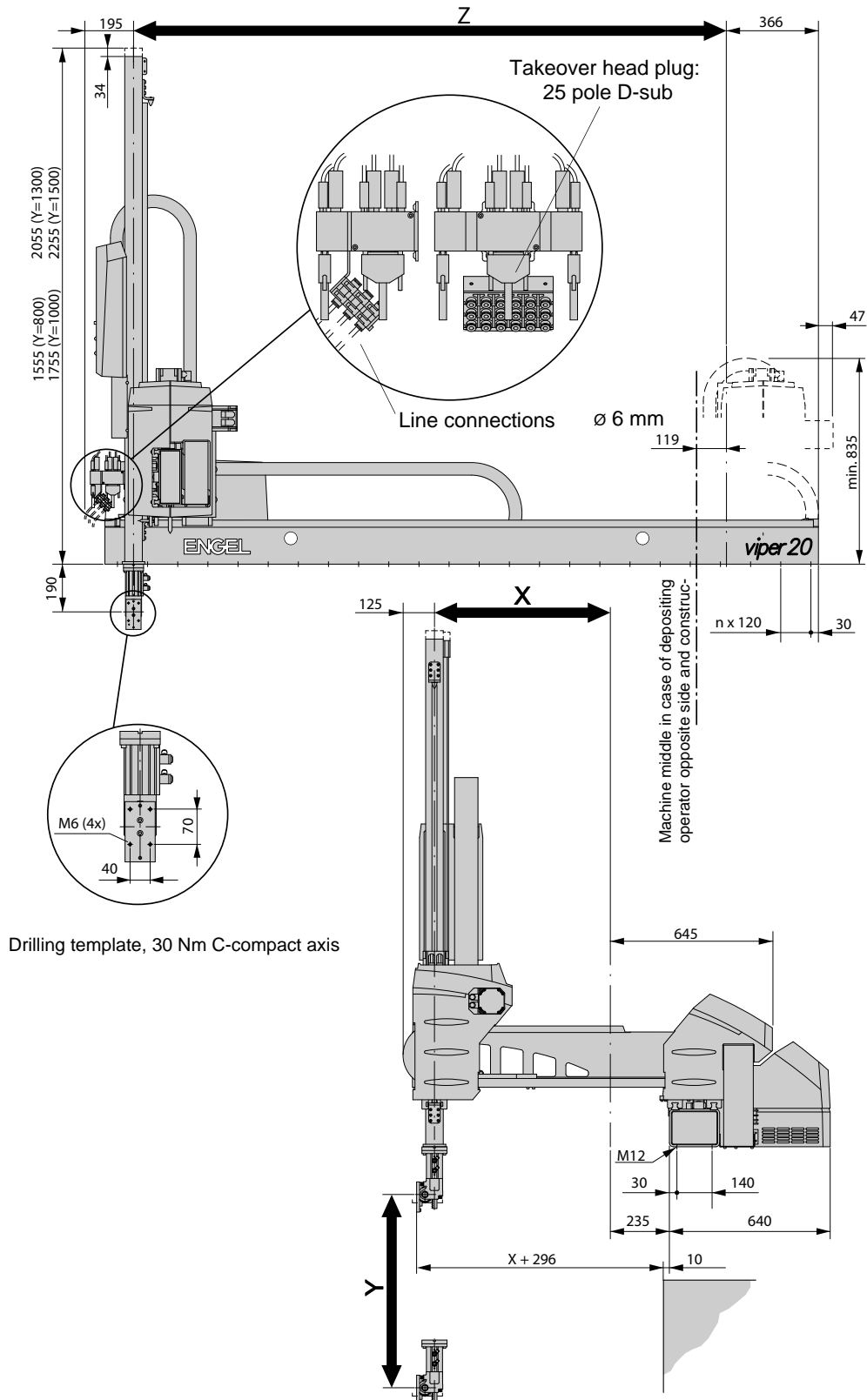
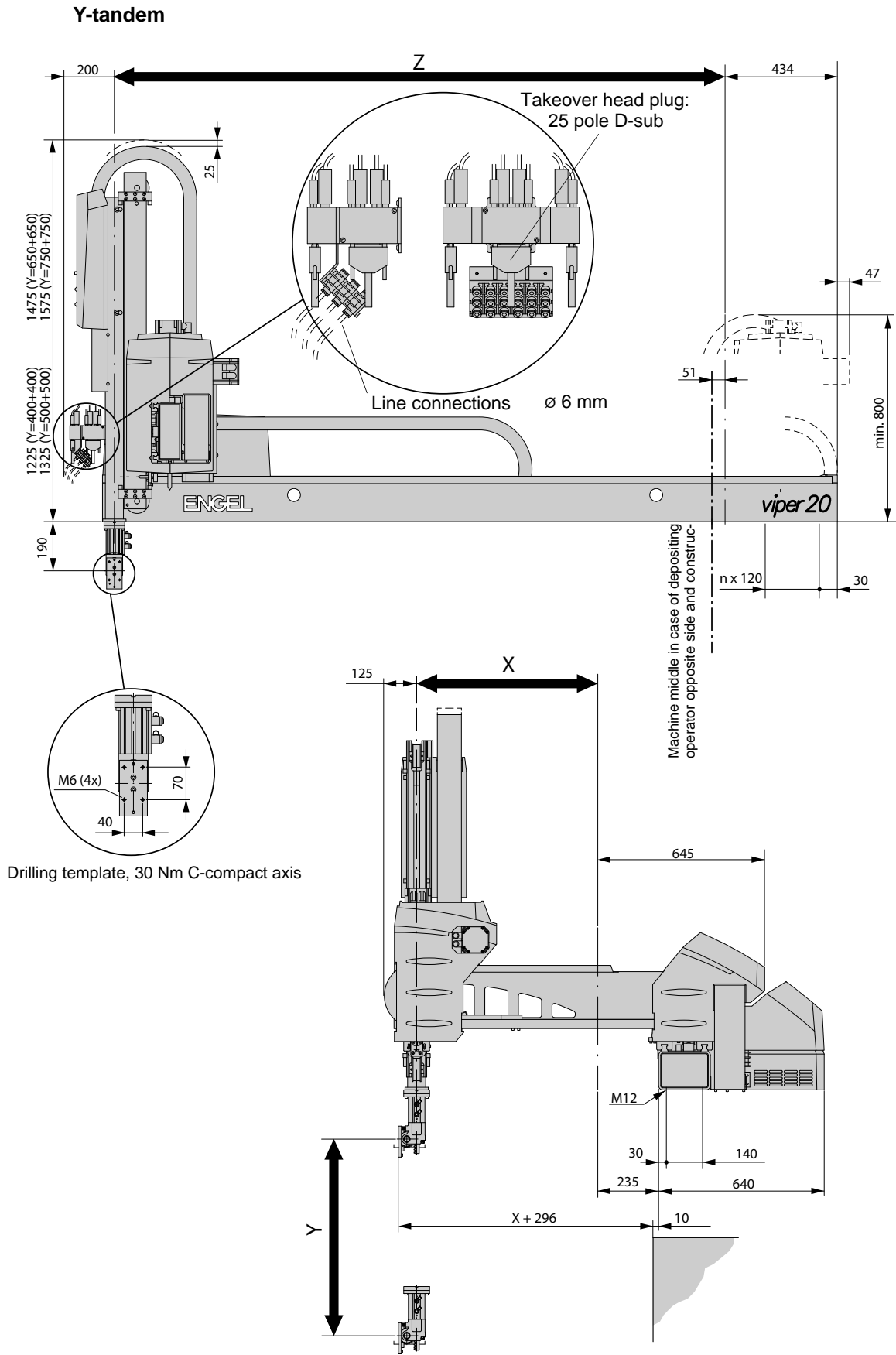


Basic data VIPER 20

1 Overview Y Single





Technical data		VIPER 20 (speed)	VIPER 20 (regular)	VIPER 20 (load)
Manipulable mass max. (at 6 bar)	kg	$7^1 / 10^2$	$17^1 / 20^2$	30^2
Repeatability	mm	$\pm 0,05$	$\pm 0,05$	$\pm 0,05$
X-axis (Demolding stroke)	mm	500 / 700	500 / 700	500 / 700
X-range (for C-pneu 30Nm)	mm	796 / 996	796 / 996	796 / 996
X speed nominal	m/s	2	2	2
Y-axis (single)	mm	800 / 1000 / 1300	800 / 1000 / 1300 / 1500	800 / 1000 / 1300
Y-axis (tandem)	mm	-	800 / 1000 / 1300 / 1500	-
Y speed nominal	m/s	4,5	3	2
Z-axis (Cross transport) in 240mm jumps up Z=1400 to Z=1880 480mm jumps up Z=1880 to Z=3320 960mm jumps from Z=3320	mm	1400 - 6200	1400 - 6200	1400 - 6200
Z speed nominal	m/s	3	3	2
C-axis (0-90°) pneu.	Nm	30, 60	30, 60	60
C-axis (0-180°) servo	Nm ³	25	25	70
B-axis (0-270°) servo	Nm ³	25	25	70
A-axis (0-270°) servo	Nm ³	25	25	70
Dry cycle time in standard cycle	s	6	12	15
Air consumption per vacuum circuit (without vacuum pump)	L/s	0,33 ⁴	0,33 ⁴	0,33 ⁴
Flow rate valve per compressed air circuit	L/s	3,33	3,33	3,33
max. rated power	kW	4	4	4
nominal consumption	kW	0,5	0,5	0,5

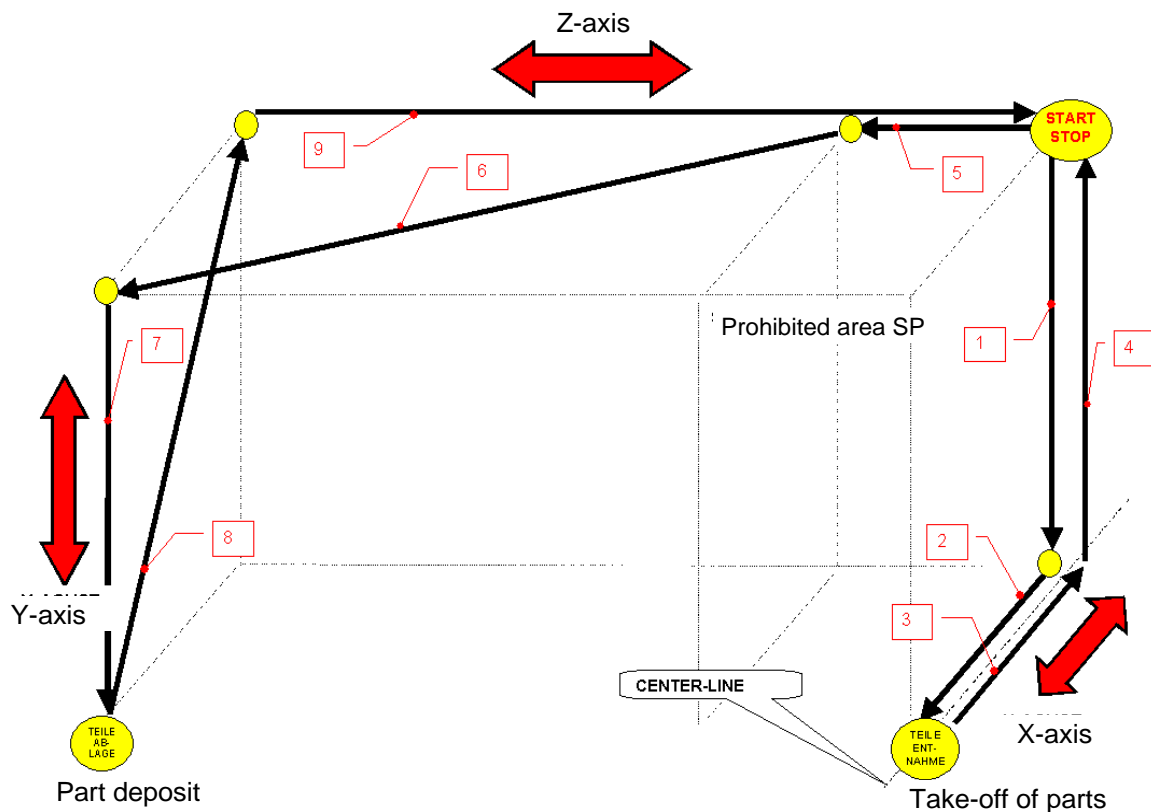
1. At the end of the C-pneu 30Nm axis (for other permissible axis combinations + manipulable masses + torque characteristics + rotary speeds see VIPER manipulable weight calculator))
2. End of Y axis => without ABC axes
3. average continuous torque in operation
4. pro vacuum circuit with 100% actuation duration

Standard cycle for dry cycle

Z-axis=1880mm, SPB=1100mm

X-axis=500mm => 250mm by take-off of parts, 500mm by part deposit

Y-axis=1000mm => 800mm for part take-off, 1000mm for part depositing



2 Standard equipment of regular basic device (R)

Mechanics:

- Permanently lubricated shaft with helical gearing on the z-axis (lubrication sensor for 12 months of operations)
- Shaft with helical gearing on the x-axis
- V belt on y-axis
- Low-noise energy chain in all axes
- Torsion-stiff vertical stroke
- 3 freely positioning servoaxes incl. absolute position measuring system
- Drive by means of highly dynamic, maintenance-free servomotors
- Hardened, ground and low-maintenance precision guides
- Mounting on the fixed mould fixing platen
- Part depositing at rear side of machine
- Standard paint finish ND green MATT (= cleanroom suitable)

Pneumatics:

- Air maintenance unit with shut-off valve (SMC) and pressure switch
- Central valve ramp (SMC) with 4 valve slots and 3 valves mounted on y-arm
1. Valve reserved for C axis!
- 2 reversible vacuum / compressed air circuits
For each vacuum circuit: 1 vacuum monitoring (analog; directly configurable on control unit)
Per compressed air circuit: 2 digital inputs to monitoring
- Vacuum generation by Venturi nozzle (SMC)
- Compressed air and vacuum elements connected via pneum. Quick couplings incl. non return valve on y-arm (SMC)

Electric system:

- Compact switch cabinet mounted on z-axis (max. 900mm continuously adjustable)
- EtherCAT - extremely fast and widespread Ethernet-based bus system; high bandwidth; hub and spoke and easily extensible wiring topology
- decentralized I/O technology
- distributed safety technology and serial wiring of safety functions (evaluation is local and not at switch cabinet)
- Electric plug for takeover head (standard 25-pole D-Sub)
- Zero-potential contact conveyor-belt actuation
- Pluggable limit switches for pneumatic rotary axes

Control system RC200 Integrated:

- Complete integration into the CC200 control unit of the ENGEL injection molding machine
- Fully graphic control surface
- Portrait format color screen with touch screen operation (machine screen)
- Shared data storage of robot, injection molding machine and mold parameters on a USB memory stick
- Program access control and access authorization using key cards or passwords, depending on the series and type of the injection molding machine

Software

- Fully graphic control surface with touch operation
- Graphical sequence programming with uniform control surface for injection molding machine, robot and peripheral equipment
- Teach-In programming, also via the hand terminal HBG C35
- Absolute position measuring system (no referencing required)
- Library with program sequences proven in practice, changeable in the Teach mode
- Sequence variants for part take-off
- Depositing in one or more grids, shot grid, individual part grid, teach grid
- Quality control part depositing, rejects depositing, sprue depositing, intermediate layer depositing
- Switch off axis in the Teach-In
- Conveyor-belt control
- Quickset function for the rapid takeover of the actual position into a sequence position
- Quickpos function for the rapid approach of a set sequence position
- Speed override via pushbuttons
- Work area monitoring with 3D display
- automatic dynamic optimization
- Free designation of variables (positions, markers etc.)
- Addition of the variables on existing screen pages
- Simulation of the grid depositing in the grid editor
- Control for coordinated axis movements
- Robot test run without machine (dry cycle)
- Position correction of injection molding machine
- analog vacuum monitoring
- Switch language, context sensitive help, units either ISO or Imperial
- Manuals as online help on control unit, note function
- Printout on local printer, network printer or in file
- Machine hours counter and maintenance interval display
- Parts data storage on internal or external compact flash card, USB memory stick, or a network drive
- Ethernet interface for network connection
- USB interfaces for printer, external keyboard, etc.
- Vibration control and automatic mass identification

MANUAL CONTROL DEVICE C35

- Standard manual control device for integrated execution (drop safe up to 1.5m)
- 32 Keys and 8-line graphic display
- Assignment in color of the functions
- Emergency stop switch and consent key



3 Optional equipment

Mechanics (EP):

- Extension of the ZXY-axes as per standard layout
- C Pneu kompakt, 0-90°, 30 Nm
- B-Servo compact-drive S, +90°/-180°, 25 Nm
- Standard Support mount
- Automatic central lubrication (each axis can be configured and lubricated individually)
- Wear parts package, lubricant package, PVC package
- High speed head changing system Grip Tools for takeover head manual type S
- Standard takeover head Grip Tools type S and sprue gripper spring-loaded XS+S
- GRIP TOOLS BASIC Kit (modular system for end of arm tooling S)
- Special paint finish Basic in MATT (= cleanroom suitable)

Mechanics (not EP):

- Compact low profile (Y Tandem)
- Drive speed (S) or load (L) instead of regular (R)
- Extension of z-axis from 1400mm to 1880mm (in stages of 240mm) and from 1880mm to 3320mm (in stages of 480mm) and from 3320mm to 6200mm (in stages of 960mm)
- Extension of X axis from 500 to 700
- Extension of Y-axis (single or tandem) from 800 to 1000, 1300 or 1500mm (only possible for REGULAR drive type)
- C-pneu, 0-90°, kompakt 30 Nm or 60 Nm
- C-Servo compact-drive S/M, 0-180°, 25 Nm or 70 Nm
- B-Servo compact-drive S/M, +90/-180°, 25 Nm or 70 Nm 70 Nm
- A-Servo compact-drive S/M, -90/+180°, 25 Nm or 70 Nm 70 Nm
- Standard stand, beak-shaped stand (for layout without support) or custom stand
- I support, L support, portal support (free standing) or custom support
- Moving area safeguarding x and/or z-axis (safe for persons)
- Part depositing at front of machine or long side of machine
- STD end of arm tooling Grip Tools Type S and spring-mounted sprue gripper L+M+S L+M+S
- High speed head changing system Grip Tools for takeover head manual type S
- Sprue nippers pneumatic on the transverse girder
- Automatic central lubrication (each axis can be configured and lubricated individually)
- Gap Y-axis, wear parts package, lubricant package, clean-room package, PVC package-
- GRIP TOOLS BASIC Kit (modular system for end of arm tooling S)
- As conversion robot in peripheral unit area for complex automation applications
- Special paint finish Basic or Advanced in MATT (= cleanroom suitable)

- High gloss finish for cleanroom

Pneumatics (EP):

- 1 Valve ramp (SMC) for up to max. 12 valves mounted on y-arm
- max. 8 vacuum/compressed air circuits reversible
- max. 8 vacuum/compressed air circuits reversible + vacuum circuits)
- max. 11 Compressed air circuits (Vacuum/Compressed air reversible + Compressed air circuits)

Pneumatics (not EP):

- 1. Valve ramp (SMC) for up to max. 12 valves mounted on y-arm
- 2. Valve ramp (SMC) for up to max. 12 valves (for total of 24 valves) mounted on XY-node
- max. 8 vacuum/compressed air circuits reversible
- max. 16 vacuum/compressed air circuits reversible + vacuum circuits)
- max. 23 Compressed air circuits (Vacuum/Compressed air reversible + Compressed air circuits)
- Economy mode for vacuum circuit
- max. 16 vacuum circuits with air blast
- pneum. soft start valve
- Vacuum pump instead of Venturi nozzle (without vacuum accumulator for max. 8 vacuum circuits; with vacuum accumulator for max. 16 vacuum circuits)
- Pneumatic preparation for sprue cutter

Peripheral unit (not EP):

- Safety gate to EN ISO 13857 and light beam guard cat. 4
- Conveyor-belt FB60 or FB100
- Parts chute
- Balance for the weight testing and protection of the quality data
- Tray server, sliding table, vision systems, transfer conveyors, peripheral units in general, etc.

Electric (EP):

- Universal switch cabinet movable instead of compact cabinet
- Isolating transformer for custom voltages
- Electric equipment for USA and Canada
- User package 12DI+4DO
- Clearing circuit for conveyor-belt

Electric (not EP):

- Universal switch cabinet movable instead of compact cabinet
Necessary if:
 - the number of servoaxes is > 6, or
 - the robot is executed as a dual tower, or
 - the robot is positioned over 2 injection molding machines, or

- switch cabinet illumination is sold, or
 - the robot is deployed in a cleanroom, or
 - the option "Switch cabinet dust-free" is sold, or
 - an air conditioning unit was sold, or
 - an air/water heat exchanger is planned
 - Complex plants
-
- Isolating transformer for custom voltages
 - Electric equipment for USA and Canada
 - Reversing operations for conveyor-belt
 - Actuation for third party conveyors with stand-alone control unit
 - User package 12DI+4DO
 - Interface peripheral unit standard type with 4 zero-potential, freely-programable signals, "EMERGENCY STOP" and "Safety gate closed" of 2-channel type
 - Interface peripheral unit custom type
 - Interface peripheral unit IP66
 - System Integrator interface (for EAS, EAZ and EMCZ)
 - Extension package for interface IP66 (version: Emergency stop, protection doors closed - 2 channels)
 - Extension package for interface IP66 (version: Harting connector)
 - Extension package for IP66 interface and custom (version: 8 digital inputs and 8 digital outputs)
 - Switch cabinet illumination (only for universal cabinet)
 - Switch cabinet dust-free via microfilter (only for universal cabinet)
 - Air conditioning unit for switch cabinet (only for universal cabinet)
 - Air/water heat exchanger (only for universal cabinet)
 - Warning signal light incl. audible warning (85dB) in the Z-axis or mounted on the Z-axis
 - Craneway safeguarding
 - Custom operation mode "Robot over 2 injection moulding machines"
 - Start key input for stand-alone control unit
 - Input and output module (12 digital inputs + 4 digital outputs) on y-axis incl. 25-pin. D-Sub
 - Output module (24 DO) on y-axis incl. 25-pin. D-Sub
 - Adapter from injection moulding machine Euromap 12 to robot Euromap 67
 - Safety package 1 for accessible safety guarding (without access permission)
 - Safety package 2 for accessible safety guarding (with access permission)
 - Safety package 3 for production with rear machine safety gate open
 - Clearing circuit for conveyor-belt
 - Moving area safeguarding Z or X-axis
 - Extension of USB interface for compact cabinet with stand-alone control unit

Control unit options (EP):

- Moving-on reversible vertically-horizontally
- USB memory stick
- Program for:
 - Safeguarding mold crane, take-off stroke correction, axis synchronization with ejector, axis synchronization of one robot axis and the opening movement of the machine, Soft-servo and torque monitoring
- Screen text in additional languages

- Depositing and take-up of peripheral unit
- Data set storage integrated
- Alarm Messaging via E-Mail
- Remote Control and Teleservice

Control options (not EP):

- Connection point for manual control device C35 safety gate instead of switch cabinet
- Moving-on reversible vertically-horizontally
- USB memory stick
- Program for:
Park position, safeguarding mold crane, tandem mold, take-off stroke correction, axis synchronization with ejector, axis synchronization of one robot axis and opening movement of the machine, Softservo, torque monitoring, sprue separation, depositing and picking up by peripheral units
- Screen text in additional languages
- Data set storage integrated
- Alarm Messaging via E-Mail
- Remote Control and Teleservice

RC200 Control unit stand-alone

- powerful microprocessor control unit for stand-alone applications
- Interface according to Euromap 67 / AN-146
- Manual control unit (C100) with 8" touch-screen color display and foil keyboard
- Program scope (software) integrated as per RC 200
- Access privileges via passwords
- USB interface in switch cabinet
- Data archiving via Flash card on manual control device C100
- Vibration control and automatic mass identification


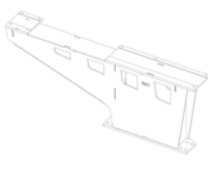

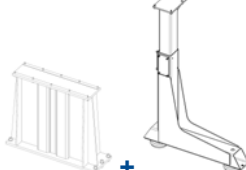
MANUAL CONTROL DEVICE C100

- Manual control unit with 8" touch screen color display for stand-alone applications
- Control unit for integrated applications with RC200 control unit as manual operating unit screen
- Robot and machine operations supported as on machine screen
- EMERGENCY STOP switch and consent key



Author:	Stefan Thurnn (KBL-PST)
Version:	04/2013

Subject to change without notice!

plinth-support-combinations VIPER 20				
actual Z-stroke (= Z-stroke – Z-axis-shift)	standard-plinth (no support)	beak-shaped-plinth (no support)	plinth + I-support	plinth + L-support
	Minimum height = 125mm	Minimum height = 250mm		
				
1400	X			###
1640				
1880				
2360		X	#	## / ###
2840				
3320			X	
3800*				
4280				X
4760*				
5240				2 X
5720*				
6200				

*old (actual) Z-strokes (possible by Z-axis shift)

X.....plinth or plinth/support-combination possible or necessary

#.....I-support + plinth necessary at:

- deposite side = operator side and actual Z-stroke > 1880mm (no bill-plinth allocated) or
- at SPEED-package

##.....L-support + plinth necessary at:

- Insert-funktionen or
- mounting on flangeplate of the clamping cylinder or
- deposite side = machine longitudinal or

###.....L-support + plinth necessary at:

- VC 40,50 or
- mounting hole pattern with EUROMAP 18 - E6 or smaller or
- EMX 50, EMC 50

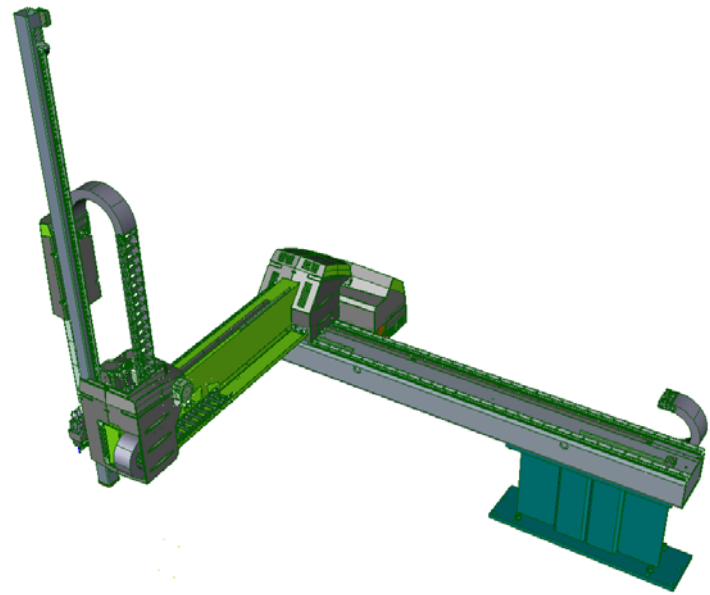
Attention!!!

- Please consider the rule for the next larger actual Z-stroke from table, when Z-axis-shift is present between 2 standard Z-strokes!
- Ask around consultation with engineering ENGEL-Austria with structure outside of the matrix !!!

VIPER 20 – robot style (single+tandem)

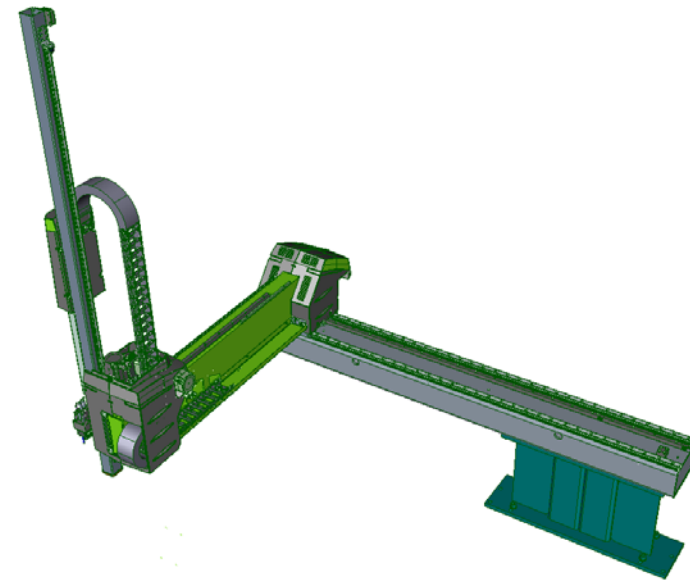
Standard (STD)

Example: deposit machine rear side
compact cabinet possible



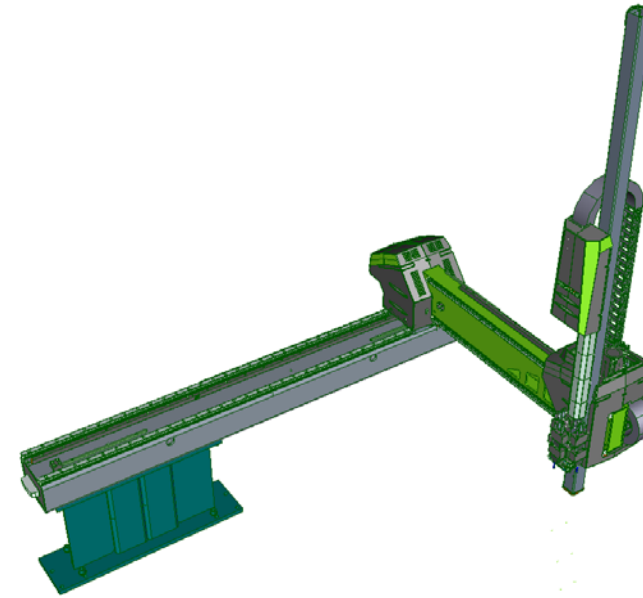
Standard + Z-energy chain mirrored (STD+Z)

Example: deposit machine rear side
compact cabinet over IMM not possible



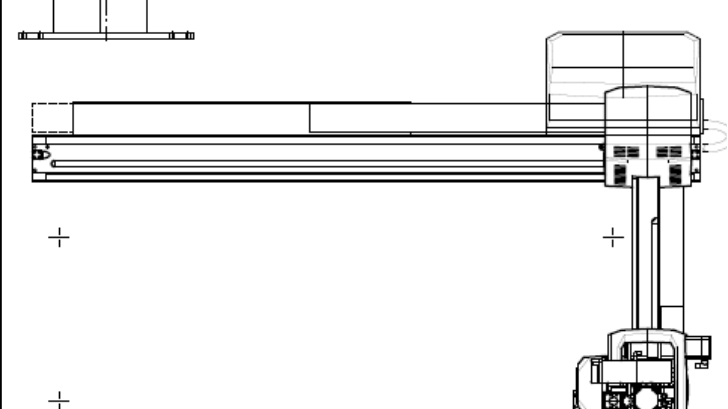
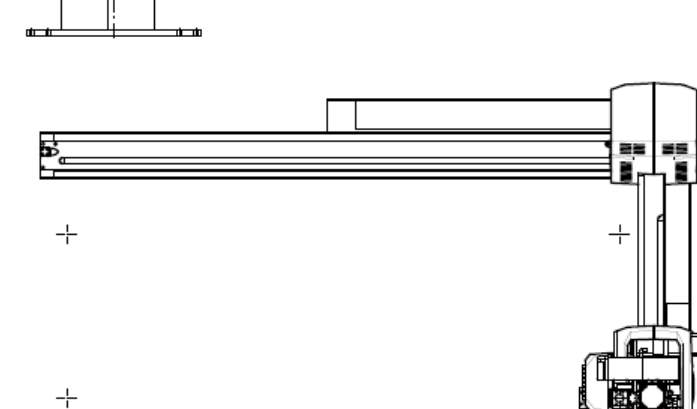
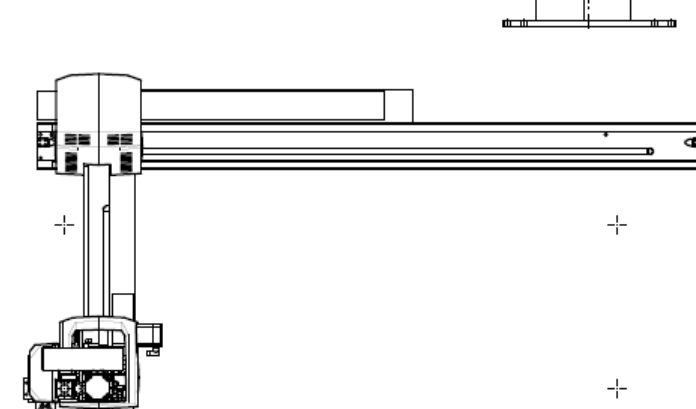
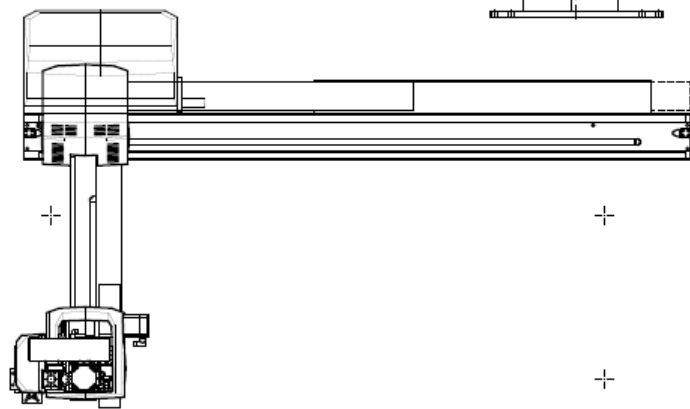
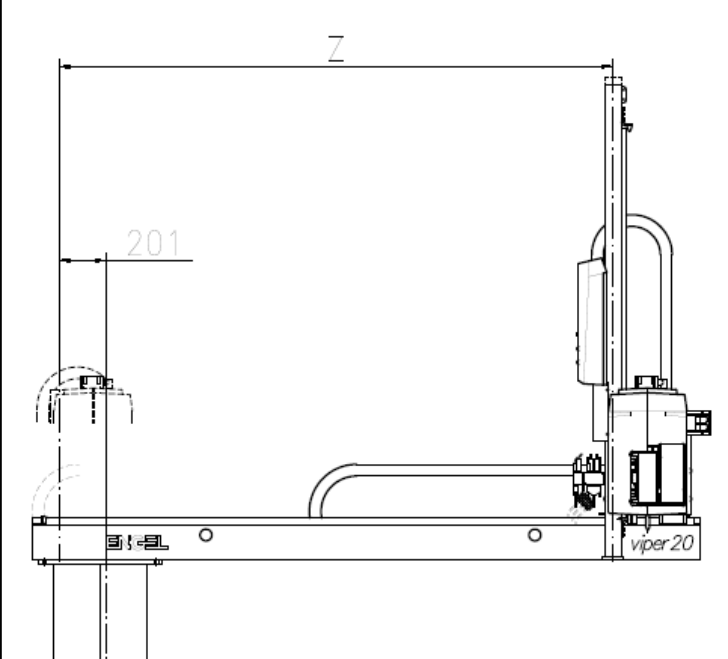
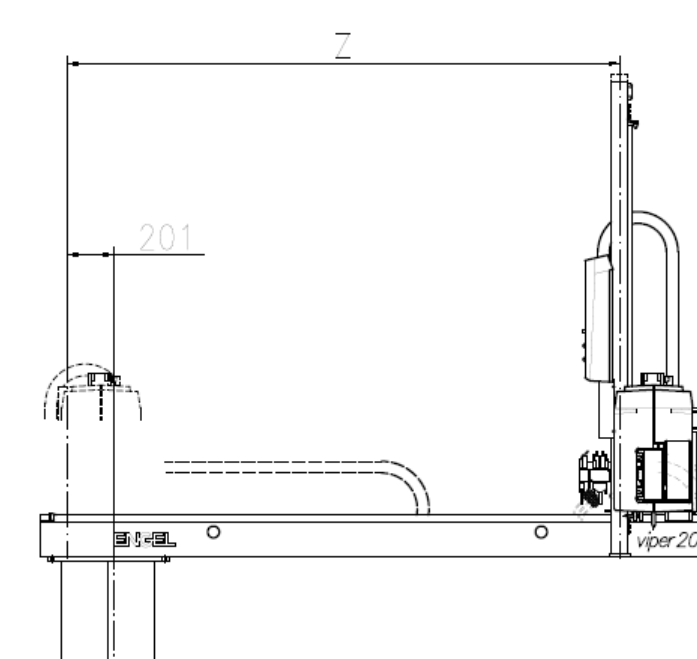
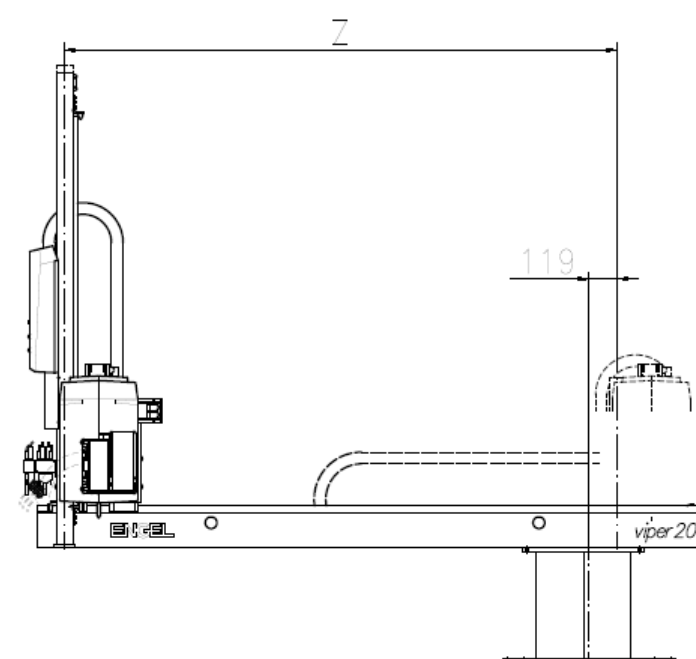
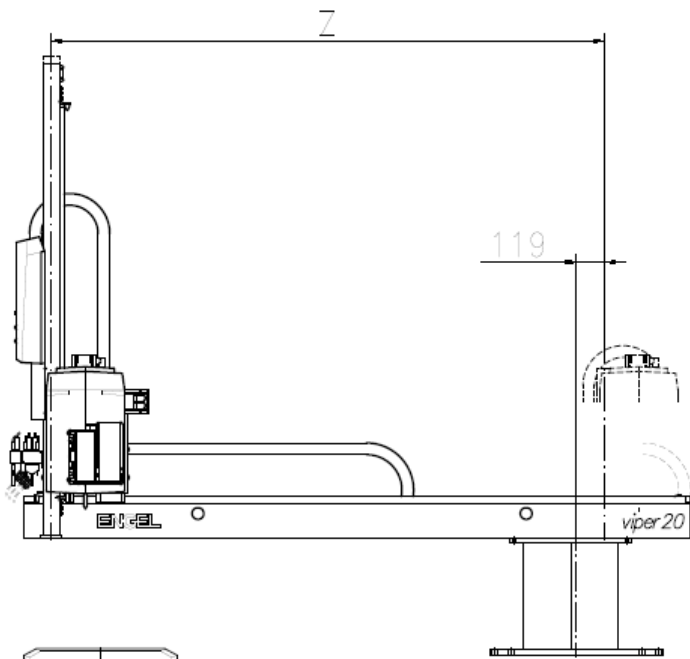
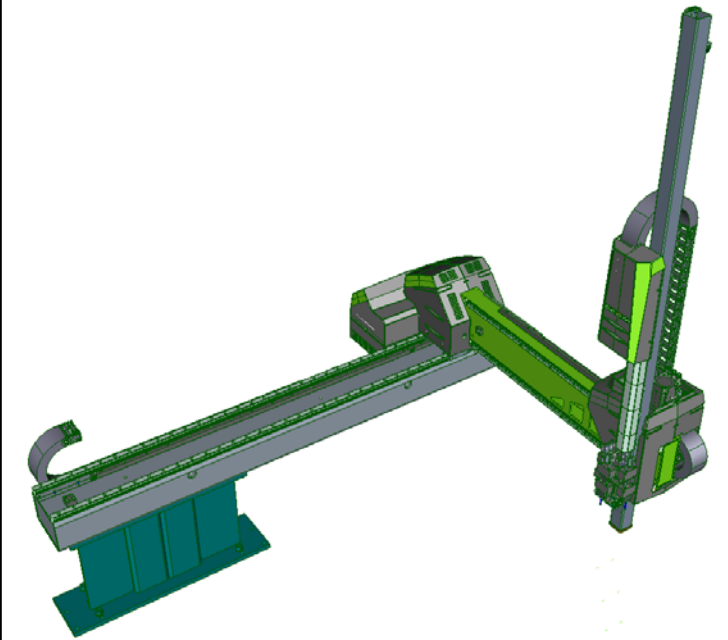
Standard (STD)

Example: deposit machine front side
compact cabinet over IMM not possible



Standard + Z-energy chain mirrored (STD+Z)

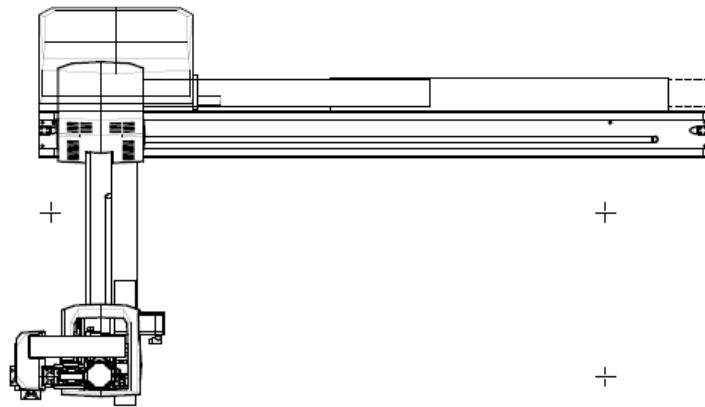
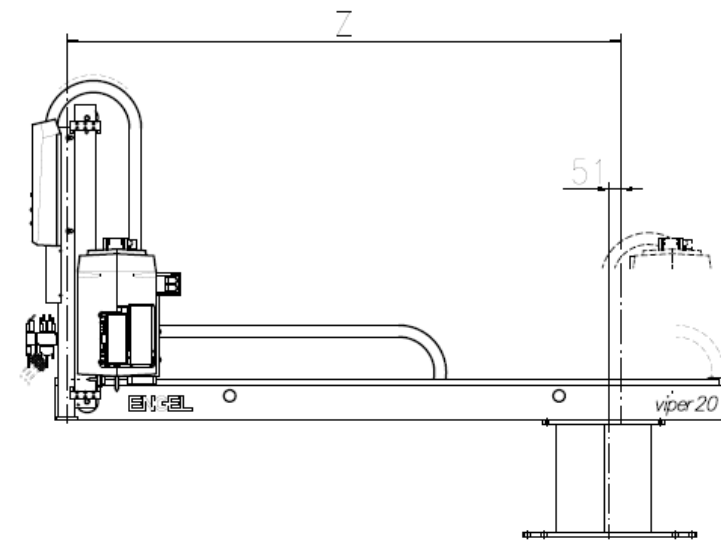
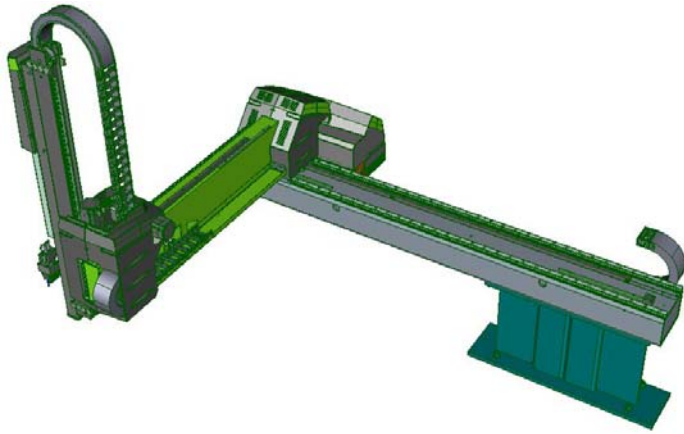
Example: deposit machine front side
compact cabinet possible



VIPER 20 – robot style (single+tandem)

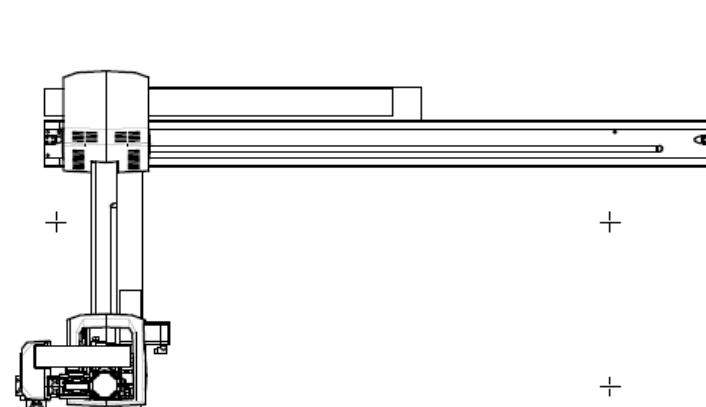
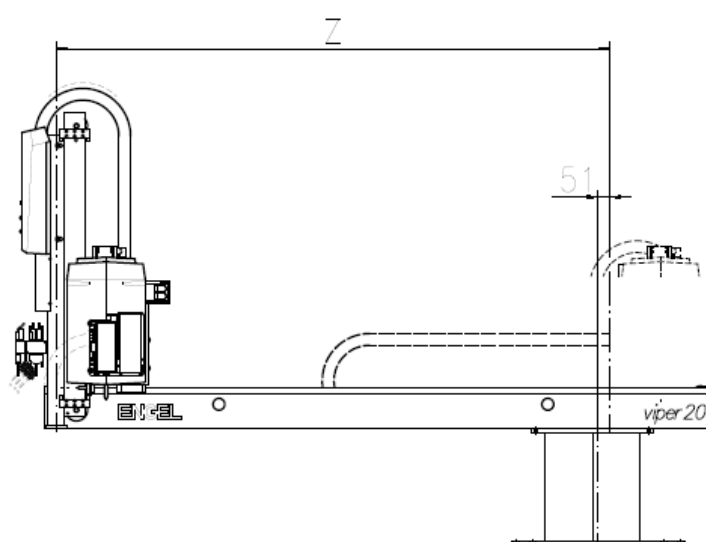
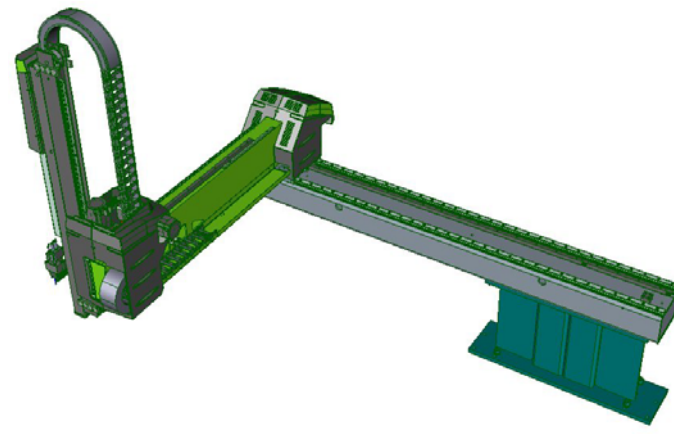
Standard (STD)

Example: deposit machine rear side
compact cabinet possible



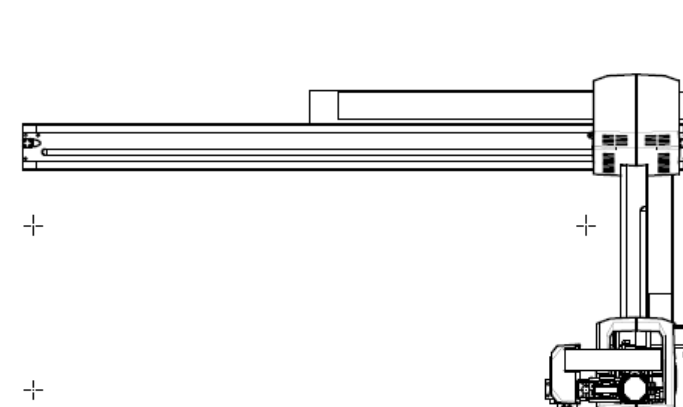
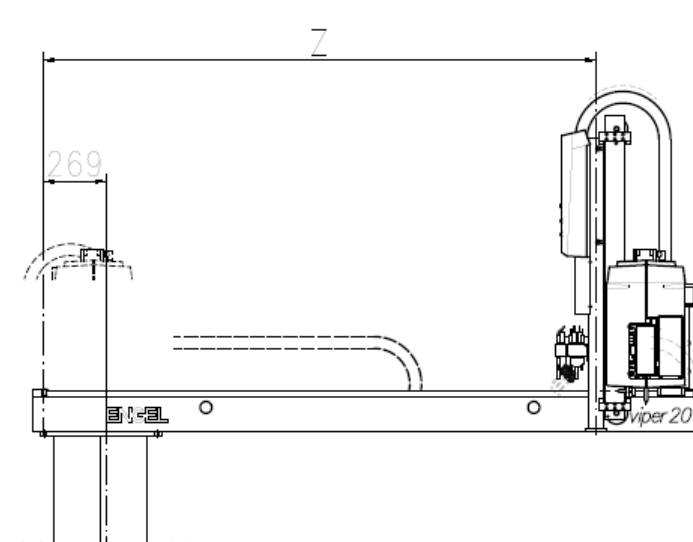
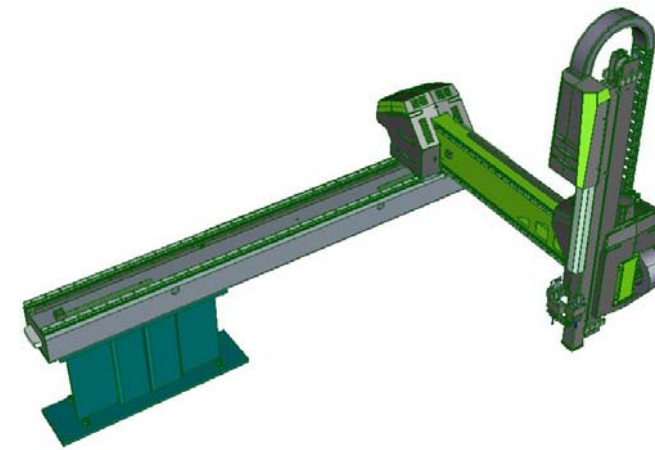
Standard + Z-energy chain mirrored (STD+Z)

Example: deposit machine rear side
compact cabinet over IMM not possible



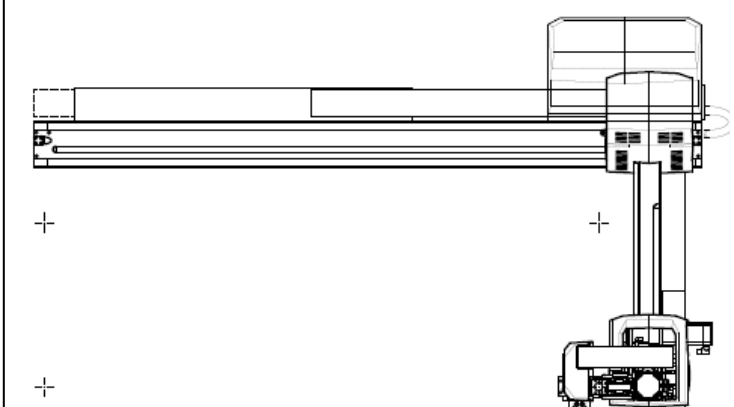
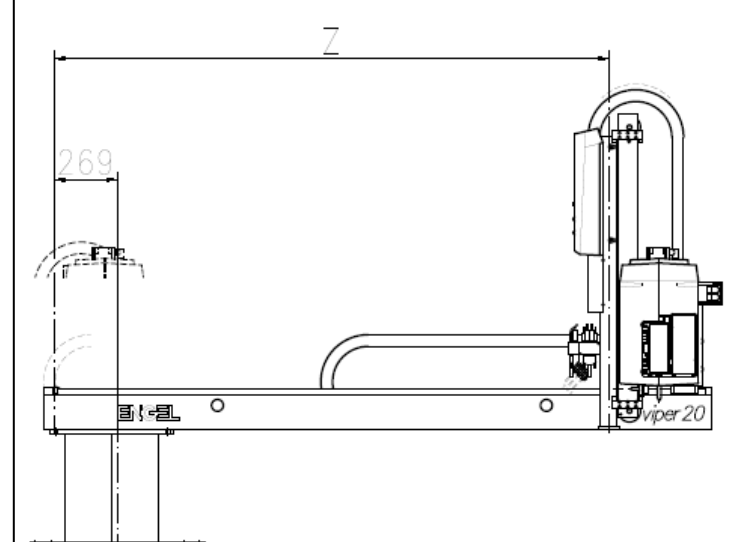
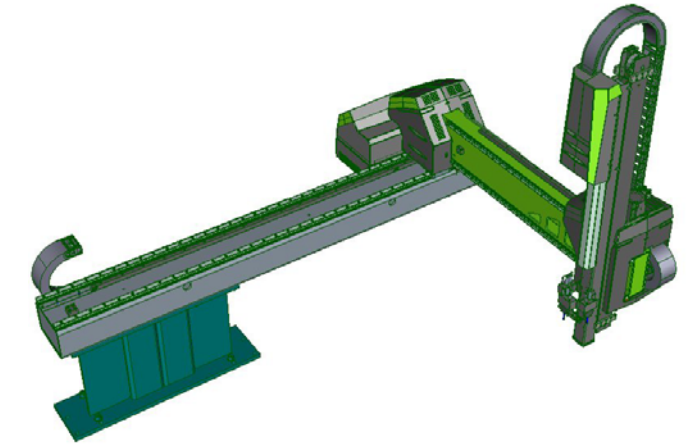
Standard (STD)

Example: deposit machine front side
compact cabinet over IMM not possible



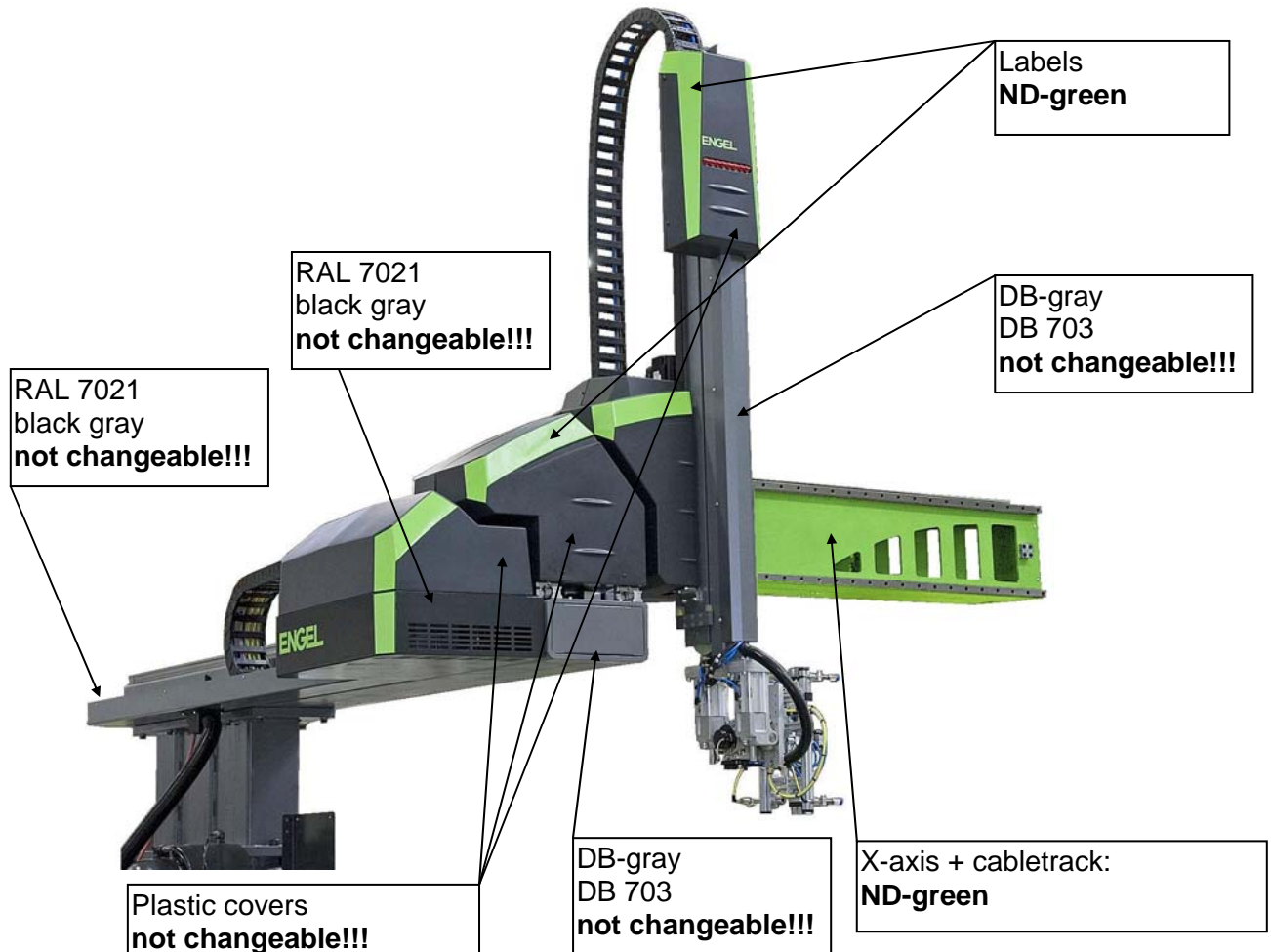
Standard + Z-energy chain mirrored (STD+Z)

Example: deposit machine front side
compact cabinet possible



VIPER 20, 40, 60 – colour design Standard

High gloss painting for clean room (yes/no):

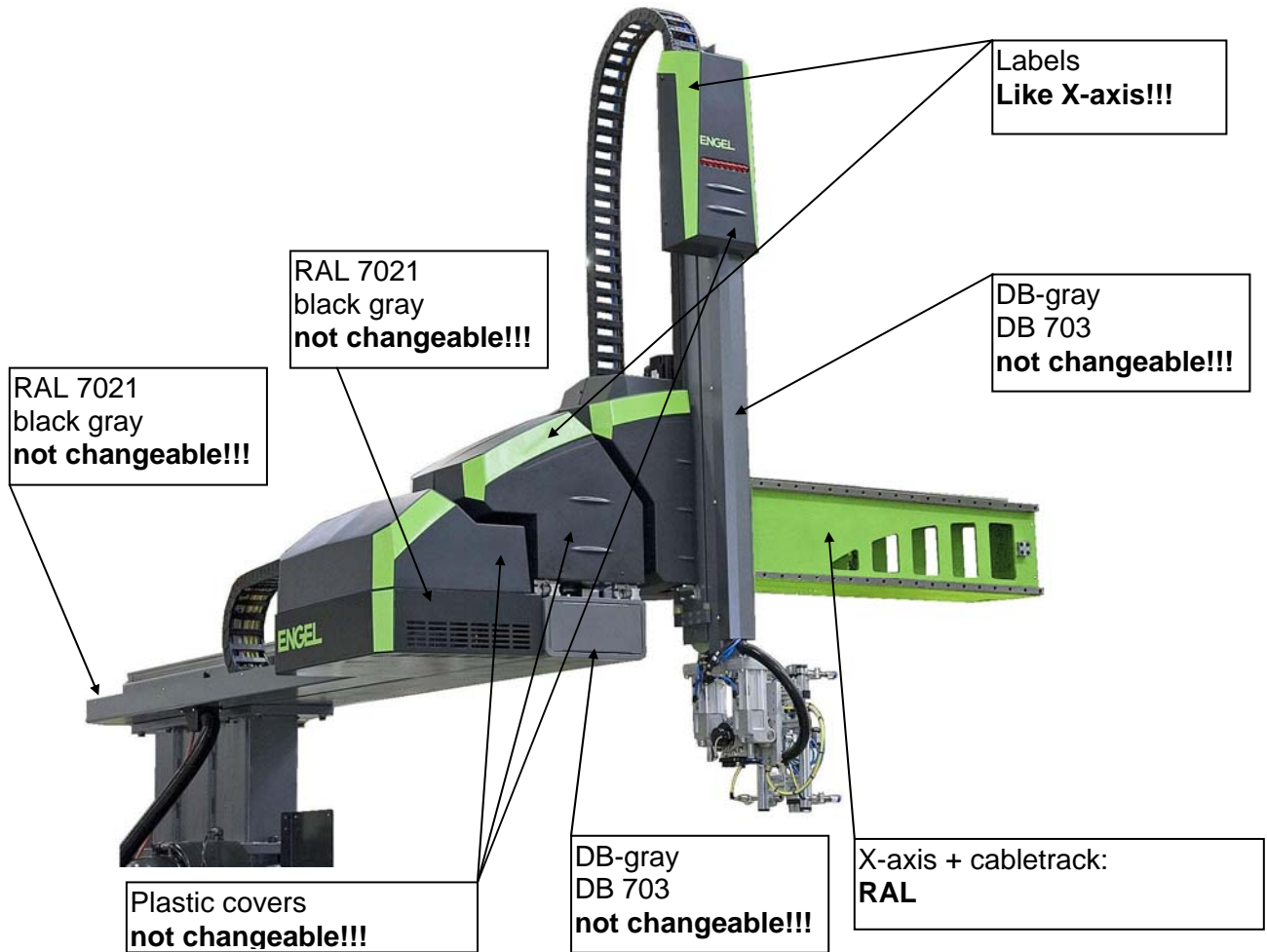


colour design accessories:

<p>universal-cabinet colour: ND-green</p> <p>safety guard colour: ND-green</p> <p>plate vacuum pump (+accu) colour: black grey RAL7021</p>	<p>plinth / support colour: black grey RAL7021</p> <p>peripheral unit colour: ND-green</p>
---	--

VIPER 20, 40, 60 – colour design basic

customer:
 robot-type:
 order-nr.:
 OPT-nr.:
 High gloss painting for clean room (yes/no):



colour design accessories:

<p>universal-cabinet colour:</p> <p>safety guard (1-coloured) colour:</p> <p>plate vacuum pump (+accu) colour:</p>	<p>plinth / support colour:</p> <p>peripheral unit colour:</p>
--	--

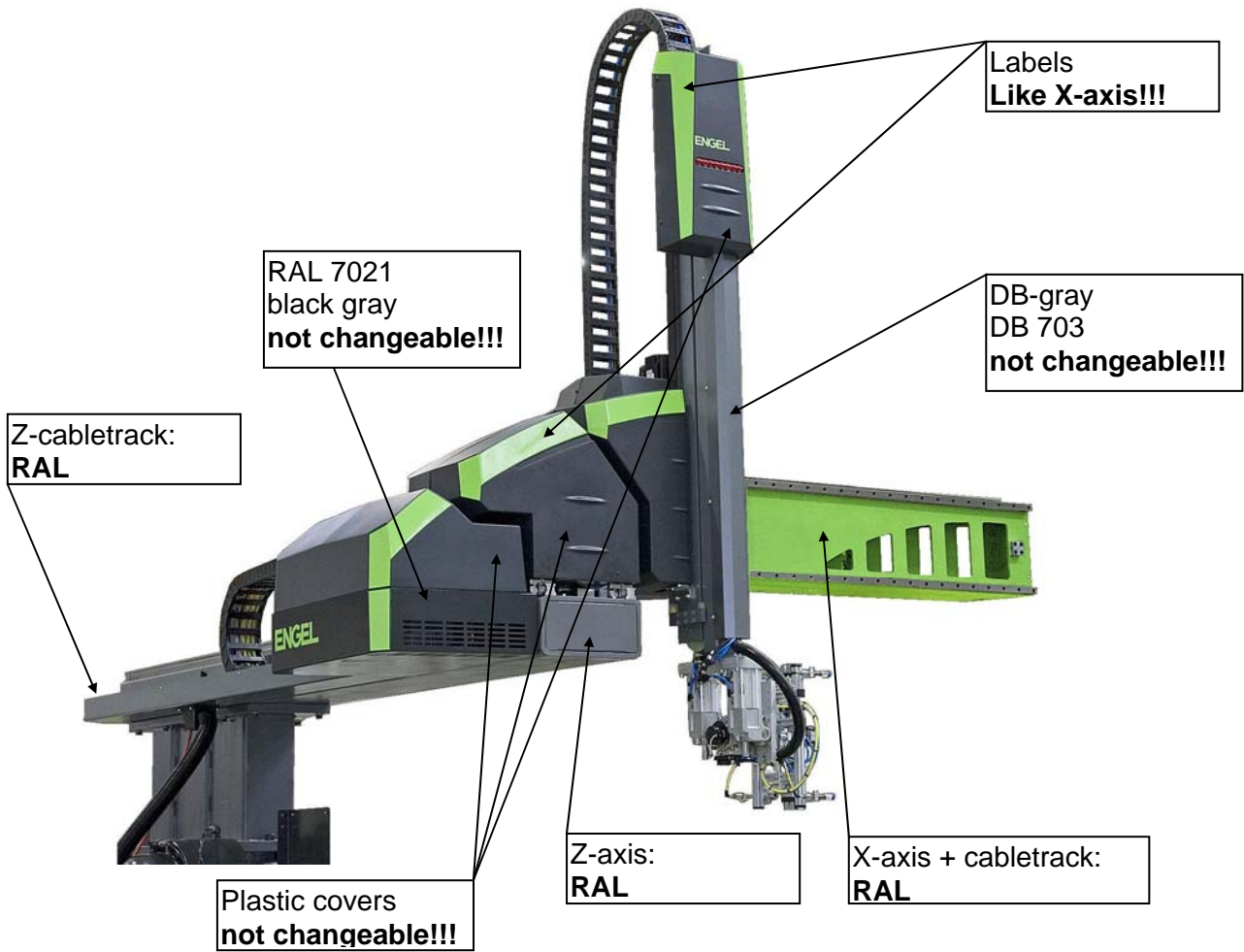
Safety guard colour design

At colour-mix (multi-coloured)



VIPER 20, 40, 60 – colour design advanced

customer:
 robot-type:
 order-nr.:
 OPT-nr.:
 High gloss painting for clean room (yes/no):



colour design accessories:

<p>universal-cabinet colour:</p> <p>safety guard (1-coloured) colour:</p> <p>plate vacuum pump (+accu) colour:</p>	<p>plinth / support colour:</p> <p>peripheral unit colour:</p>
--	--

Safety guard colour design

At colour-mix (multi-coloured)



Übersicht STD-Layout's VIPER 20 + EP8 (ab Serie 15082) - Ablage BRS

overview standard layouts VIPER 20 + EP8 (from series 15082) - deposit side NOS

victory VC				EP8 (Hli)
Maschinengruppe machine group	Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.	Zeichnungs-Nr. drawing-nr.
VC 2	VC 28, 40, 50 VC 30, 45, 55 US	11018, 11057, 11087, 11102, 11122, 11147, 11178, 50112, 50122, 50132, 50142, 50152, 50162	nicht vorhanden not existing	nicht möglich not possible
VC 3	VC 60, 70, 80 VC 65, 75, 85 US	11028, 11052, 11059, 11088, 11103, 11123, 11136, 11146, 11148, 11152, 11179, 31161, 50093, 50103, 50113, 50123, 50133, 50143, 50153, 50163, 50903, 50913	0295-001-13-01	0295-002-13-05
VC 4	VC 90, 110, 120 VC 100, 120, 130 US	11062, 11064, 11093, 11104, 11124, 11153, 11182, 50114, 50124, 50134, 50144, 50154, 50164	0295-001-14-01	0295-002-14-05
VC 5	VC 140, 160 VC 160, 180 US	11094, 11116, 11117, 11126, 11154, 11183, 50135, 50139, 50145, 50155, 50165	0295-001-15-01	0295-002-15-05
VC 6	VC 180, 200, 220 VC 200, 220, 240 US	11096, 11112, 11113, 11157, 11184, 50136, 50146, 50156, 50166	0295-002-16-01	0295-003-16-05
VC 7	VC 260, 300 VC 285, 330 US	11047, 11069, 11076, 11095, 11097, 11108, 11127, 11158, 11176, 11195, 11364, 31126, 31157, 31162, 50047, 50057, 50077, 50087, 50097, 50107, 50117, 50127, 50137, 50147, 50157	0295-001-17-01	0295-002-17-05
VC 7*			0295-001-17-02	nicht möglich not possible
VC 7	VC 260, 300 VC 285, 330 US	11177, 11187, 50167	nicht vorhanden not existing	nicht vorhanden not existing
VC 8	VC 350, 400 VC 400, 440 US	11098, 11132, 11168, 11188, 50138, 50148, 50158, 50168	0295-002-18-01	0295-003-18-05
VC 8*			0295-002-18-02	nicht möglich not possible
VC 9	VC 450, 500 VC 500, 560 US	11118, 11138, 11172, 11174, 11192	0295-001-19-06	0295-001-19-05

e-motion EM				EP8 (Hli)
Maschinengruppe machine group	Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.	Zeichnungs-Nr. drawing-nr.
EM 4	EM 55 EM 60 US	11405, 11406, 11407, 11444, 11453, 11482, 11514, 11555, 11564, 11593, 11666	0295-001-24-01	nicht vorhanden not existing
EM 4*			0295-001-24-02	nicht möglich not possible
EM 5	EM 100T, 110T EM 110T, 120T US	11498, 11499, 11518, 11556, 11565, 11594	0295-001-25-06	0295-001-25-05
EM 6	EM 160T EM 180T US	11589, 11595	0295-002-26-06	0295-002-26-05
EM 7	EM 200T, 220T EM 220T, 240T US	11553, 11554, 11596	0295-002-27-01	0295-001-27-05
EM 8	EM 280T EM 310T US	11428, 11463, 11476, 11479, 11489, 11528, 11544, 11558, 11568, 11597, 31167, 31180, 50415, 50416, 50866	0295-001-28-01	
EM 9	EM 380T EM 400T US	11447, 11467, 11481, 11496, 11529, 11545, 11559, 11569, 11598, 31178, 50867	0295-001-29-01	
	EM 500T EM 550T US	11468, 11497, 11534, 11547, 11563, 11576, 11599, 31173	0295-001-30-01	

Fremd-Maschine / foreign machine		
Maschinenbezeichnung machine discription		Zeichnungs-Nr. drawing-nr.
XXX		0295-001-00-99

duo		
Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.
DUO 350-400 Pico DUO 400-440 US Pico	10323, 51040	0295-001-38-01
(E-)DUO 450-500 Pico (E-)DUO 500-550 US Pico	10032, 10033, 10753, 10754, 33212, 51018, 51020, 51050	0295-001-39-01
(E-)DUO 550-600 Pico (E-)DUO 610-660 US Pico	10042, 10043, 10763, 10764, 33220, 51021, 51060	0295-001-40-01

Legende / legend:

...	Ausführung mit Blende bzw. Badewanne bzw. Flachl execution with cover skirt moving guard
	L-Stütze unbedingt notwendig L-support strictly necessary
	I-Stütze unbedingt notwendig bei Z>=1880 und SPEED-Paket I-support strictly necessary at Z>=1880 and SPEED-package

Übersicht STD-Layout's VIPER 20 (ab Serie 15082) - Ablage BS
overview standard layouts VIPER 20 (from series 15082) - deposit side OS

victory VC			
Maschinengruppe machine group	Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.
VC 3	VC 60, 70, 80 VC 65, 75, 85 US	11028, 11052, 11059, 11088, 11103, 11123, 11136, 11146, 11148, 11152, 11179, 31161, 50093, 50103, 50113, 50123, 50133, 50143, 50153, 50163, 50903, 50913	nicht vorhanden not existing
VC 4	VC 90, 110, 120 VC 100, 120, 130 US	11062, 11064, 11093, 11104, 11124, 11153, 11182, 50114, 50124, 50134, 50144, 50154, 50164	0295-001-14-21
VC 5	VC 140, 160 VC 160, 180 US	11094, 11116, 11117, 11126, 11154, 11183, 50135, 50139, 50145, 50155, 50165	0295-001-15-21
VC 6	VC 180, 200, 220 VC 200, 220, 240 US	11096, 11112, 11113, 11157, 11184, 50136, 50146, 50156, 50166	0295-001-16-21
VC 7	VC 260, 300 VC 285, 330 US	11047, 11069, 11076, 11095, 11097, 11108, 11127, 11158, 11176, 11195, 11364, 31126, 31157, 31162, 50047, 50057, 50077, 50087, 50097, 50107, 50117, 50127, 50137, 50147, 50157	0295-001-17-21
VC 7	VC 260, 300 VC 285, 330 US	11177, 11187, 50167	nicht vorhanden not existing
VC 8	VC 350, 400 VC 400, 440 US	11098, 11132, 11168, 11188, 50138, 50148, 50158, 50168	0295-002-18-21

duo		
Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.
DUO 350-400 Pico DUO 400-440 US Pico	10323, 51040	0295-001-38-21
(E-)DUO 450-500 Pico (E-)DUO 500-550 US Pico	10032, 10033, 10753, 10754, 33212, 51018, 51020, 51050	0295-001-39-21

I-Stütze unbedingt notwendig bei Z>=1880 und Ablage BS
I-support strictly necessary at Z>=1880 and deposit OS

Übersicht STD-Layout's VIPER 20 (ab Serie 15082) - Ablage LS
overview standard layouts VIPER 20 (from series 15082) - deposit side LS

victory VC			
Maschinengruppe machine group	Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.
VC 3	VC 60, 70, 80 VC 65, 75, 85 US	11028, 11052, 11059, 11088, 11103, 11123, 11136, 11146, 11148, 11152, 11179, 31161, 50093, 50103, 50113, 50123, 50133, 50143, 50153, 50163, 50903, 50913	0295-001-13-11
VC 4	VC 90, 110, 120 VC 100, 120, 130 US	11062, 11064, 11093, 11104, 11124, 11153, 11182, 50114, 50124, 50134, 50144, 50154, 50164	0295-001-14-11
VC 5	VC 140, 160 VC 160, 180 US	11094, 11116, 11117, 11126, 11154, 11183, 50135, 50139, 50145, 50155, 50165	0295-001-15-11
VC 6	VC 180, 200, 220 VC 200, 220, 240 US	11096, 11112, 11113, 11157, 11184, 50136, 50146, 50156, 50166	0295-002-16-11
VC 7	VC 260, 300 VC 285, 330 US	11047, 11069, 11076, 11095, 11097, 11108, 11127, 11158, 11176, 11195, 11364, 31126, 31157, 31162, 50047, 50057, 50077, 50087, 50097, 50107, 50117, 50127, 50137, 50147, 50157	0295-001-17-11
VC 7	VC 260, 300 VC 285, 330 US	11177, 11187, 50167	nicht vorhanden not existing
VC 8	VC 350, 400 VC 400, 440 US	11098, 11132, 11168, 11188, 50138, 50148, 50158, 50168	0295-003-18-11

duo		
Maschinenbezeichnung machine discription	Maschinen Serie machine series	Zeichnungs-Nr. drawing-nr.
DUO 350-400 Pico DUO 400-440 US Pico	10323, 51040	0295-001-38-11
(E-)DUO 450-500 Pico (E-)DUO 500-550 US Pico	10032, 10033, 10753, 10754, 33212, 51018, 51020, 51050	0295-002-39-11