 - 1300 (LD)	1500 - 1700 (LD)	2000
Maximum instantaneous speed (m/s)	2,5	2	1,8
Vertical telescopic arm	✓	✓	
Vertical telescopic compact arm			✓
Vertical stroke (mm)	2200 - 2500 (LV)	2500 - 3000 (LV)	3200 - 3600 (LV)
Maximum instantaneous speed (m/s)	3	3	3
Maximum load (parts + EOAT) (kg)	40 - 30 (LV - LD)	60 - 40 (LV - LD)	100 - 75 (LV)
R1 servo rotation (0 -180°) + R2 (0-270°)	✓	✓	✓
Part grip - Vacuum and/or pressure circuit (more as option)	1	1	1
Digital vacuum switch	✓	✓	✓
Floor-standing control cabinet	✓	✓	✓
VISUAL 3 control system	✓	✓	✓
Path tracking	✓	✓	✓
OPTIONS			
Vertical telescopic compact arm	✓	✓	
Vertical stroke (mm)	2200-2500 (LV)	2500-3000 (LV)	2500-3000 (LD)
Maximum instantaneous speed (m/s)	3	3	
Maximum load (parts + EOAT) (kg)	40-30 (LV-LD)	60-40 (LV-LD)	75-60 (LD)

LV: Long vertical Version
LD: Long demolding Version



S7 LINE

7X LINE



- A full line of robots from 3 to 6 axis with one unique and user-friendly control
- Installations available worldwide