



## Vert-X 27E - 24V / SPI

### Applications

- Harvesting machine
- Fork lift
- Hydraulic pump

### Features

- High protection class IP68
- Compact dimensions
- Non-contacting measuring method
- Very long life
- High accuracy of measurement
- Applications under adverse ambient conditions possible (humidity, dampness, dust, vibrations etc.)
- Full resolution and accuracy at programmed electrical angle

Sensor principle		MH-C	MH-C2
<b>Electrical data</b>			
Measuring range	°	0 ... 360	-
Indep. linearity (without misalignment)	% of meas. range	±0.3	-
Indep. linearity (with allowed misalignment @ 360°)	% of meas. range	±0.5	-
Max. hysteresis	°	0.1	-
Resolution	bit	14	-
Max. repeatability	°	0.1	-
Sample rate fast mode	kHz	2.2	-
Sample rate slow mode	kHz	(0.55)	-
System propagation delay fast mode	µs	400	-
System propagation delay slow mode	µs	(600)	-
Max. temperature coefficient of the output signal	ppm/°K	25	-
MTTFd / MTBF	years	240 / 240	-
Power supply voltage	VDC	8 ... 35	-
Current consumption without load (typ.) fast mode	mA	19	-
Current consumption without load (typ.) slow mode	mA	(14)	-
Min. ohmic load at output	kOhm	-	-
Max. capacitive load at output	nF	-	-
Reverse polarity protection of power supply		yes	-
Electrical connection axial		Wires (5x)	-
Cross section of single wires	mm <sup>2</sup>	0.56 (AWG20)	-
Electrical connection radial		Cable 6pole	-
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	-
Redundancy feasible		yes	-
Electrical connection redundant axial		Wires (10x)	-
Cross section of single wires redundant	mm <sup>2</sup>	0.25 (AWG24)	-
Electrical connection redundant radial		Cable 10pole	-
Cross section of single wires redundant	mm <sup>2</sup>	0.09 (AWG28)	-
<b>Mechanical data</b>			
Mechanical range	°	360 (continuous)	-
Protection class		IP68	-
Min. life	movements	no limitation	-
Operating & storage temperature	°C	-40 ... +85	-
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	50	-
IEC 68-2-27 Shock	g	200	-
<b>Standards</b>			
EN 55022 class B, Emission radiated (30... 230 MHz)	dB(µV/m)	max. 30	-
EN 55022 class B, Emission radiated (230...1000MHz)	dB(µV/m)	max. 37	-
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	±4 / ±8	-
EN 61000-4-3, Immission HF radiated (80... 1000 MHz)	V/m	30	-
EN 61000-4-4, Burst (on all lines)	kV	±1	-
EN 61000-4-5, Surge (lines to ground)	kV	±1	-
EN 61000-4-6, Immission HF conducted (0.15...80MHz)	Vemk	10	-
EN 61000-4-8, Immission magnetic field (50Hz)	A/m	30	-
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	-
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	-

Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
 Portstrasse 38  
 CH-2503 Biel/Bienne  
 Phone +41 (0)32 3665600  
 Telefax +41 (0)32 3665604  
 sales@contelec.ch

**CONTELEC**  
 A company of the Siedle-Group



**Vert-X 27E - 24V / SPI**  
Ordering code

		<b>Output characteristics</b>				<b>Electrical connection / axial</b>	
	Positive gradient CW	Standard	1	2	Optional	Wires 10pole	
	Positive gradient CCW	Optional	2	7	Standard	Wires 5pole / 6pole	
	Redundant, positive gradient CW	Optional	3	9	Optional	Special cable ; special wires	
	Redundant, positive gradient CCW	Optional	4				
	Redundant, crossed signal curves	Optional	5				
		<b>Output signal</b>				<b>Electrical connection / radial</b>	
	SPI	Standard	8	1	Optional	Round cable 10pole	
		<b>Power supply voltage</b>				<b>Length of wires</b>	
	24VDC	Standard	1	6	Standard	Round cable 6pole	
				9	Optional	Special cable ; special wires	
<b>Vert-X</b>	<b>2</b>	<b>7</b>	<b>E</b>	<b>2</b>	<b>7</b>	<b>3</b>	<b>6</b>
					<b>1</b>	<b>8</b>	<b>1</b>
					<b>7</b>	<b>0</b>	<b>5</b>
		<b>Electrical angle</b>				<b>Length of cable</b>	
	36	Standard	Electrical angle 360°	02	Standard	1.0m	
	xx	Optional	03 to 35; Declaration in 10° steps	06	Optional	3.0m	
	99	Optional	Special angle	10	Optional	5.0m	
		<b>Sensor principle</b>				<b>Special length</b>	
	7	MH-C		99	Optional	Special length	
		<b>Mechanical version</b>					
	27E1	Optional	Servo mount size 11 ; magnetic actuator type 1				
	27E2	Standard	Servo mount size 11 ; magnetic actuator type 2				
	27E9	Optional	Special housing ; special magnetic actuator				

	MH-C	MH-C2
Custom magnetic actuator	X	-
Custom modification of the housing	X	-
Custom cable / wires	X	-
Sample rate in slow mode	X	-
Switch functions TTL (max. 2)	X	-
Special characteristic curve	-	-
Special electrical angle within 30° to 360° (ex factory)	X	-
Electrical angle programmable (Software)	-	-
Start & end point settable (Additional wires)	-	-
Sense of rotation CW/CCW settable / programmable (Additional wires or Software)	-	-
Index point settable / programmable (Additional wires or Software)	-	-

**Options (on request)**

Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
Portstrasse 38  
CH-2503 Biel/Bienne  
Phone +41 (0)32 3665600  
Telefax +41 (0)32 3665604  
sales@contelec.ch



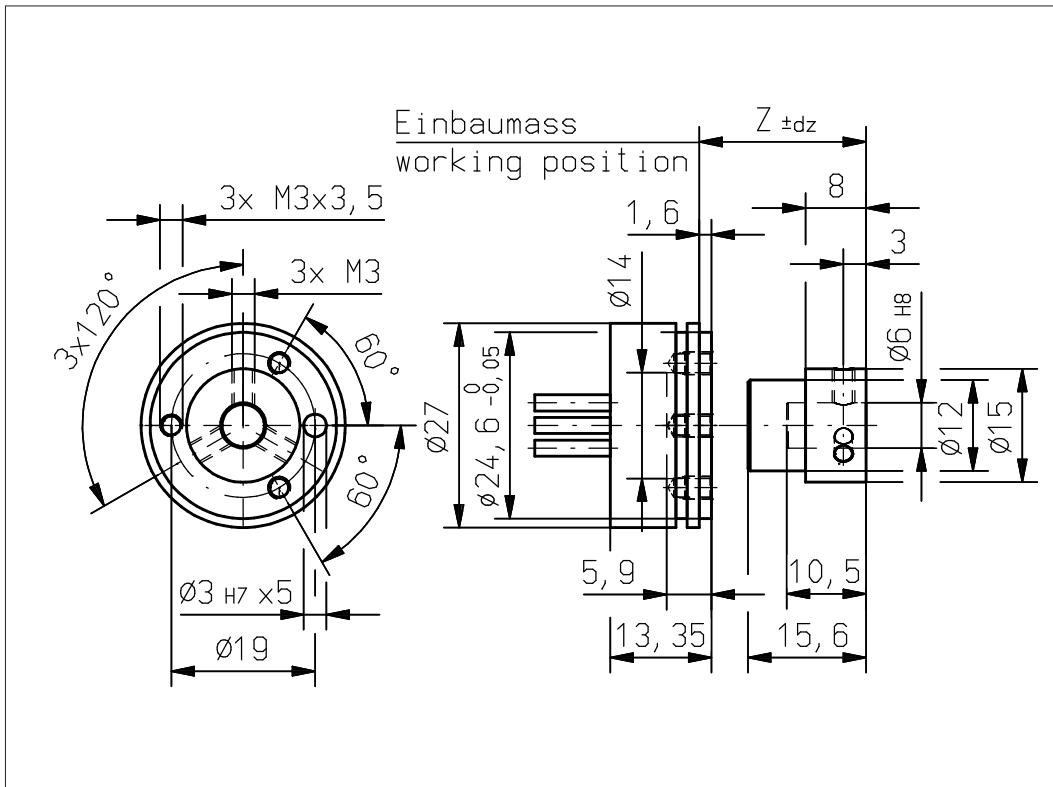
**Vert-X 27E2 xxx xxx 2xx**  
**Vert-X 27E2 xxx xxx 7xx**

**Accessoires (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

see mounting information



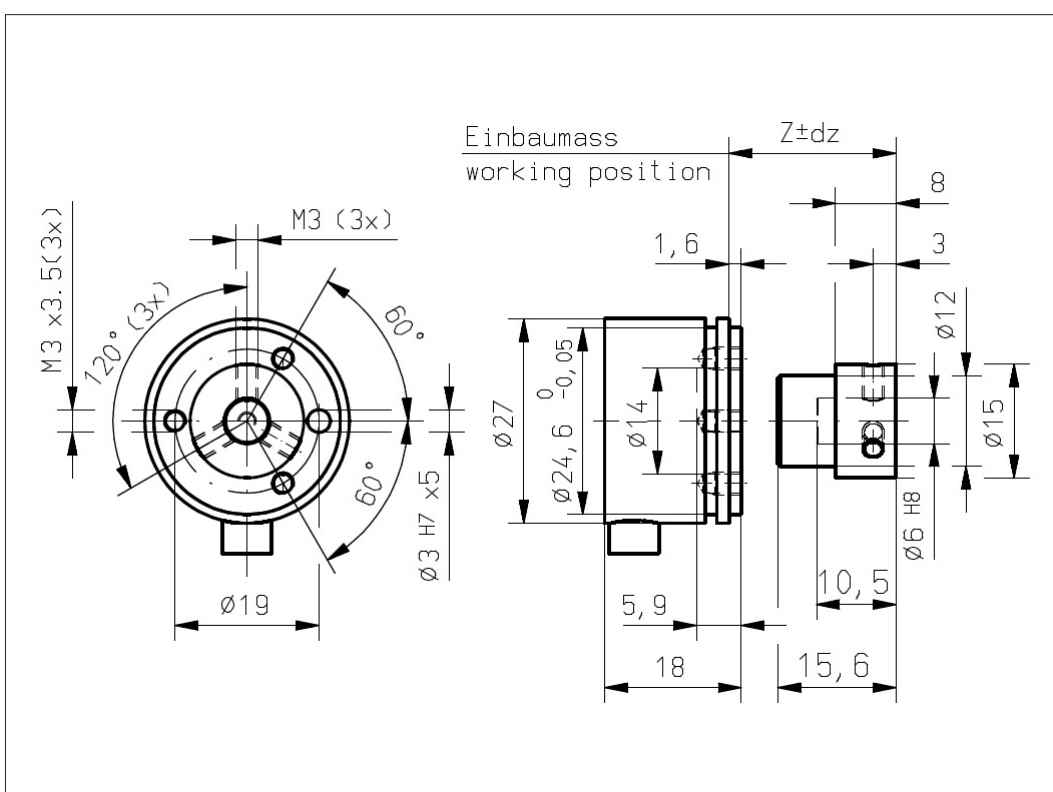
**Vert-X 27E2 xxx xxx 1xx**  
**Vert-X 27E2 xxx xxx 6xx**

**Accessoires (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

see mounting information



Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
 Portstrasse 38  
 CH-2503 Biel/Bienne  
 Phone +41 (0)32 3665600  
 Telefax +41 (0)32 3665604  
 sales@contelec.ch



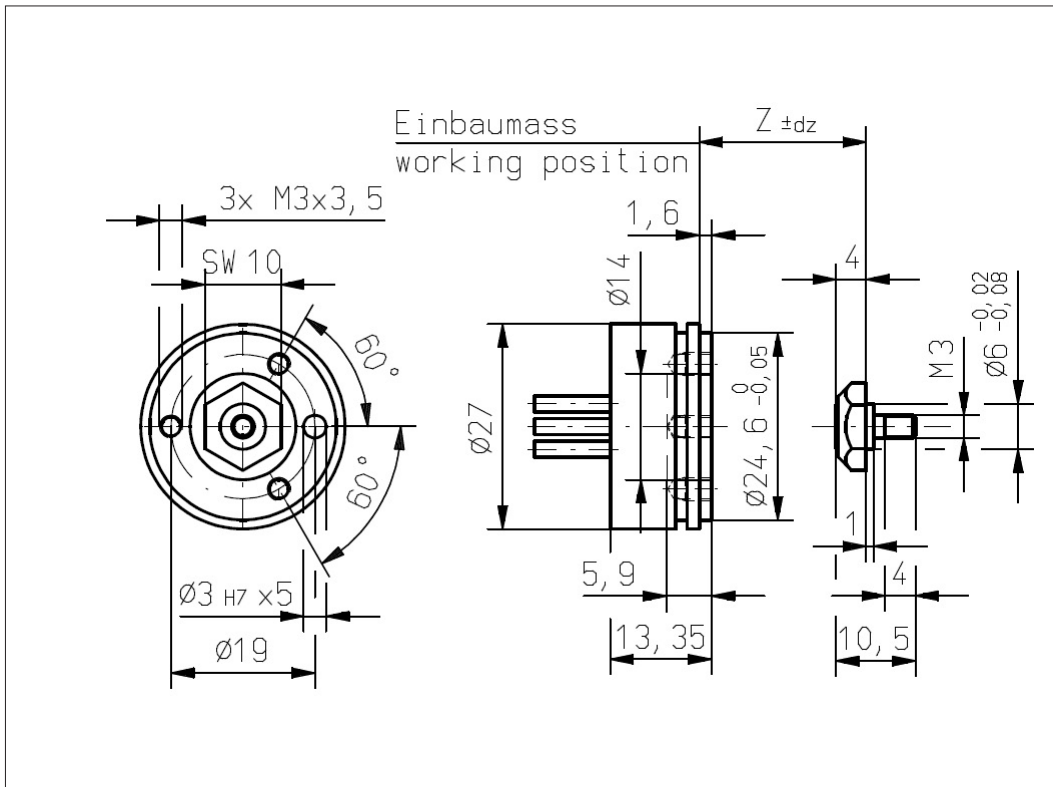
**Vert-X 27E1 xxx xxx 2xx**  
**Vert-X 27E1 xxx xxx 7xx**

**Accessoires (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

see mounting information



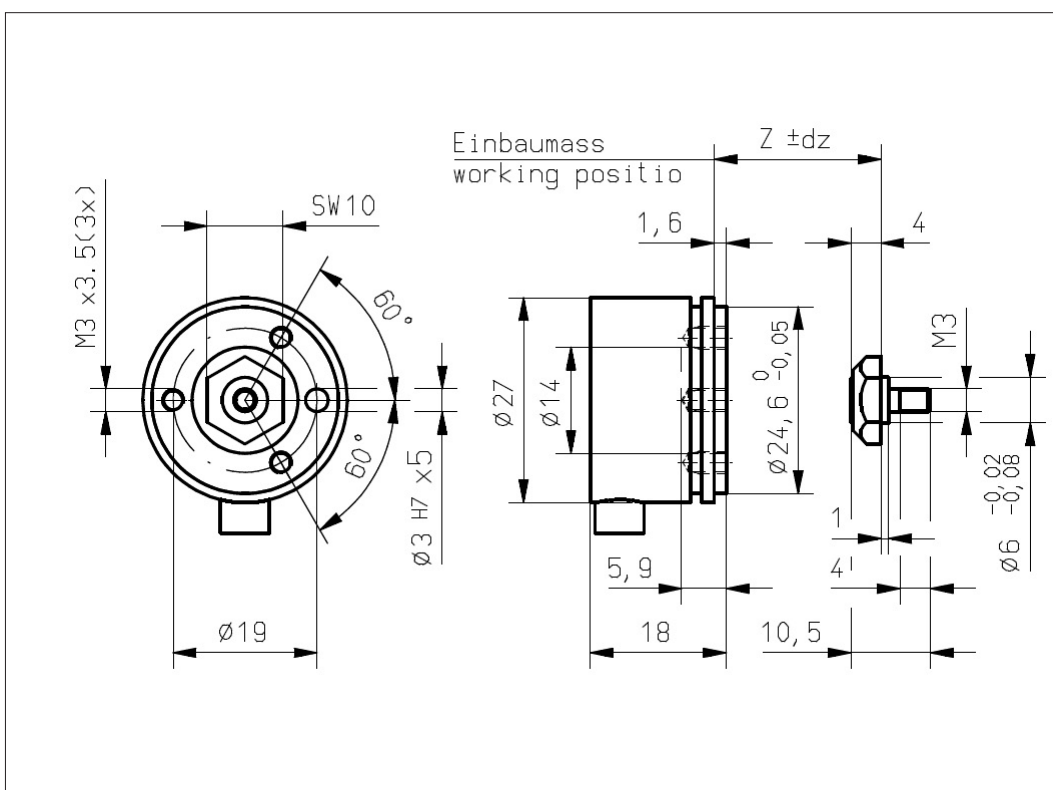
**Vert-X 27E1 xxx xxx 1xx**  
**Vert-X 27E1 xxx xxx 6xx**

**Accessoires (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

see mounting information



Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
 Portstrasse 38  
 CH-2503 Biel/Bienne  
 Phone +41 (0)32 3665600  
 Telefax +41 (0)32 3665604  
 sales@contelec.ch



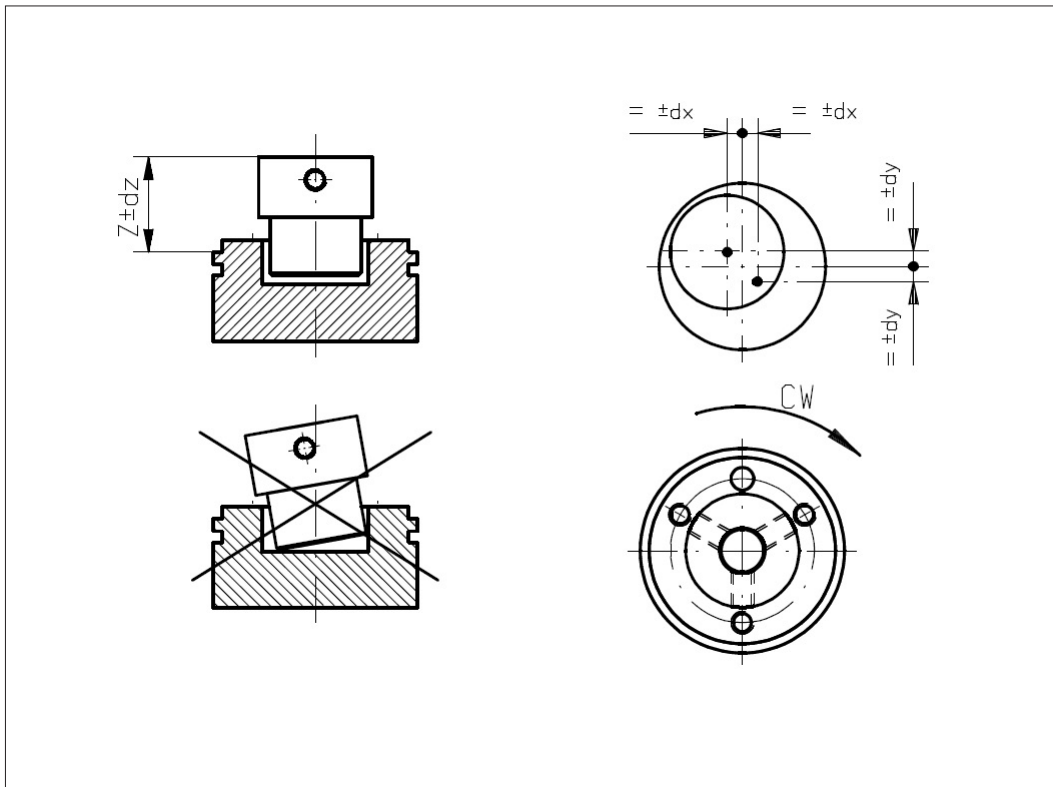
**Vert-X 27E2**  
**Mounting information**

**Working position (Z)**

MH-C	12.80mm
MH-C redundant	12.30mm

**Max. permitted misalign-  
ment of the magnetic  
actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



**Vert-X 27E1**  
**Mounting information**

**Working position (Z)**

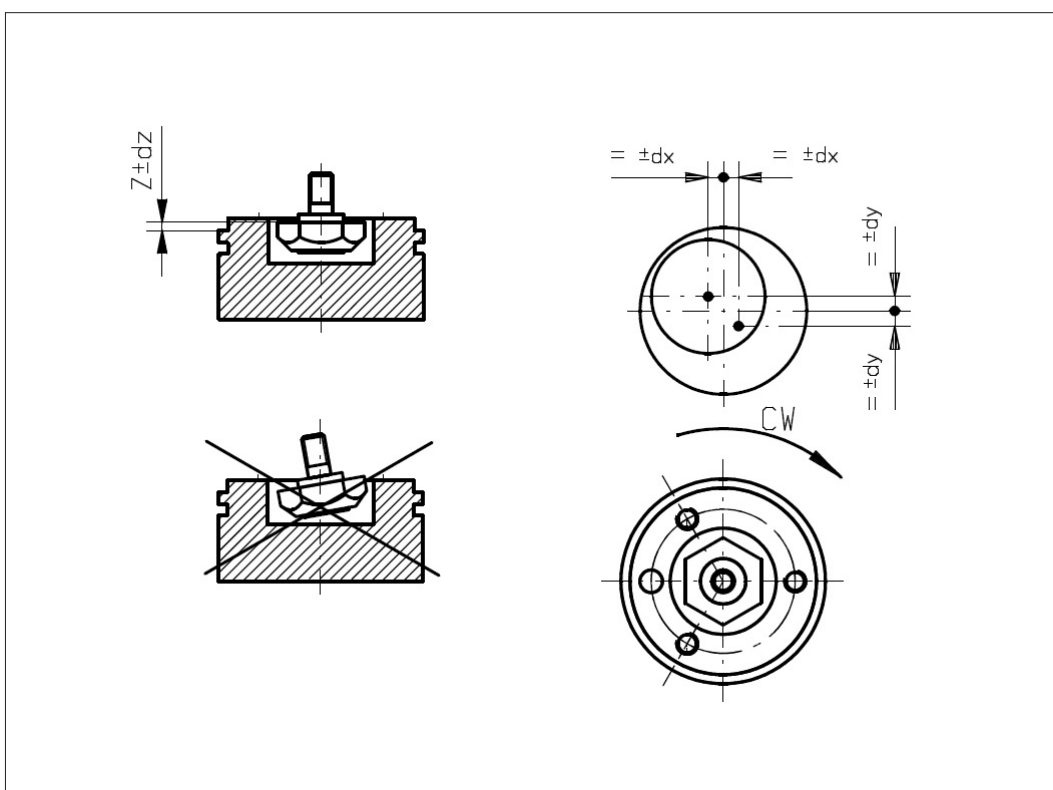
MH-C	1.40mm
MH-C redundant	0.90mm

**Max. permitted misalign-  
ment of the magnetic  
actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm

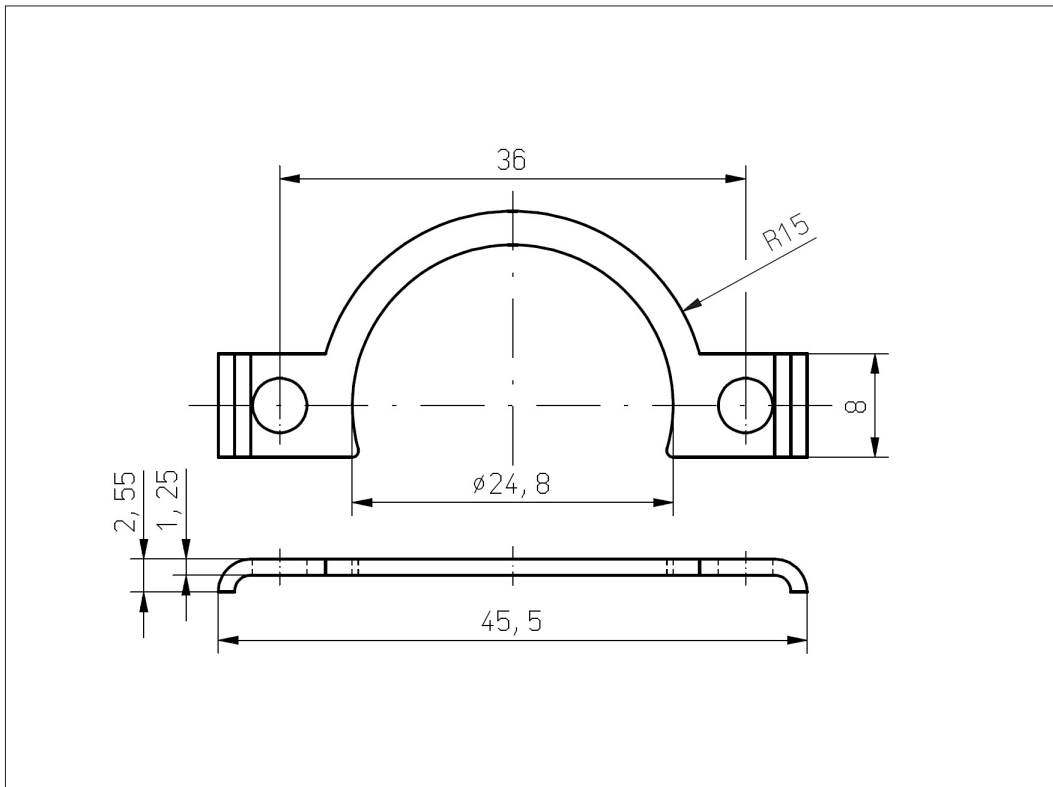
Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
 Portstrasse 38  
 CH-2503 Biel/Bienne  
 Phone +41 (0)32 3665600  
 Telefax +41 (0)32 3665604  
 sales@contelec.ch





**Vert-X 27E**  
**Accessoires**  
Fixation clip



Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG  
Portstrasse 38  
CH-2503 Biel/Bienne  
Phone +41 (0)32 3665600  
Telefax +41 (0)32 3665604  
sales@contelec.ch

**CONTELEC**  
A company of the Siedle-Group