



## Vert-X 37E - 24V / SPI

### Applications

- Agricultural machines
- Construction machines
- Forest machines
- Special purpose vehicles

### Features

- High protection class IP68
- Very robust design
- 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

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

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

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	-



**Vert-X 37E - 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>				6 Standard Round cable 6pole								
		24VDC	Standard	1			9 Optional Special cable ; special wires							
<b>Vert-X</b>	<b>3</b>	<b>7</b>	<b>E</b>	<b>4</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 wires</b>		
						36	Standard	Electrical angle 360°				01	Optional	10cm
						xx	Optional	03 to 35; Declaration in 10° steps				03	Optional	30cm
						99	Optional	Special angle				05	Standard	50cm
						<b>Sensor principle</b>						99	Optional	Special length
						7	MH-C					<b>Length of cable</b>		
						<b>Mechanical version</b>						02	Standard	1.0m
						37E1	Optional	Servo mount size 13 ; magnetic actuator type 1				06	Optional	3.0m
						37E2	Optional	Servo mount size 13 ; magnetic actuator type 2				10	Optional	5.0m
						37E4	Standard	Servo mount size 13 ; magnetic actuator type 4				99	Optional	Special length
						37E9	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)**

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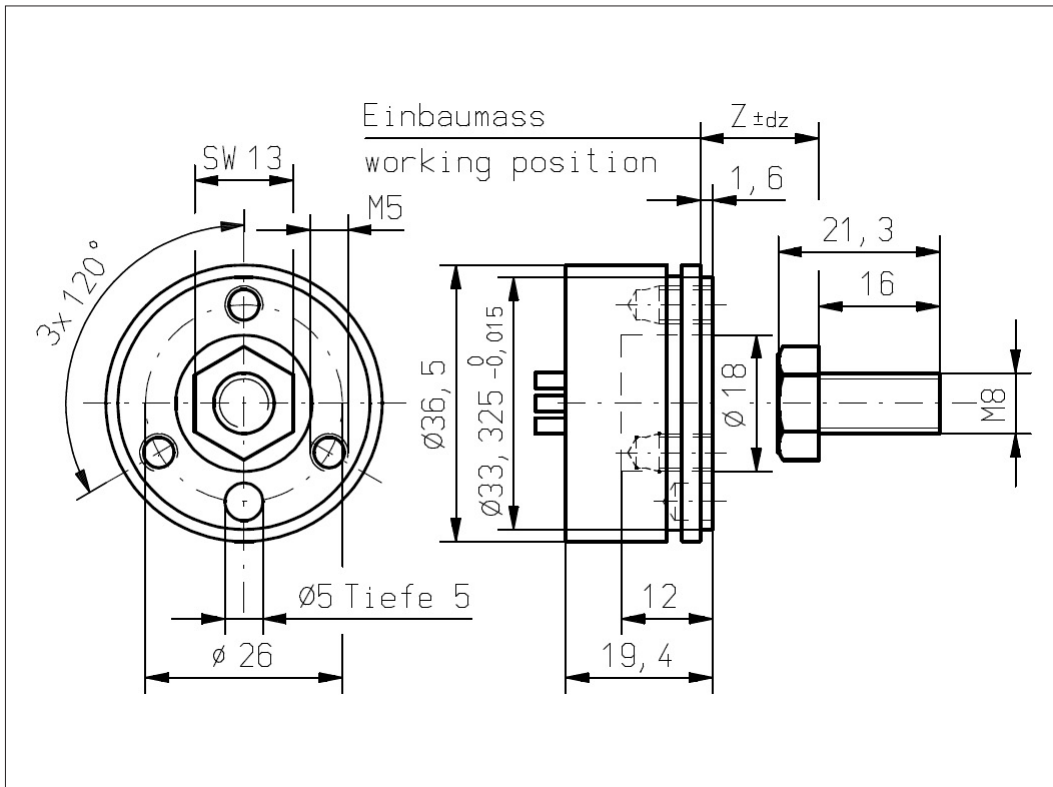
**Vert-X 37E4 xxx xxx 5xx**  
**Vert-X 37E4 xxx xxx 7xx**

**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



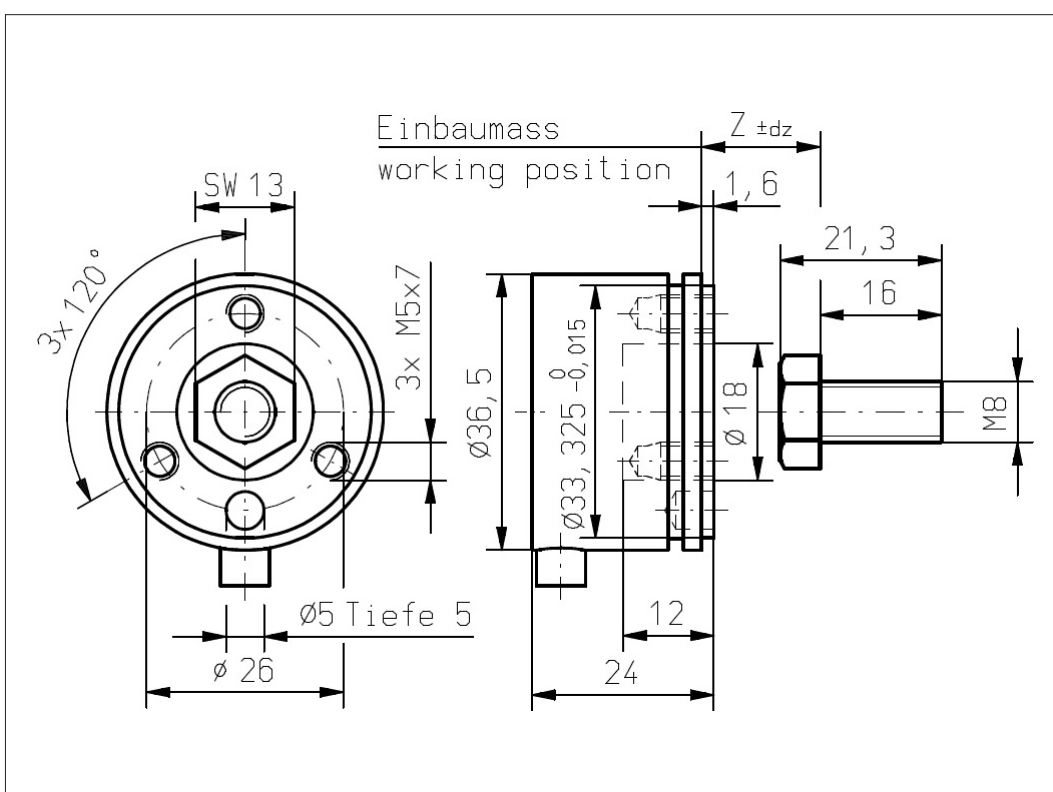
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**Vert-X 37E4 xxx xxx 6xx**

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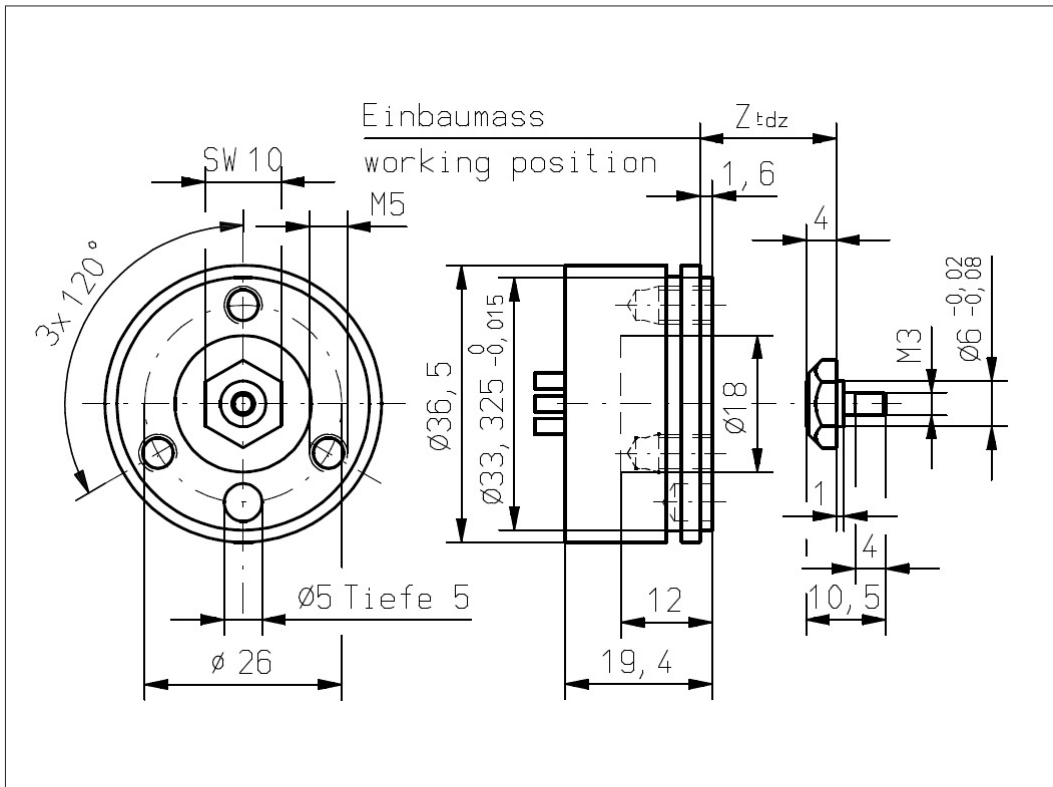
**Vert-X 37E1 xxx xxx 5xx**  
**Vert-X 37E1 xxx xxx 7xx**

**Accessoires (incl.)**

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

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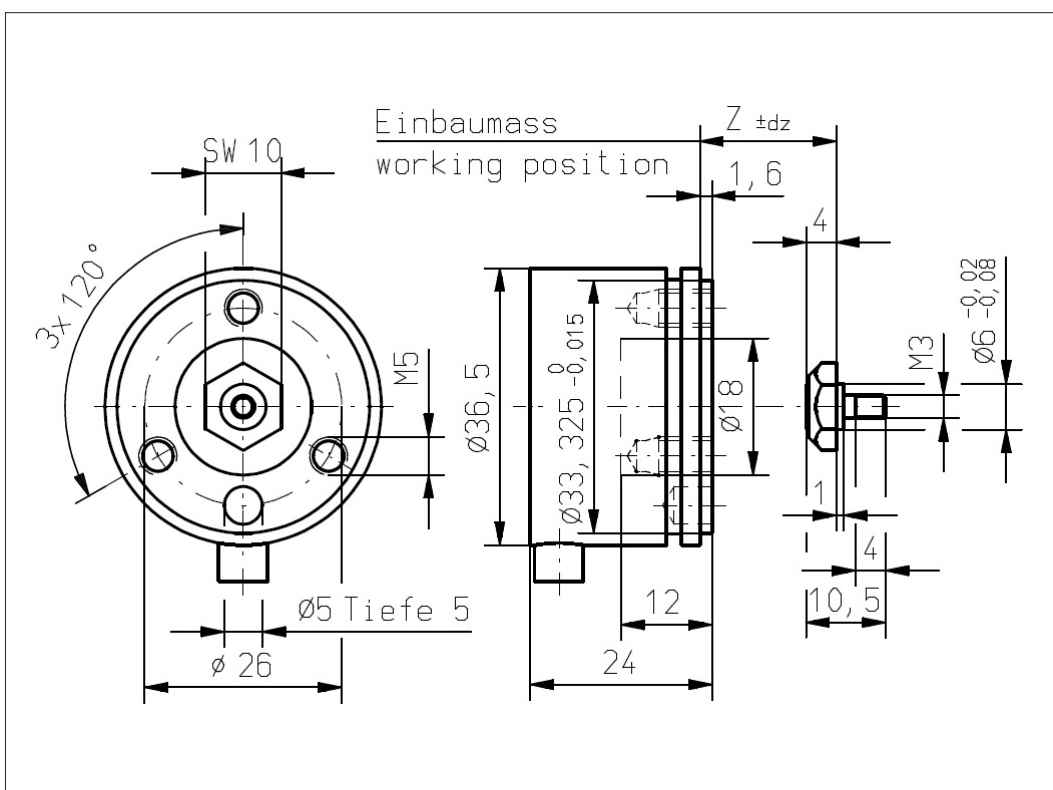
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**Vert-X 37E1 xxx xxx 6xx**

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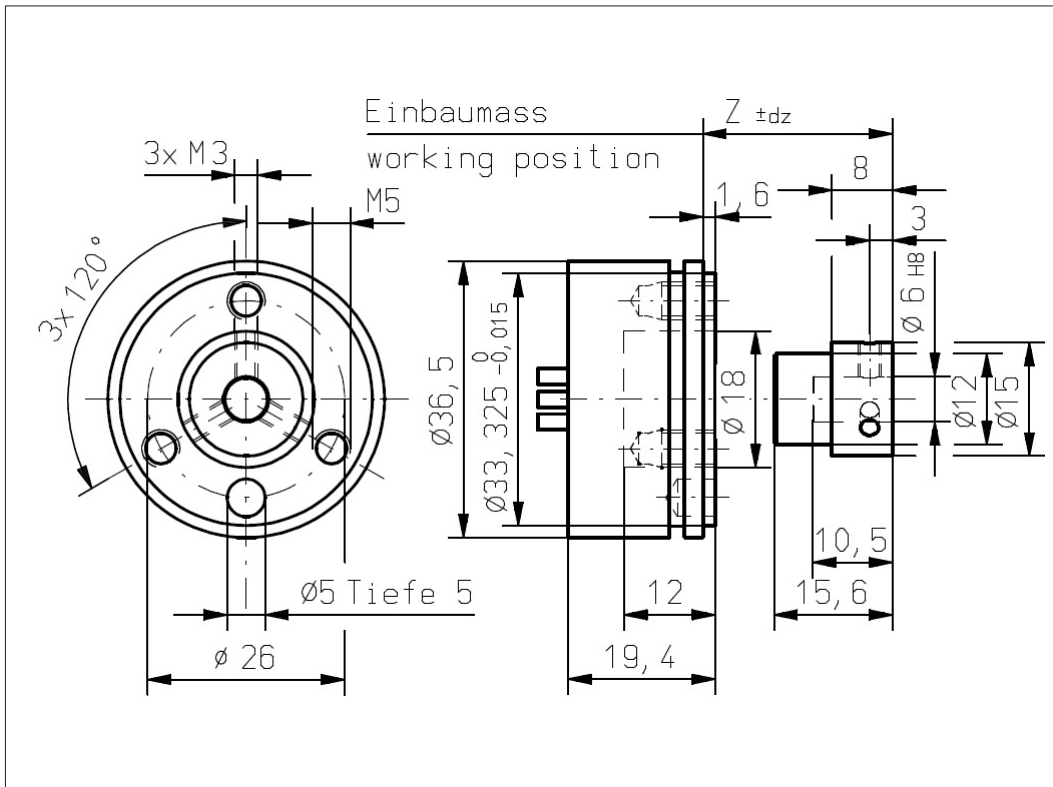
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**Vert-X 37E2 xxx xxx 7xx**

**Accessoires (incl.)**

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

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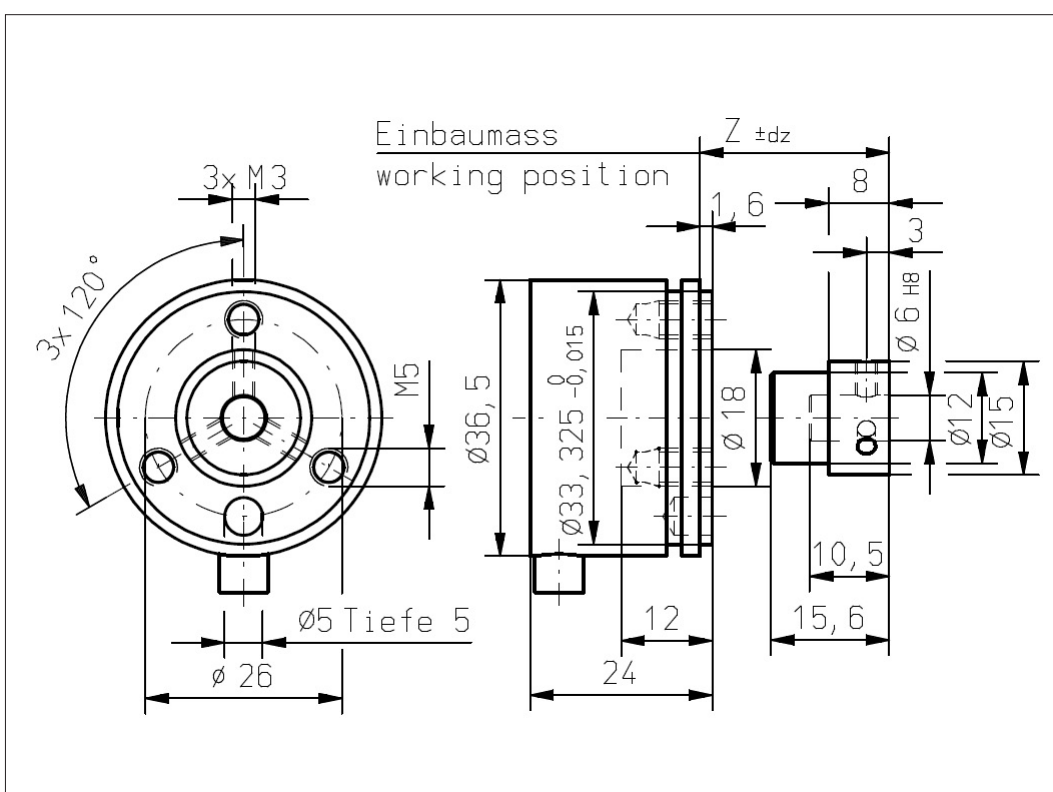
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**Vert-X 37E2 xxx xxx 6xx**

**Accessoires (incl.)**

- 1x Fixation clip
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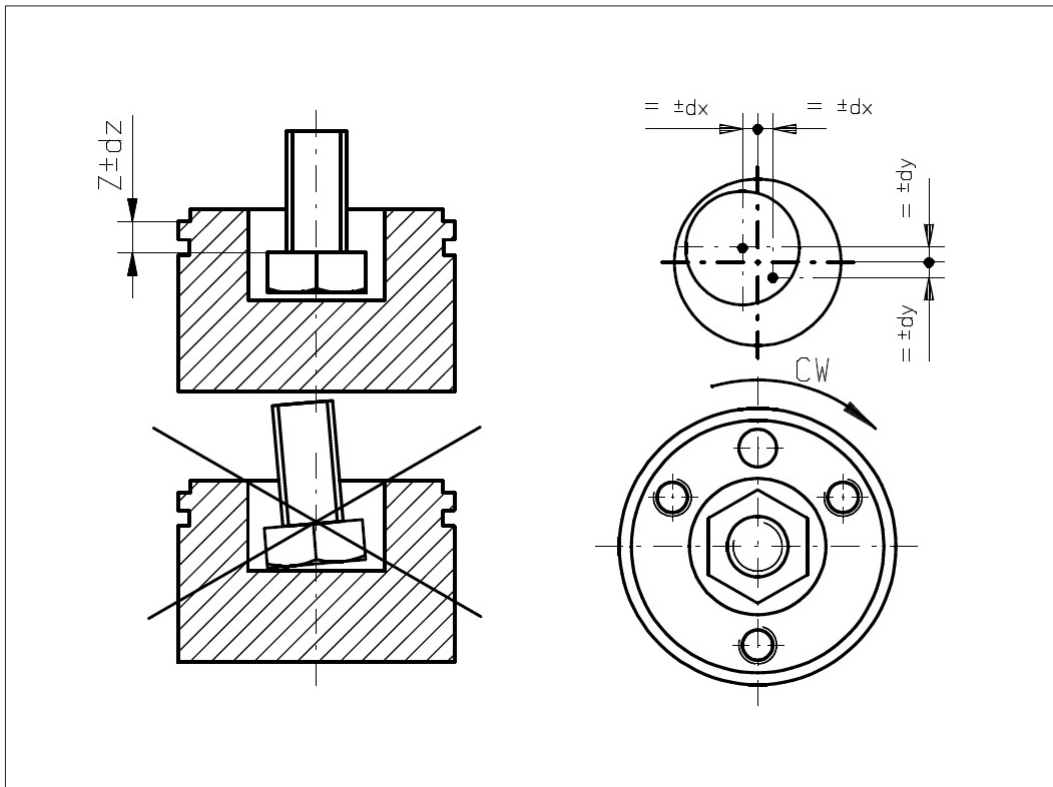
**Vert-X 37E4**  
**Mounting information**

**Working position (Z)**

MH-C	3.85mm
MH-C redundant	4.35mm

**Max. permitted misalignment of the magnetic actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



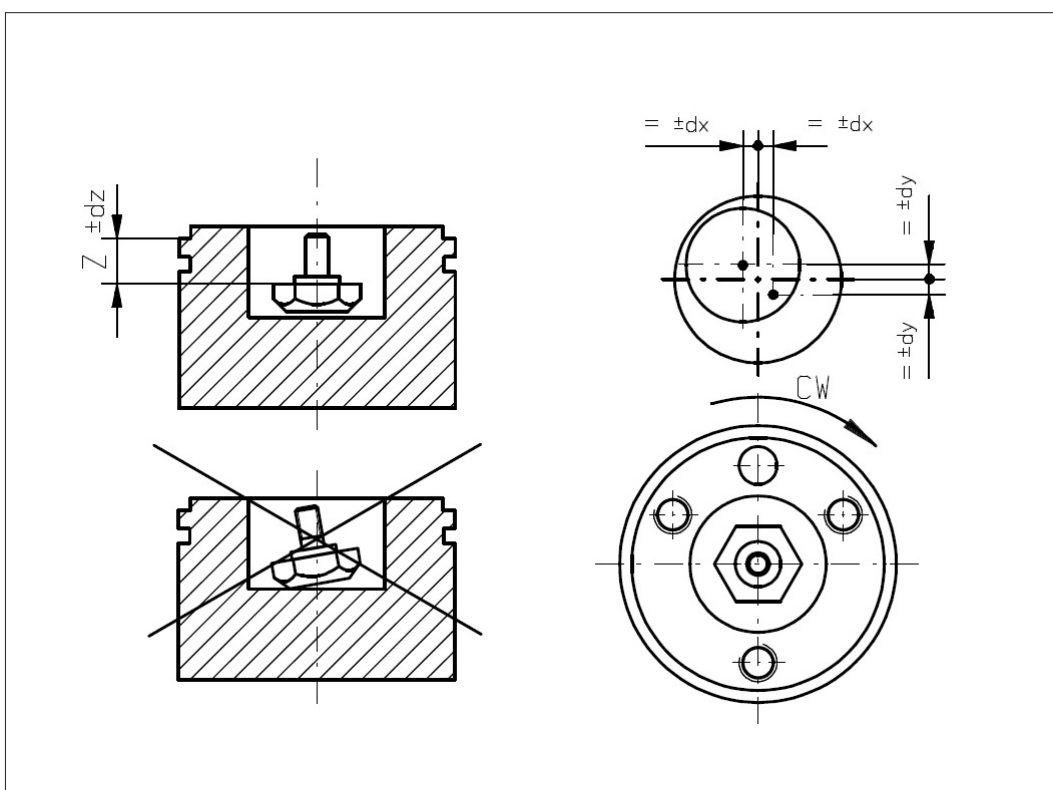
**Vert-X 37E1**  
**Mounting information**

**Working position (Z)**

MH-C	4.95mm
MH-C redundant	5.45mm

**Max. permitted misalignment of the magnetic actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



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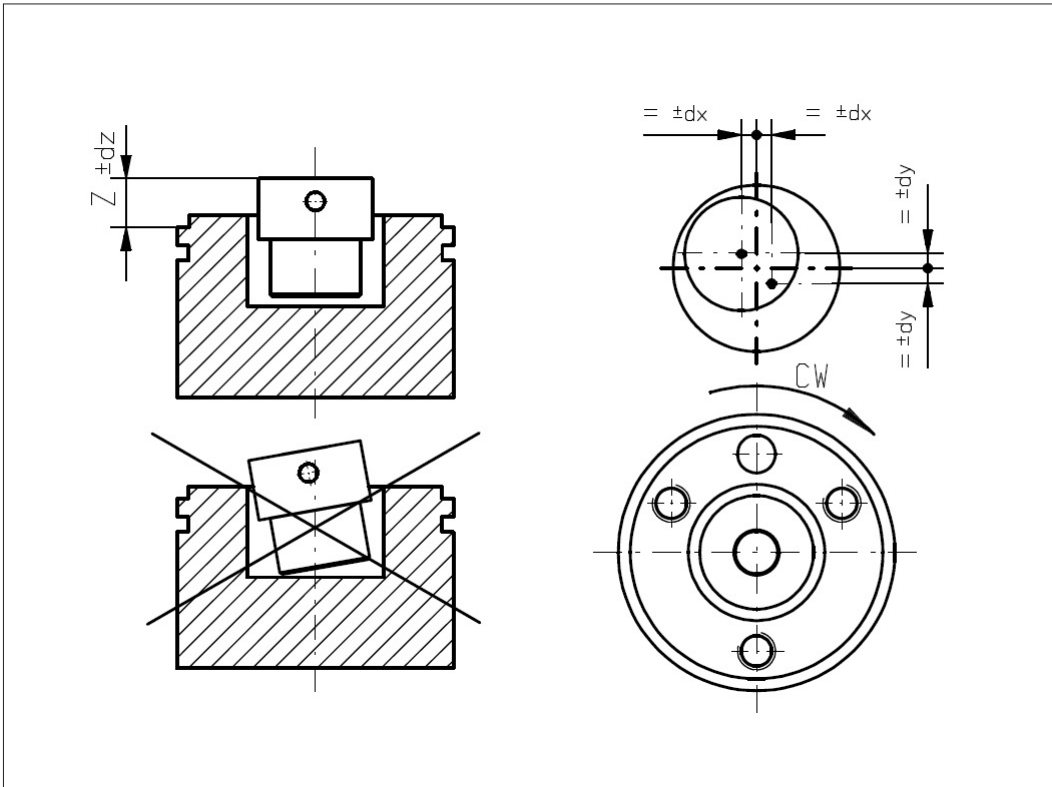
**Vert-X 37E2**  
**Mounting information**

**Working position (Z)**

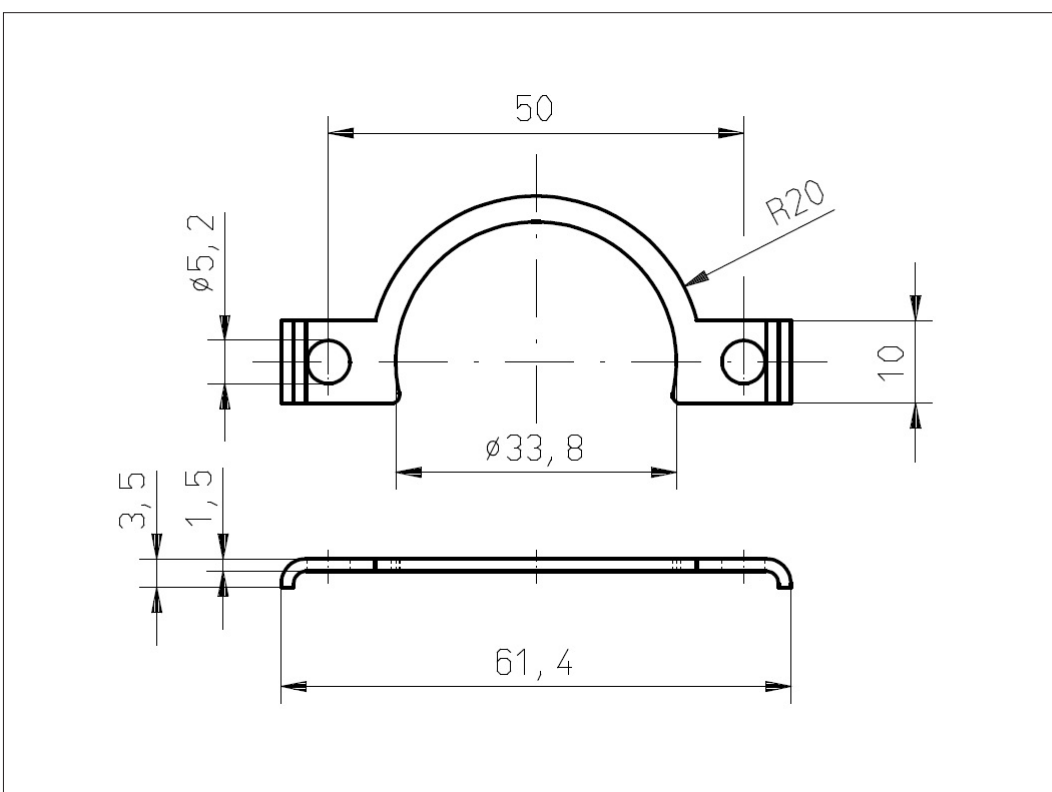
MH-C	6.45mm
MH-C redundant	5.95mm

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

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



**Vert-X 37E**  
**Accessoires**  
**Fixation clip**



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