

Robots for Tiebarless & Rotary Machines

STANDARD FEATURES ER TLi 21-91, ERV 21-41

Mechanical

- Robot mounted on the vertical supports of the bridge on rotary table
- One freely positionable linear Z servo axis
- Absolute positioning – servo-driven Z axis
- Maintenance-free, 3-phase servo motor drives on Z axis
- Option of positioning inserts/parts to left or right side of rotary table
- Precision linear bearings on all linear axes
- Part insert/take-off is from the outward bound table positions for 2 and 3 position molding
- Insert/take-off axes (Y1/Y2) are manually adjustable according to nozzle height adjustment on rotary table
- Take-off device integrated completely into the IMM, i.e. moving IMM safety gate BRS in widened execution, IMM with safety gate above open, no additional base of handling system or conveyor-belt on the floor required on TLi
- Optimum operator accessibility to the IMM mould and handling system setting by manually displaceable conveyor-belt in IMM longitudinal direction on TLi
- Mounting of the take-off device on the fixed mould platen (STANDARD) and on the moving mould platen (OPTION) on TLi
- Depositing of the parts on a stepped conveyor belt on the operator rear side of the injection moulding machine on TLi
- All linear axes with hardened and ground linear guides

Z-axis

- freely positionable linear axis (with maintenance-free, digital rotary current servo drive and force transmission by means of toothed belt)

X-axis

- actuated pneumatic with cylinder
- adjustable manually within a certain area
- rear and front end position adjustable independently of each other on TLi

Y-axis

- actuated pneumatically with cylinder
- upper end position (take-off position in the IMM) for the take-off of parts adjustable manu-

- ally over and under nozzle middle
- lower end position is suitable for stacking parts on TLi

C-axis

- actuated pneumatically with cylinder - 2 positions 0°/90° on TLi

Pneumatics

- Air maintenance unit with hand slide valve
- Central valve ramp
- 1 Vacuum circuit (sucker function) changeable manually to 1 gripper circuit (STANDARD)
- Max. 3 vacuum circuits (sucker function) changeable manually to 3 gripper circuits (OPTION)
- Monitoring of the pneumatic circuits
- Vacuum production via Venturi nozzle
- Connection of the gripping or suction elements via pneumatic quick-action couplings

Electrical and Controls

- Monitoring of vacuum pressure
- High quality cables on all linear axes
- Robot status and error messages displayed
- 240 volt 3 phase supply
- Monitoring of end of arm tooling for no part
- All speeds, accelerations and timers operator adjustable
- Sequencing is user definable via simple text input line program
- Control system integrated into IMM (Engel machines only)
- Automatic storage of the settings with the machine data
- Operation via IMM operation terminal
- Error display and diagnostics via machine screen
- Sequence in menu technology programmed
- Positions and parameters adjustable via machine screen
- Vertical stacking of parts via key limit switch
- Depositing of parts in screen (X-axis 2 positions; Z-axis freely adjustable)
- Optimization of the take-off time by handling system early start

Hardware

- Servo drive with CAN bus actuation
- I/Os via CAN bus
- Push-buttons on machine control console

- 1 stepped conveyor-belt on TLi
- No separate HBG
- Electric connection to the machine RC100-compatible (ERC interface)

Pneumatics

- Common air manifold for all pneumatic functions
- Two vacuum circuits for suction function on ERV
- Two pressure circuits for part gripping on ERV
- Air preparation unit with manual shut-off valve
- Each pneumatic circuit monitored individually
- Vacuum generated by venturi nozzles

OPTIONS AVAILABLE

- Special programs via additional software
- Free programming of the sequences in connection with the core-pull control
- SPI interface

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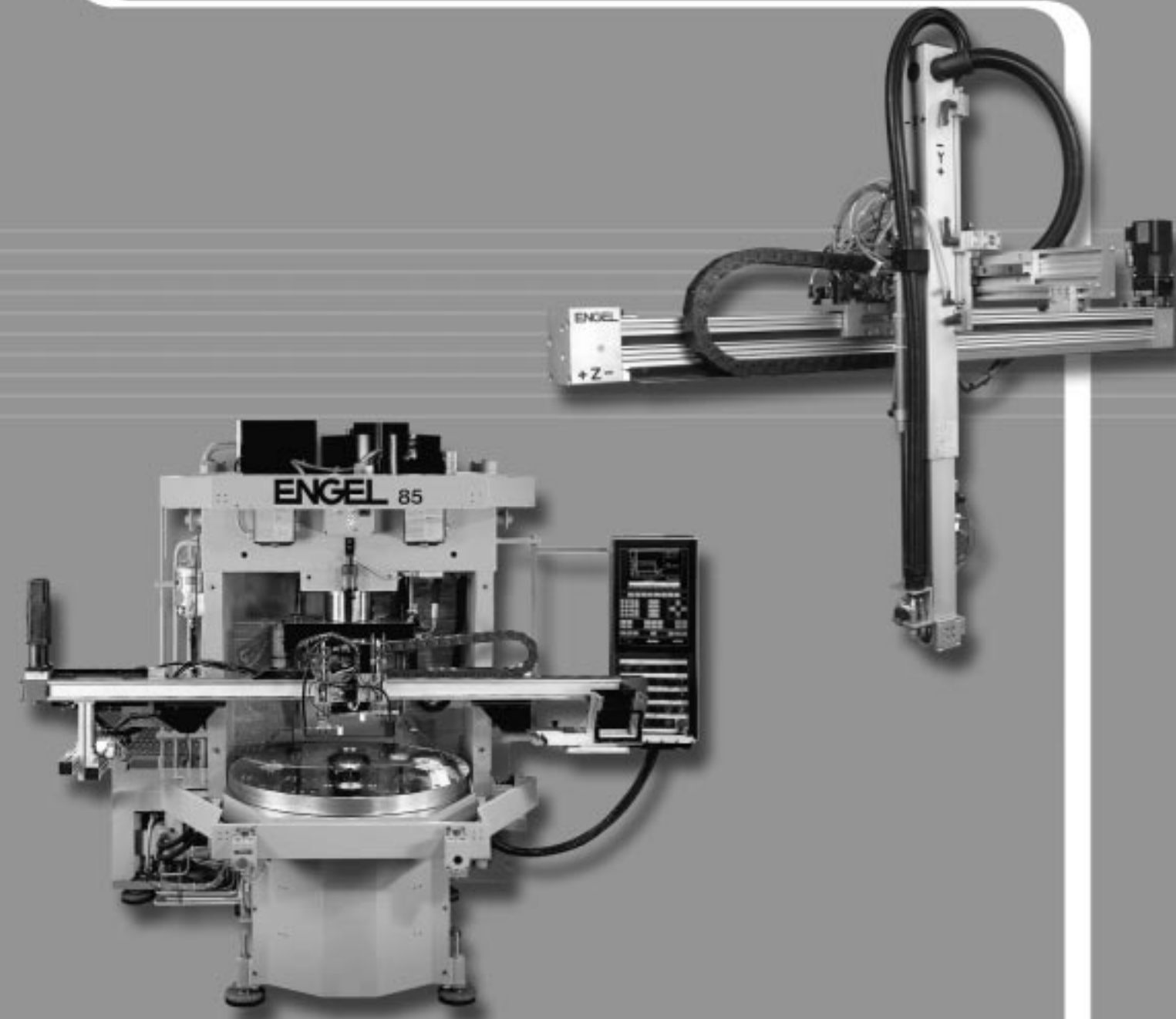
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Technical data
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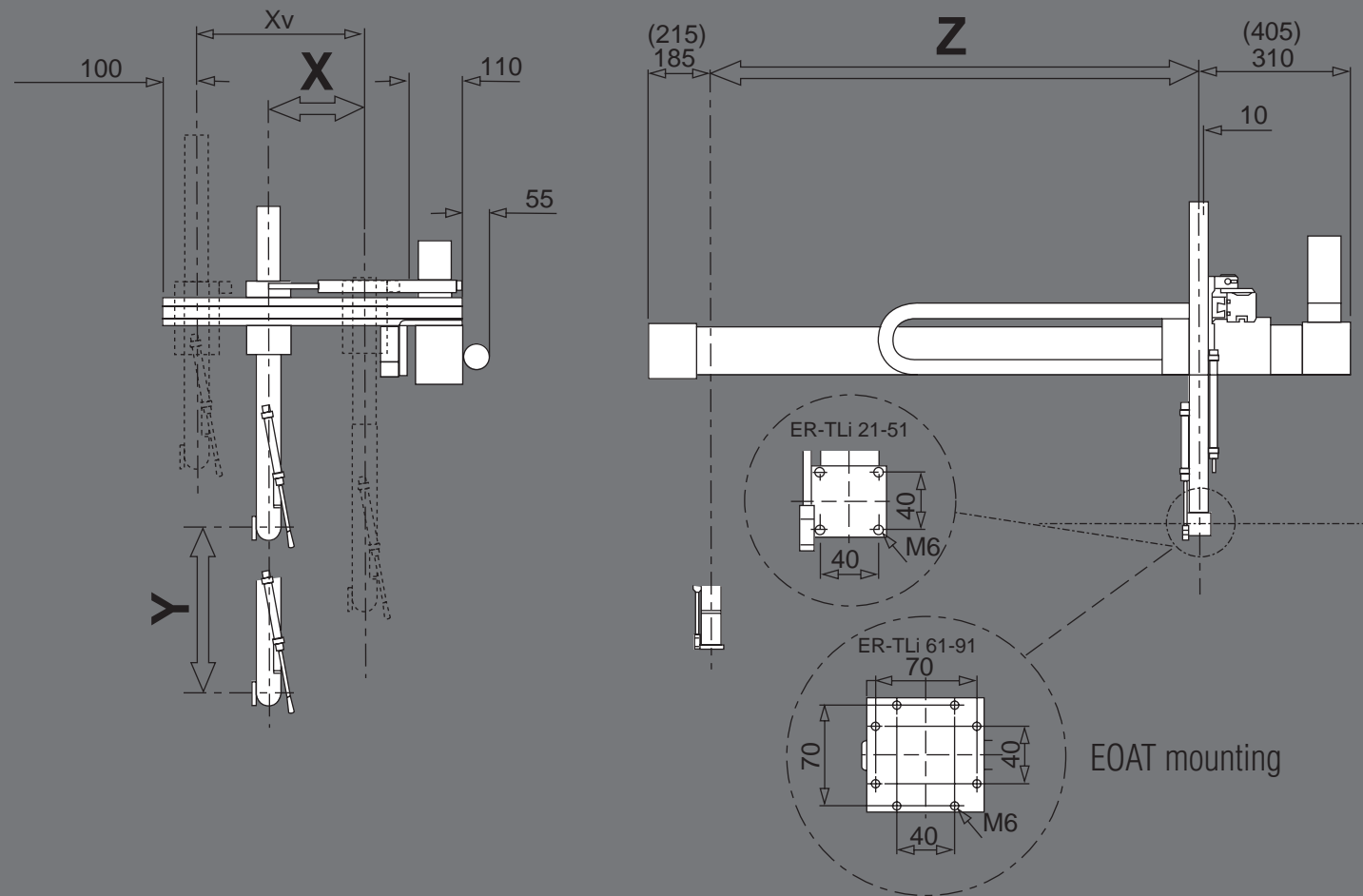
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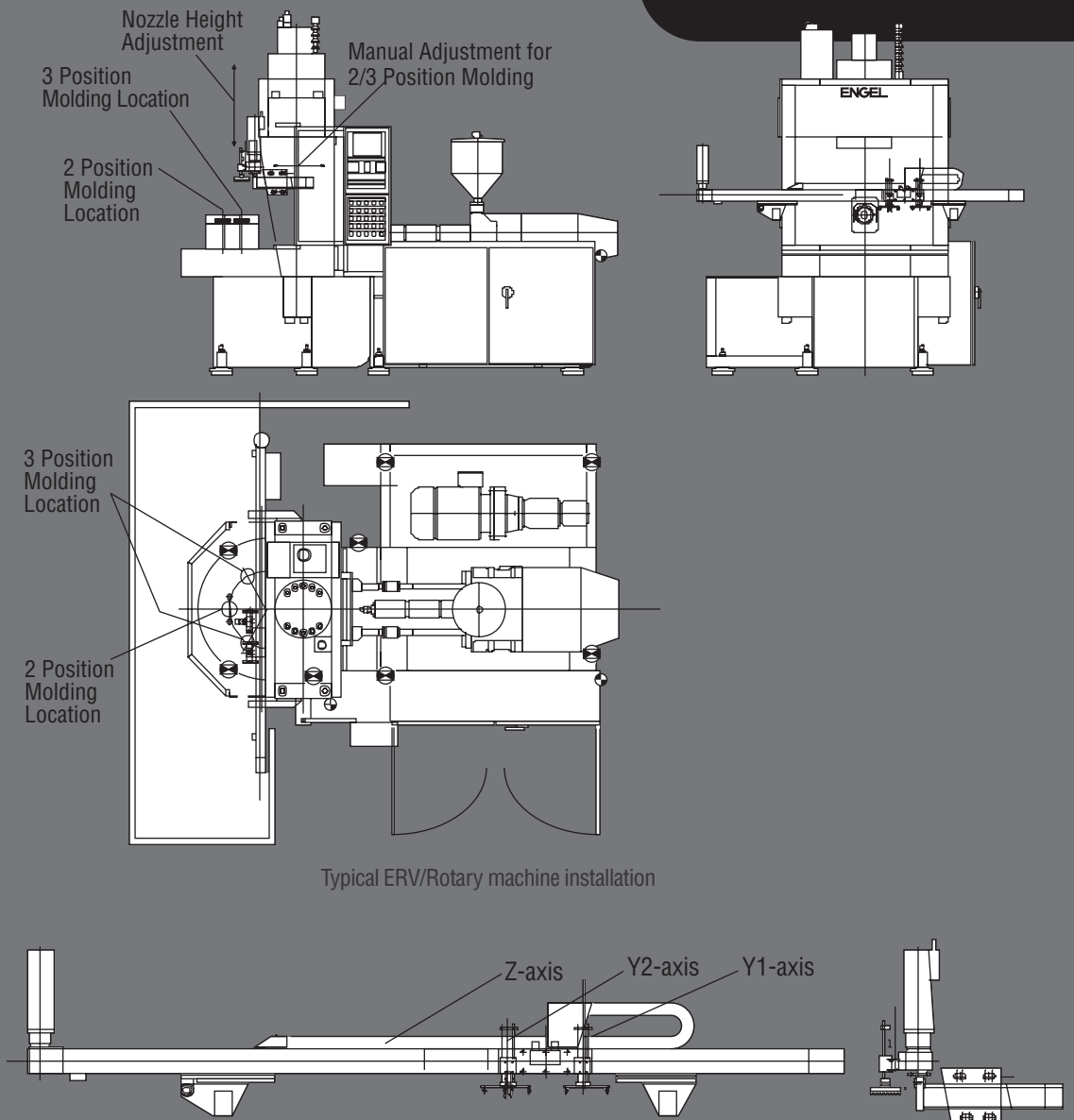


ENGEL Automation

ER TLI 21-91



ERV 21-41



MODEL	ER-TLI 21	ER-TLI 31	ER-TLI 41	ER-TLI 51	ER-TLI 61	ER-TLI 71	ER-TLI 81	ER-TLI 91
Demoulding Stroke (X-axis)								
Drive	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder
Transmission of Force	150	150	150	150	250	250	250	250
Stroke (mm)								
Vertical Stroke (Y-axis)								
Drive	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder
Transmission of Force	250	250	250	350	350	500	500	500
Stroke (mm)								
Swivelling Axis (C-axis)								
Drive	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder	Pneumatic Cylinder
Transmission of Force	3.5/5	7/5	7/5	7/5	7/5	7/5	7/5	7/5
Swivelling Movement (Nm bar)								
Cross Transport (Z-axis)								
Drive	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor	Electric Servo Motor
Transmission of Force	2	2	2	2	2	2	2	2
Vmax. Stroke (m/s)	950	950	1025	1200	1300	1430	1600	1750
Stroke (mm)								
Manipulable Mass Max. (lbs.)	4.4	4.4	4.4	4.4	11	11	11	11
Repeatability (mm)	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1
CFM Air Consumption (1/cycle)	.25	.25	.25	.25	.25	.25	.25	.25
Transport Weight Robot (lbs.)	155	155	155	155	420	420	420	420
Transport Weight Control Cabinet (lbs.)	145	145	145	145	145	145	145	145
Machine Size Range (U.S. Tons)	28-40	60	100	150	200	250-300	400	500-660

All dimensions in mm.

	ERV-21 (up to ES85 VHRB)	ERV-31 (up to ES200 VHRB)	ERV-41 (up to ES300 VHRB)
Maximum Payload (lbs.)	4.0	4.0	4.0
Power Supply – 240V (KVA)	2	2	2
Stroke Z-axis (mm)	2285	3175	3556
Stroke Y1 / Y2 axis (mm)	100	100	100
AXIS	Z	Y1	Y2
Designation	Transport stroke	Insert stroke	Take-off stroke
Drive	Servo Motor	Pneumatic	Pneumatic
Force transmitted by:	Belt	Cylinder	Cylinder
Maximum speed (m/sec)	3.0	—	—
Position Repeatability (mm)	±.1	—	—
Position Accuracy (mm)	±.1	—	—