

### Van den Brink robots are:

- Fast: Servo and Linear Servo motors
- Stable
- Reliable
- Easy to use

### Characteristics:

The robots are built around three linear motions and a 90° slewing motion, with a 1800° rotatable gripper head available as option. The basic motion is the Y-axis, the transverse motion is the X-axis, and the vertical motion is the Z-axis.



Robot 91F3SV t.b.v. IML-wikkellabel systeem.

### System:

The robots can execute various tasks in succession, both in the mould and outside the injection moulding machine. The motions can be executed separately or simultaneously.

You can program the motion cycle yourself using the built-in software. This can be done in two ways: either via direct input of the positions in a standard model or via step by

step teach-in programming. The motion cycle thus created for a specific product code can be stored permanently in memory.



Portable programming unit.

### Drive:

The dynamics of the drive differs per robot type and per drive shaft.

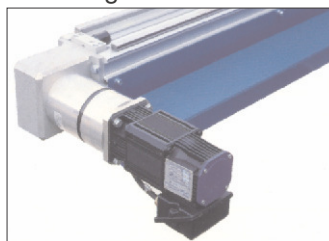
As a rule, the shaft used to position the gripper head in the mould will have to move fast.

With a short stroke length the acceleration will be an important factor, with a long stroke length the

maximum speed will determine the time needed to remove the product.

Speeds: 1 - 5 msec.  
Accelerations: 2 - 30 msec.2 = 0.2 - 3 g

The slewing and rotational motions of the gripper head are pneumatic.



Drive with brushless AC servo motor.

### Safety:

Within the European Union you are required to proceed in accordance with the CE directive. This means that no safety measures need be implemented if a risk analysis shows that injuries to persons are absolutely excluded. In all other cases you must take appropriate measures to minimise this risk. Van den Brink can advise you on this subject and offer you suitable safety devices.

## ROB - Robots

### Service:

When you purchase a robot you can call on us for the following services:

#### 1. Advice:

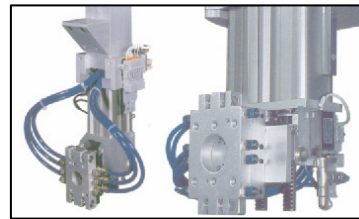
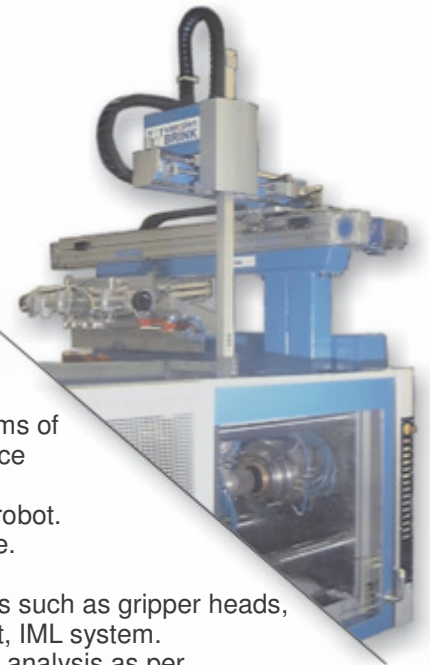
- Optimization of the production line in terms of speed, flexibility, space requirements.
- Optimal use of the robot.
- Choice of robot type.

#### 2. Supplements:

- Specific accessories such as gripper heads, peripheral equipment, IML system.
- Safety devices, risk analysis as per CE directive.

#### 3. Support:

- Installation and programming of the control.
- Training, instruction package, manual
- Warranty, service



The quick-change system for the gripper also contains the pneumatic connections.

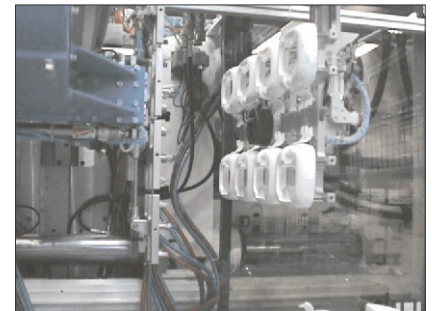
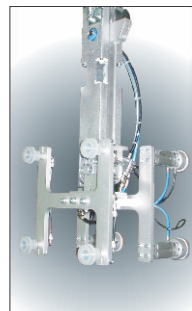


The robot stacks the products directly in the box.

### Applications:

Robot operations that can be combined as desired, depending on the chosen peripheral equipment.

- Remove products from mould
- Remove sprues
- Cut off Gates
- Insert labels in mould
- Place inserts in mould
- Assemble product parts
- Present products to:
  - Labeller, Control Station, Finishing Equipment
- Stack products:
  - on Buffer Belt, on Pallet, in Box, in Tray



An important element of the robot is the gripper head.

Van den Brink produces gripper heads for all possible product types. They are provided with suction pads, clamping jaws and/or electrostatic material (for IML labels)

Left: a quadruple slewing head for removal and IML label insertion.

Right: 2 octuple slewing heads for the 80J-F2. They can navigate between 2 pitch measures (pitch measure of mould / pitch measure in box)

# Specifications: ROB Robots

**Versions:**

There are two main groups of robots:

**1. The top-mount robot**, which is usually placed on top of the injection moulding machine. Moves vertically in the mould (the Z-axis)  
 \* Specially suited for varying tasks.

**2. The stand-alone robot**, which is placed alongside the injection moulding machine on the floor. The Y-axis moves horizontally in the mould.  
 Products are transferred to the separate Z-axis.  
 \* Specially suited for very short cycle times.

**The top-mount robot is available in 4 types in ascending order of size:**

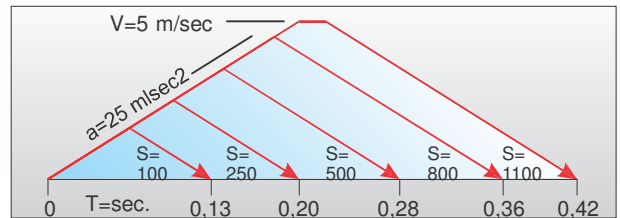
- 91F3** For machines from 50 to 200 tonnes
- 92F3** For machines from 50 to 300 tonnes
- 101F3** For machines from 150 to 700 tonnes
- 102F3** For machines from 300 to 500 tonnes



Complete		ROBOT cycle times	
Maximum speed V max :	4,00 m/sec	Acceleration / deceleration over maximum :	266,67 mm. in 0,133 sec.
Maximum acceleration a max :	30,00 m/sec <sup>2</sup>	Acceleration :	266,67 mm. in 0,133 sec.
Desired stroke S :	600,00 mm	Constant :	66,67 mm. in 0,017 sec.
		Deceleration :	266,67 mm. in 0,133 sec.
		Motion :	600,00 mm. in 0,283 sec.

To quickly determine how much time a robot needs for various movements, we have a handy Excel program, which we will gladly mail to you.

The 102-F3SLV version with linear servo motors.



Example: Vertical stroke of the 101F3SV

ROBOT MODEL	Load	Z			Y			X		
		Acc.	Speed	Stroke	Acc.	Speed	Stroke	Acc.	Speed	Stroke
 91 F3 S 91 F3 SV	Kg	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm
	5	16	3	1000	6	2	1400	6	0,8	450
 92 F3 S 92 F3 SV 92 F3 SL 92 F3 SLV	Kg	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm
	5	20	4	800	6	2,5	1600	5	1	400
 101 F3 S 101 F3 SV 101 F3 SL 101 F3 SLV	Kg	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm
	5	16	4	1100	5	2	1800	5	1	500
	0,5-5*	25	5	1100	7	2,5	1800	10	1	500
	5	14	4	1400	4	2	2500	4	1	700
 102 F3 SL 102 F3 SLV	Kg	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm	m/s <sup>2</sup>	m/s	mm
	5	16	4	1400	3	2	2400	4	1	800
	0,5-5*	16	4,5	1400	5	2,5	2400	5	1	800

*Explanation of codes used:*  
 91-101 Basic model robot:  
 102 <- Linear servo drive on Y- and Z-axes  
 F3 Type: 3-axis robot  
 S Standard Servo motors  
 L Larger stroke lengths  
 V Higher speeds and accelerations

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In addition to the above-mentioned standard robots, Van den Brink supplies special robot versions. Example: Modified stroke lengths / speeds, Dual systems for stack moulds, Loose modules for incorporation in special machines.