



## Vert-X 22E - 24V / 0.1 - 10V

### Applications

- Wind vanes
- Valve control
- Level sensor
- Special purpose vehicles

### Features general

- High protection class IP68
- Flat design
- Non-contacting measuring method
- Very long life
- High accuracy of measurement
- Use in cramped installation conditions
- Full resolution and accuracy at programmed electrical angle

### Features MH-C

- Resolution of 12bit
- Lower price than MH-C2

### Features MH-C2

- Resolution of 14bit
- Index point(s), sense of rotation and angle settable resp. programmable by customer (optional)

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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	0 ... 360
Indep. linearity (without misalignment)	% of meas. range	±0.3	±0.3
Indep. linearity (with allowed misalignment @ 360°)	% of meas. range	±0.5	±0.5
Max. hysteresis	°	0.1	0.1
Resolution	bit	12	14
Max. repeatability	°	0.1	0.1
Sample rate fast mode	kHz	(5)	(2)
Sample rate slow mode	kHz	1.66	0.5
System propagation delay fast mode	µs	(800)	(800)
System propagation delay slow mode	µs	4600	2500
Max. temperature coefficient of the output signal	ppm/°K	100	100
MTTFd / MTBF	years	185 / 185	147 / 147
Power supply voltage	VDC	10.8 ... 35	11 ... 35
Current consumption without load (typ.) fast mode	mA	(19)	(20)
Current consumption without load (typ.) slow mode	mA	14	15
Min. ohmic load at output	kOhm	10	10
Max. capacitive load at output	nF	100	100
Reverse polarity protection of power supply		yes	yes
Electrical connection axial		Wires (3x)	Wires (3x)
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	0.25 (AWG24)
Electrical connection radial		Cable 3pole	Cable 3pole
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	0.25 (AWG24)
Redundancy feasible		no	no
Electrical connection redundant axial		-	-
Cross section of single wires redundant	mm <sup>2</sup>	-	-
Electrical connection redundant radial		-	-
Cross section of single wires redundant	mm <sup>2</sup>	-	-
<b>Mechanical data</b>			
Mechanical range	°	360 (continuous)	360 (continuous)
Protection class		IP68	IP68
Min. life	movements	no limitation	no limitation
Operating & storage temperature	°C	-40 ... +85	-40 ... +85
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	50	50
IEC 68-2-27 Shock	g	200	200
<b>Standards</b>			
EN 55022 class B, Emission radiated (30... 230 MHz)	dB(µV/m)	max. 30	max. 30
EN 55022 class B, Emission radiated (230...1000MHz)	dB(µV/m)	max. 37	max. 37
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	±4 / ±8	±4 / ±8
EN 61000-4-3, Immission HF radiated (80... 1000 MHz)	V/m	30	30
EN 61000-4-4, Burst (on all lines)	kV	±1	±1
EN 61000-4-5, Surge (lines to ground)	kV	±1	±1
EN 61000-4-6, Immission HF conducted (0.15...80MHz)	Vemk	10	10
EN 61000-4-8, Immission magnetic field (50Hz)	A/m	30	30
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	20
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	1



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**Ordering code**

**\* Switch outputs**  
 Please define number (max. 127), position and width of the pulses.

Output characteristics		Electrical connection / axial	
Positive gradient CW	Standard 1	3 Optional	Wires 4pole
Positive gradient CCW	Optional 2	5 Standard	Wires 3pole
Redundant, positive gradient CW	Optional 3	7 Optional	Ribbon cable 6pole
Redundant, positive gradient CCW	Optional 4	9 Optional	Special cable ; special wires
Redundant, crossed signal curves	Optional 5	<b>Electrical connection / radial</b>	
Positive gradient CW with 1 switch output*	Optional A	4 Standard	Round cable 3pole
Positive gradient CCW with 1 switch output*	Optional B	6 Optional	Round cable 6pole
Positive gradient CW with 2 switch outputs*	Optional C	9 Optional	Special cable ; special wires
Positive gradient CCW with 2 switch outputs*	Optional D	<b>Length of wires / ribbon cable</b>	
Sense of rotation settable	Optional E	01 Optional	10cm
Zero point & sense of rotation settable	Optional F	03 Optional	30cm
Middle point & sense of rotation settable	Optional G	05 Standard	50cm
Start + end point & sense of rotation settable	Optional H	99 Optional	Special length
Programmable with Vert-X EasyAdapt	Optional P	<b>Length of cable</b>	
		02 Standard	1.0m
		06 Optional	3.0m
		10 Optional	5.0m
		99 Optional	Special length

Output signal	
0,1VDC ... 10VDC	Standard 1

Power supply voltage	
24VDC	Standard 1

**Vert-X** 2 2 E 2 7 3 6 1 1 1 5 0 5

Electrical angle	
36 Standard	Electrical angle 360°
xx Optional	03 to 35; Declaration in 10° steps
99 Optional	Special angle

Sensor principle	
7 MH-C	
8 MH-C2	

Mechanical version	
22E1 Optional	Servo mount size 9 ; magnetic actuator type 1
22E2 Standard	Servo mount size 9 ; magnetic actuator type 2
22E9 Optional	Special housing ; special magnetic actuator

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

**Options (on request)**

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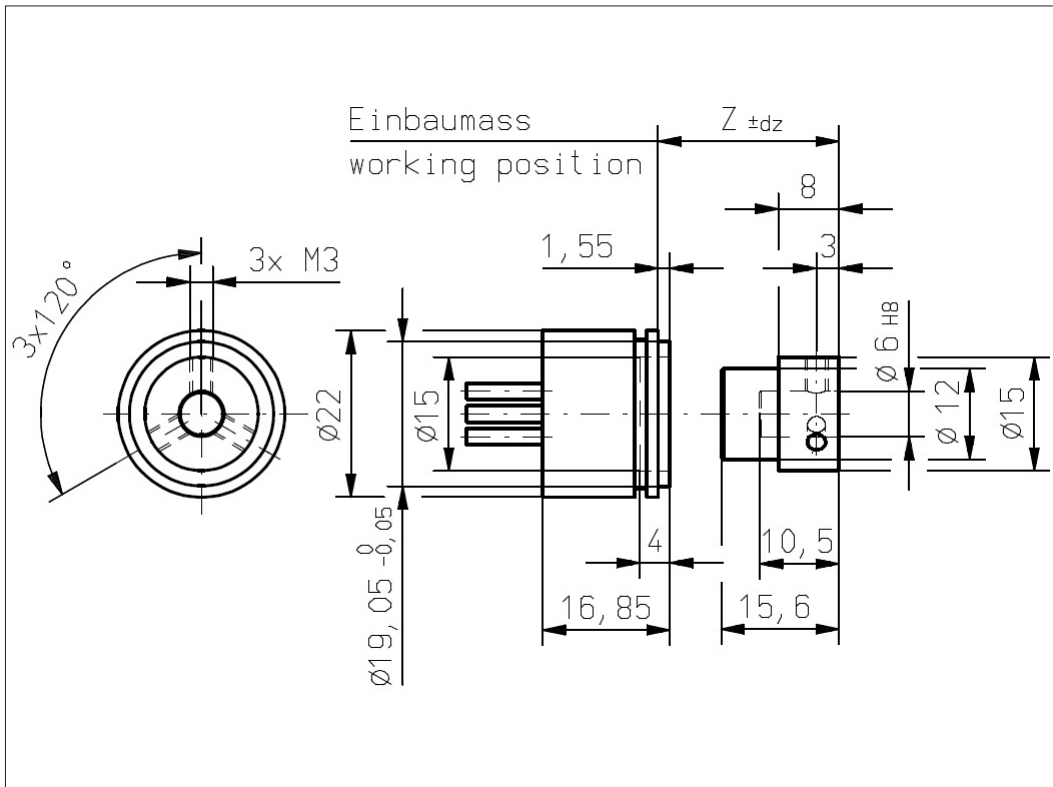
**Vert-X 22E2 xxx xxx 5xx  
Vert-X 22E2 xxx xxx 7xx**

**Accessoires (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8

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

see mounting information



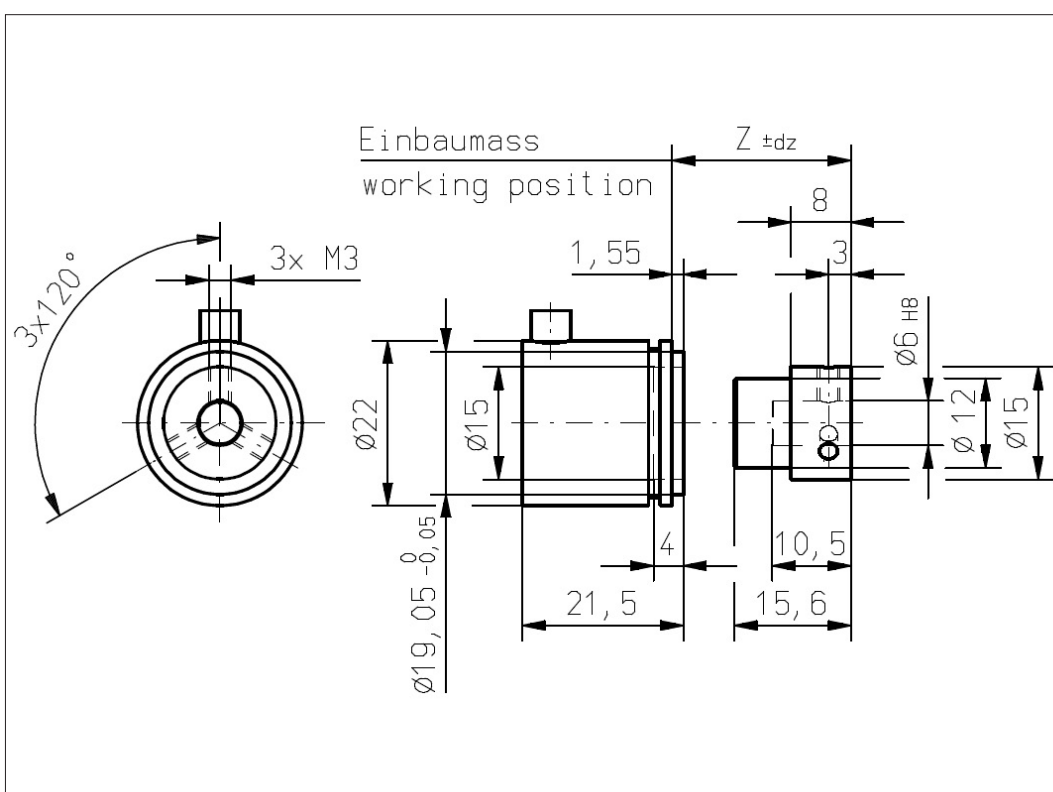
**Vert-X 22E2 xxx xxx 4xx  
Vert-X 22E2 xxx xxx 6xx**

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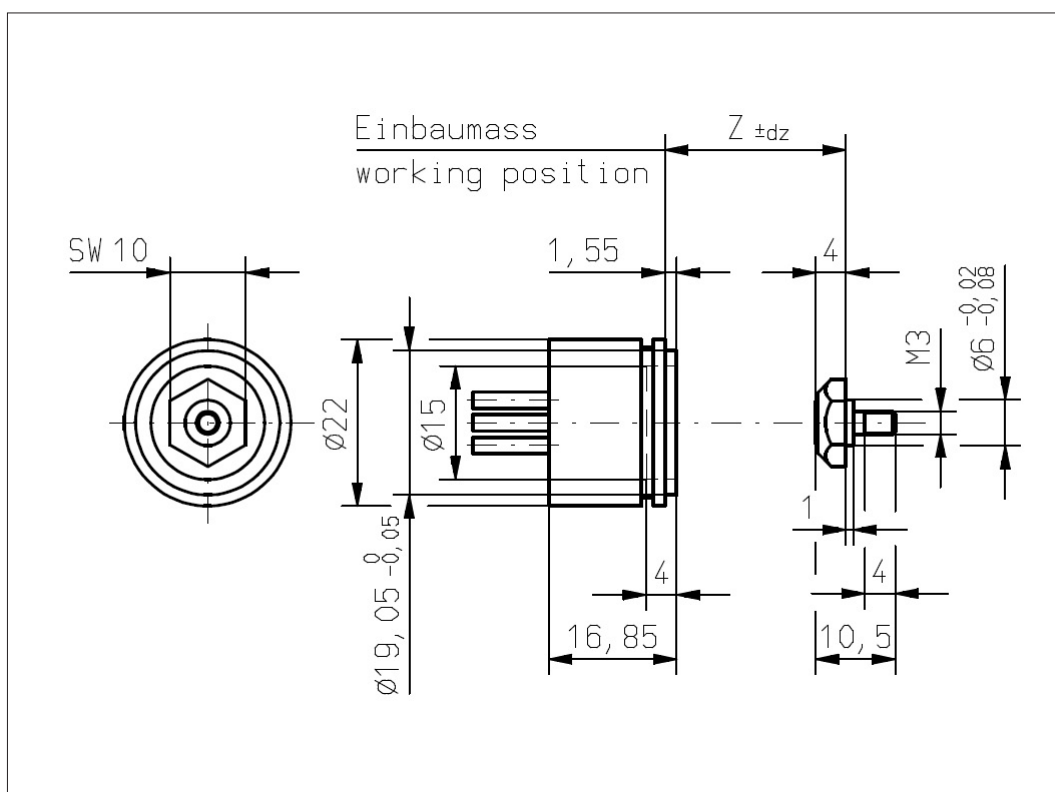
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**Vert-X 22E2 xxx xxx 7xx**

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see mounting information



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**Vert-X 22E2 xxx xxx 6xx**

**Accessoires (incl.)**

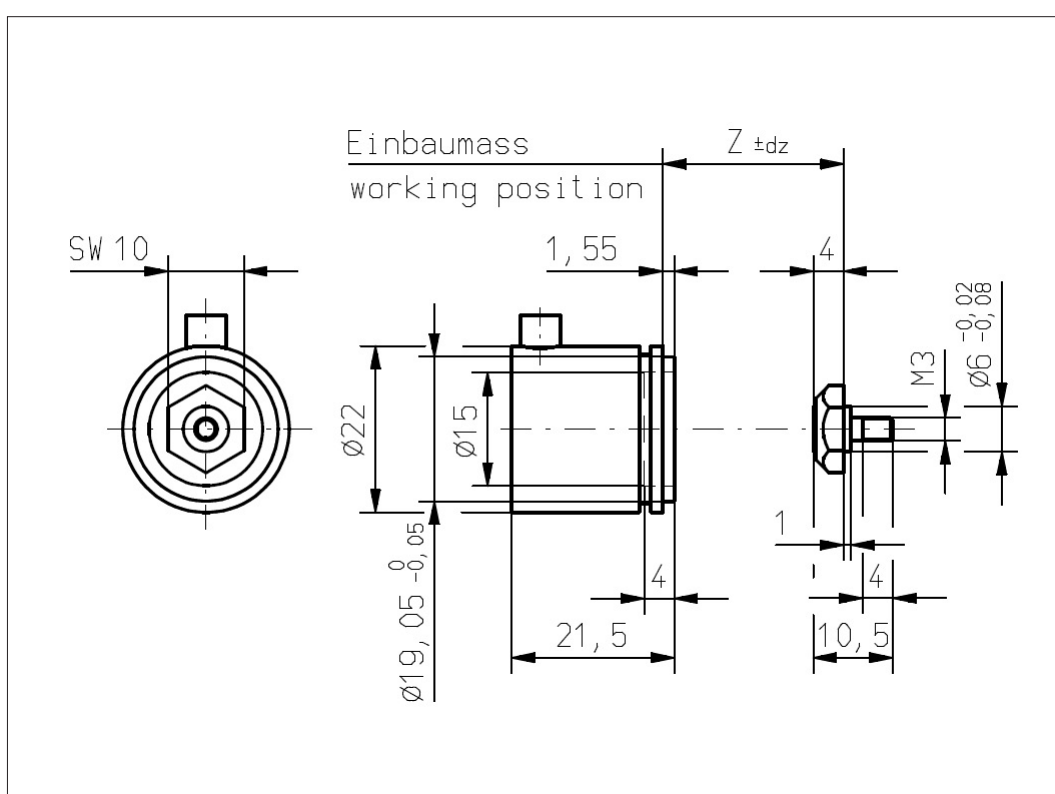
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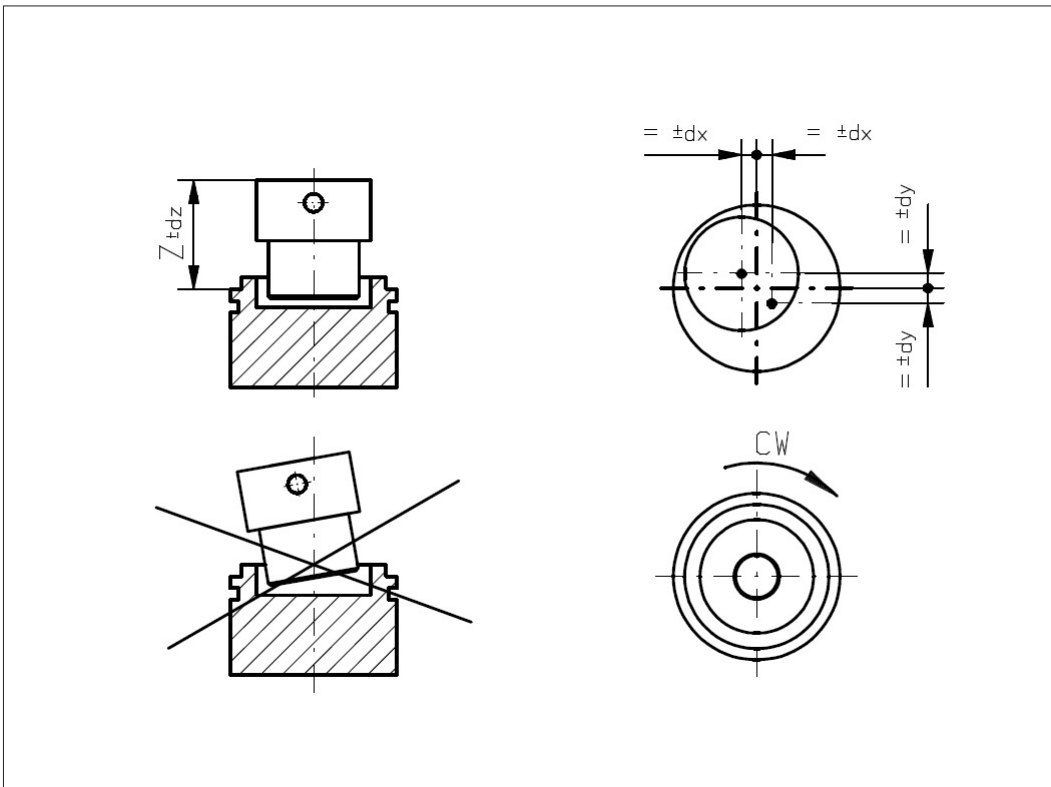
**Vert-X 22E2**  
**Mounting information**

**Working position (Z)**

MH-C	14.40mm
MH-C2	14.40mm

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

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



**Vert-X 22E1**  
**Mounting information**

**Working position (Z)**

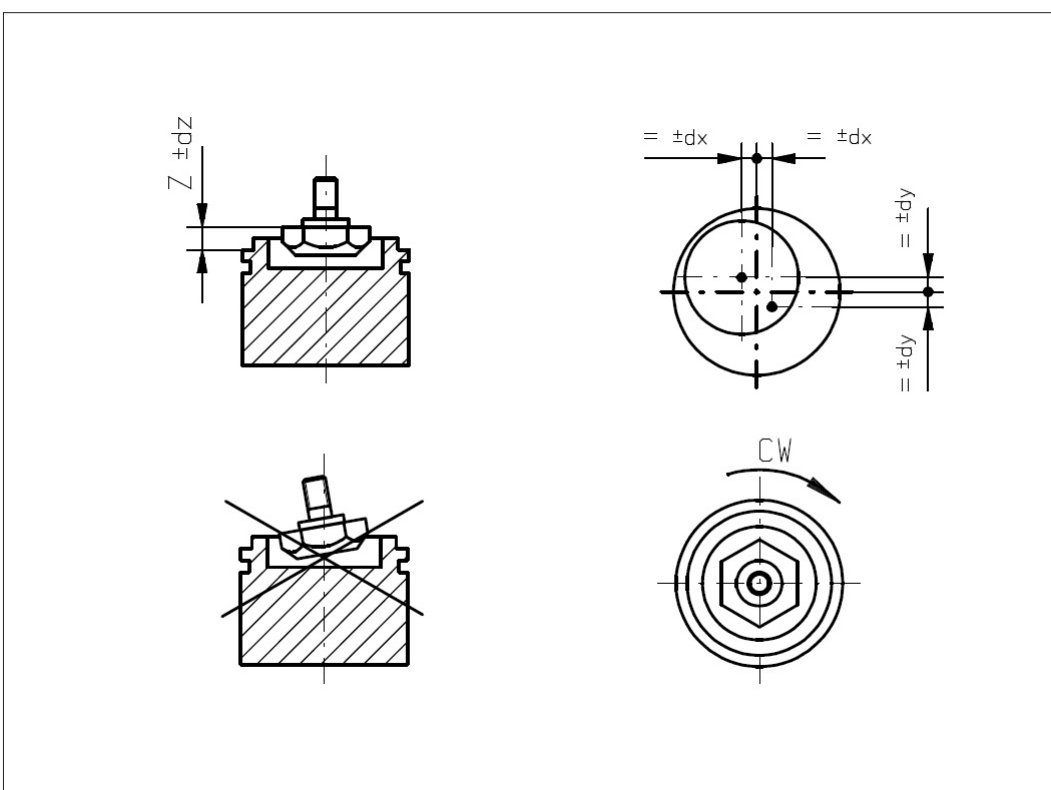
MH-C	3.00mm
MH-C2	3.00mm

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

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm

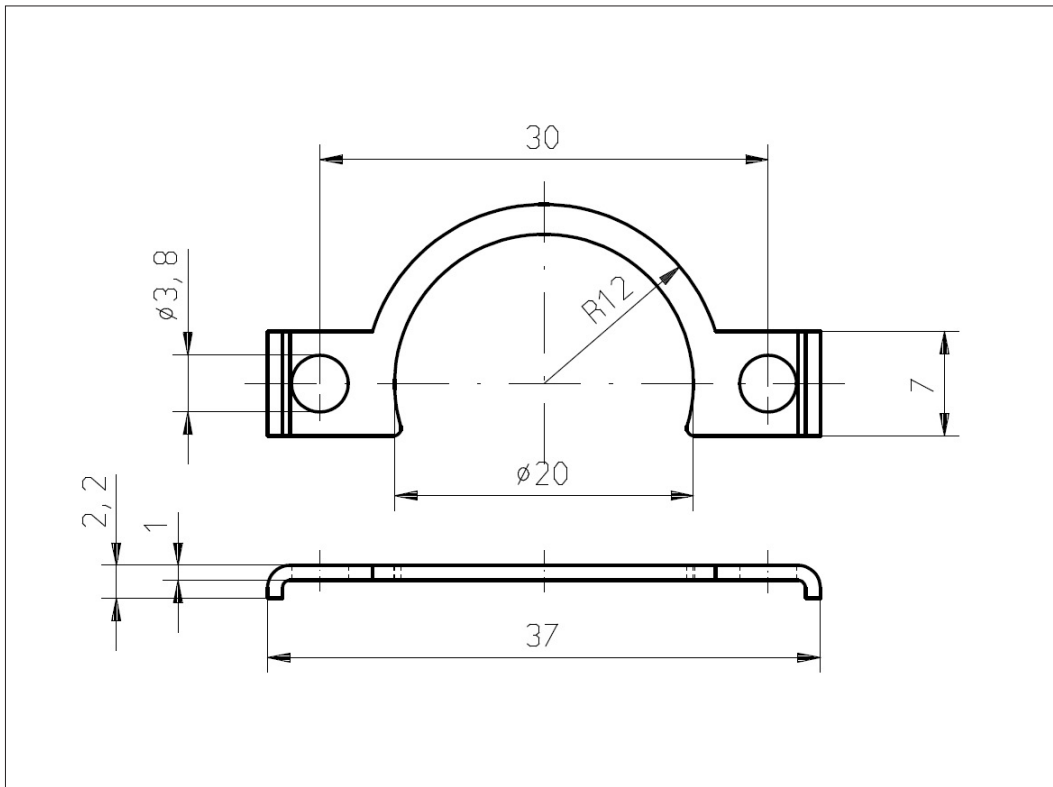
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**Vert-X 22E**  
**Accessoires**  
Fixation clip



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