

Vert-X 31E 24V / 4 - 20mA

Applications

- Concrete pump
- Access control system
- Fork lift

Features general

- 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

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)

Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

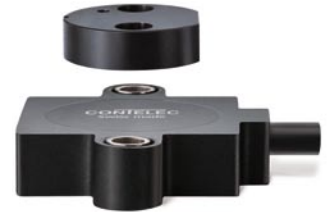
Contelec AG
 Portstrasse 38
 CH-2503 Biel/Bienne
 Phone +41 (0)32 3665600
 Telefax +41 (0)32 3665604
 sales@contelec.ch

CONTELEC
 A company of the Siedle-Group

Sensor principle		MH-C	MH-C2
Electrical data			
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	16 ... 35	16 ... 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	0 ... 0.5	0 ... 0.5
Max. capacitive load at output	nF	100	100
Reverse polarity protection of power supply		yes	yes
Electrical connection		Cable 3pole	Cable 3pole
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		no	no
Electrical connection redundant		-	-
Cross section of single wires redundant	mm ²	-	-

Mechanical data			
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

Standards			
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	300	300
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	20
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	1



Vert-X 31E 24V / 4 - 20mA
Ordering code

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

Vert-X 31E 24V / 4 - 20mA														
Output characteristics														
	Positive gradient CW	Standard	1											
	Positive gradient CCW	Optional	2											
	Positive gradient CW with 1 switch output*	Optional	A											
	Positive gradient CCW with 1 switch output*	Optional	B											
	Positive gradient CW with 2 switch outputs*	Optional	C											
	Positive gradient CCW with 2 switch outputs*	Optional	D											
	Sense of rotation settable	Optional	E											
	Zero point & sense of rotation settable	Optional	F											
	Middle point & sense of rotation settable	Optional	G											
	Start + end point & sense of rotation settable	Optional	H											
	Programmable with Vert-X EasyAdapt	Optional	P											
Electrical connection														
	4	Standard	Cable 3pole											
	6	Optional	Cable 6pole											
	9	Optional	Special cable ; Special wires											
Length of cable														
	02	Standard	1.0m											
	06	Optional	3.0m											
	10	Optional	5.0m											
	99	Optional	Special length											
Output signal														
	4mA ... 20mA	Standard	5											
Power supply voltage														
	24VDC	Standard	1											
Vert-X	3	1	E	6	a	7	3	6	1	5	1	4	0	2
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												
Mounting hole														
	a	Standard	Through-hole ø 4.4mm											
	b	Optional	Through-hole ø 4.4mm with counterbore ø 7.4mm											
Mechanical version														
	31E5	Standard	Magnetic actuator type 5											
	31E6	Standard	Magnetic actuator type 6											
	31E7	Optional	Magnetic actuator type 7											
	31E9	Optional	Special magnetic actuator											

	MH-C	MH-C2
Custom magnetic actuator	X	X
Custom cable	X	X
Sample rate in fast mode	X	X
Switch functions TTL (max. 2)	-	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)

Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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



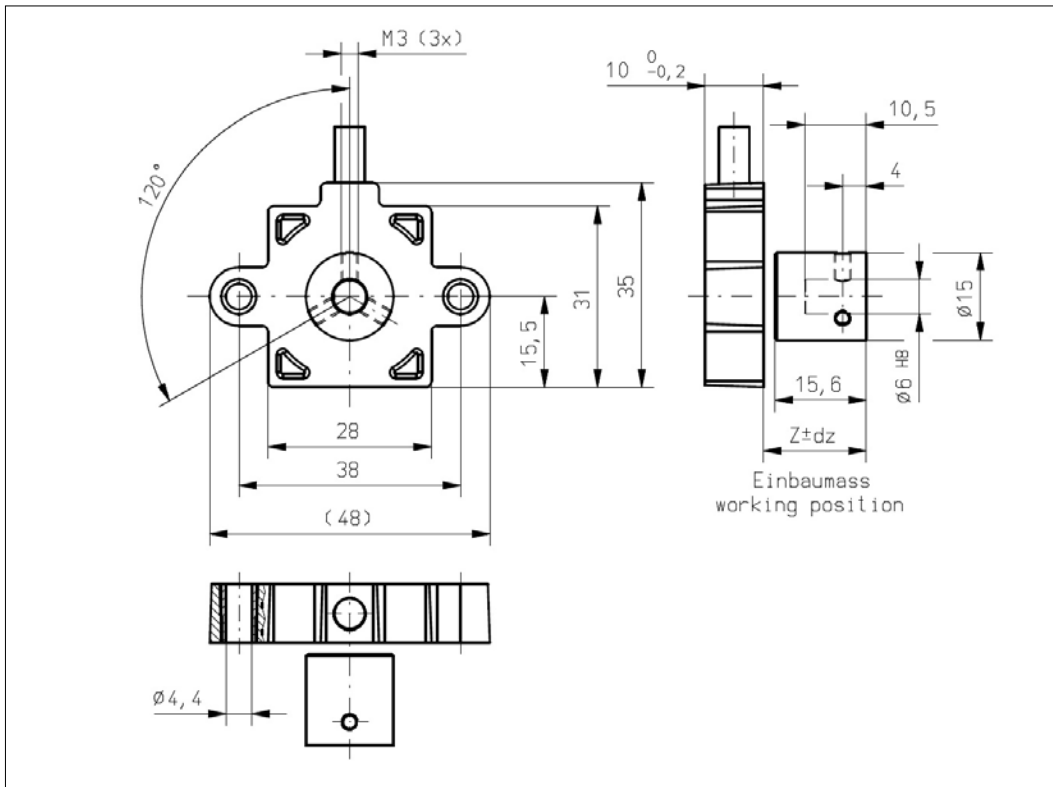
Vert-X 31E5axxx xxx 4xx
Vert-X 31E5axxx xxx 6xx

Accessoires (incl.)

- None

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

see mounting information



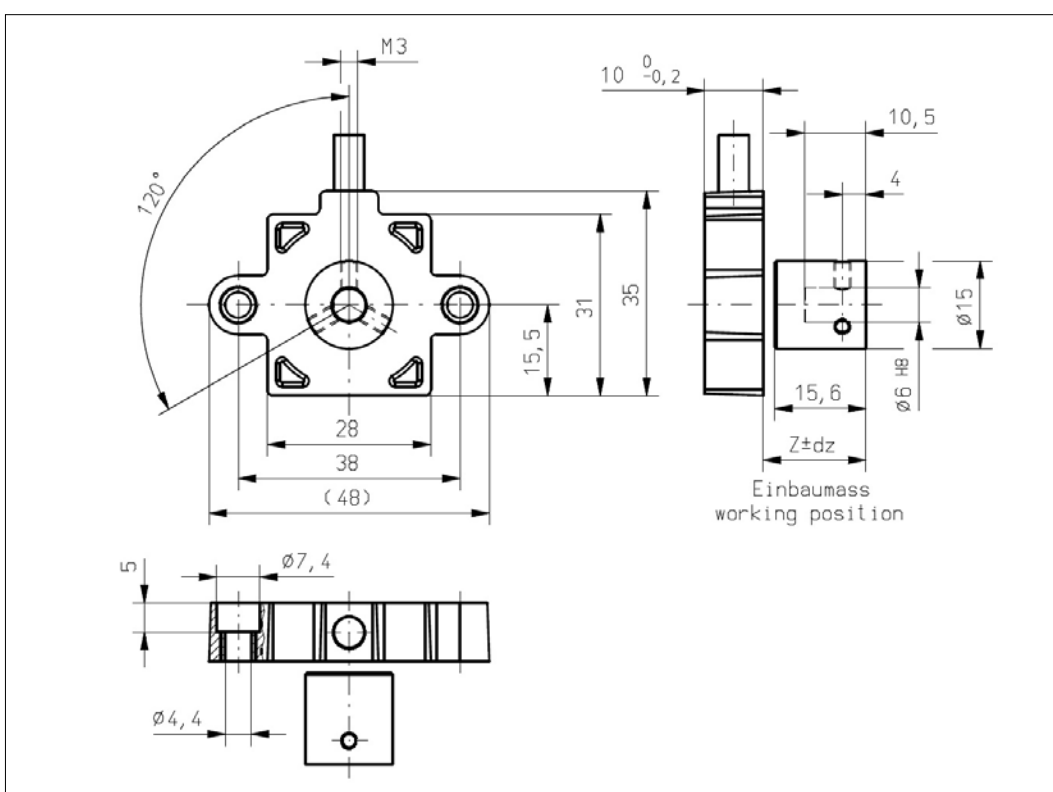
Vert-X 31E5bxxx xxx 4xx
Vert-X 31E5bxxx xxx 6xx

Accessoires (incl.)

- None

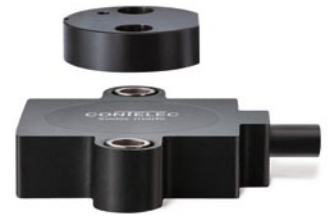
Working position (Z) and max. permitted misalignment of the magnetic actuator

see mounting information



Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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



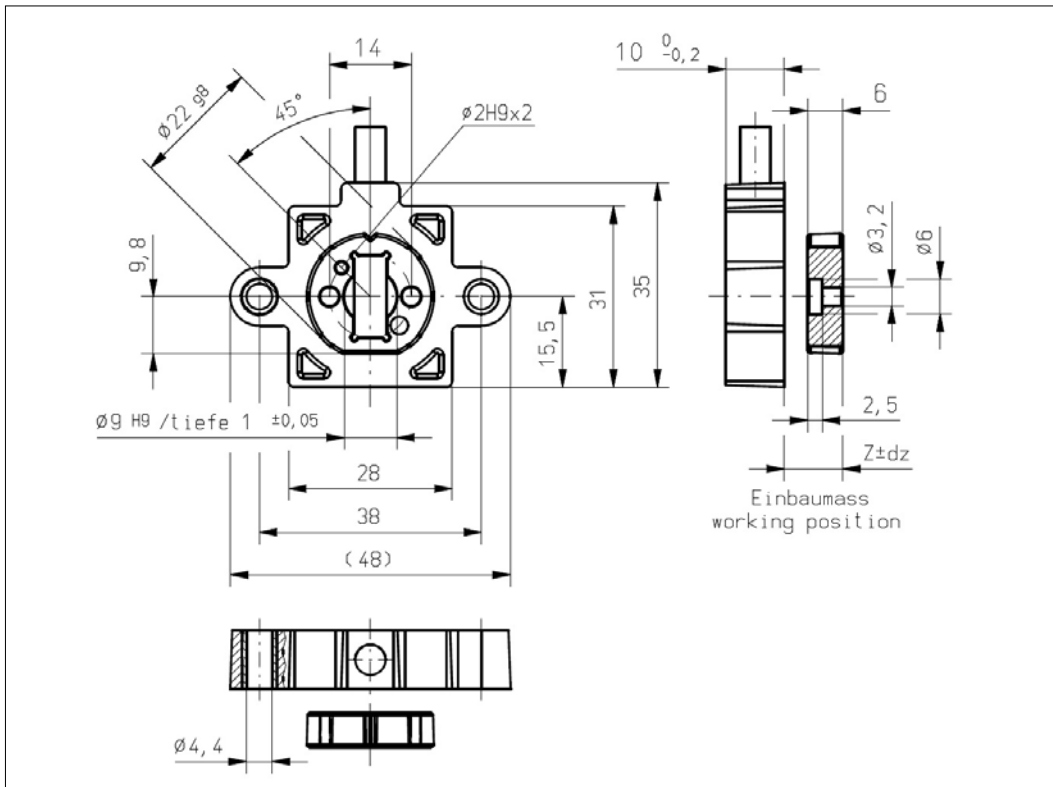
Vert-X 31E6axxx xxx 4xx
Vert-X 31E6axxx xxx 6xx

Accessoires (incl.)

- None

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

see mounting information



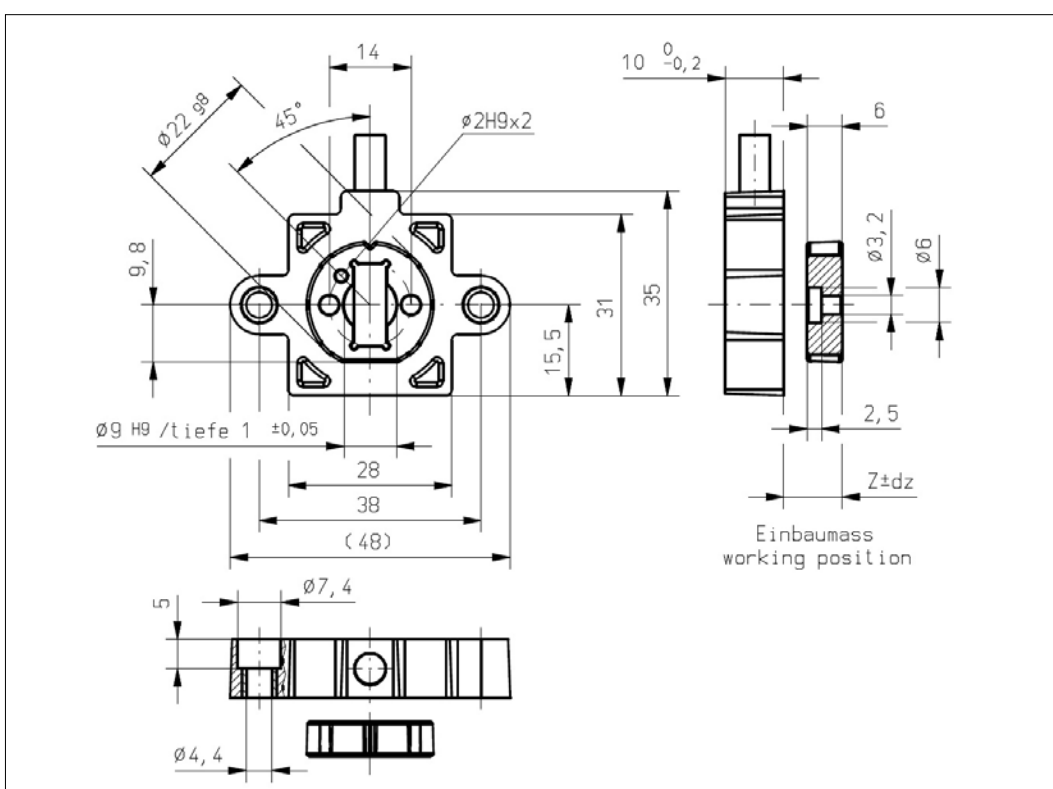
Vert-X 31E6bxxx xxx 4xx
Vert-X 31E6bxxx xxx 6xx

Accessoires (incl.)

- None

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

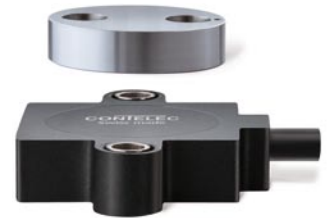
see mounting information



Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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



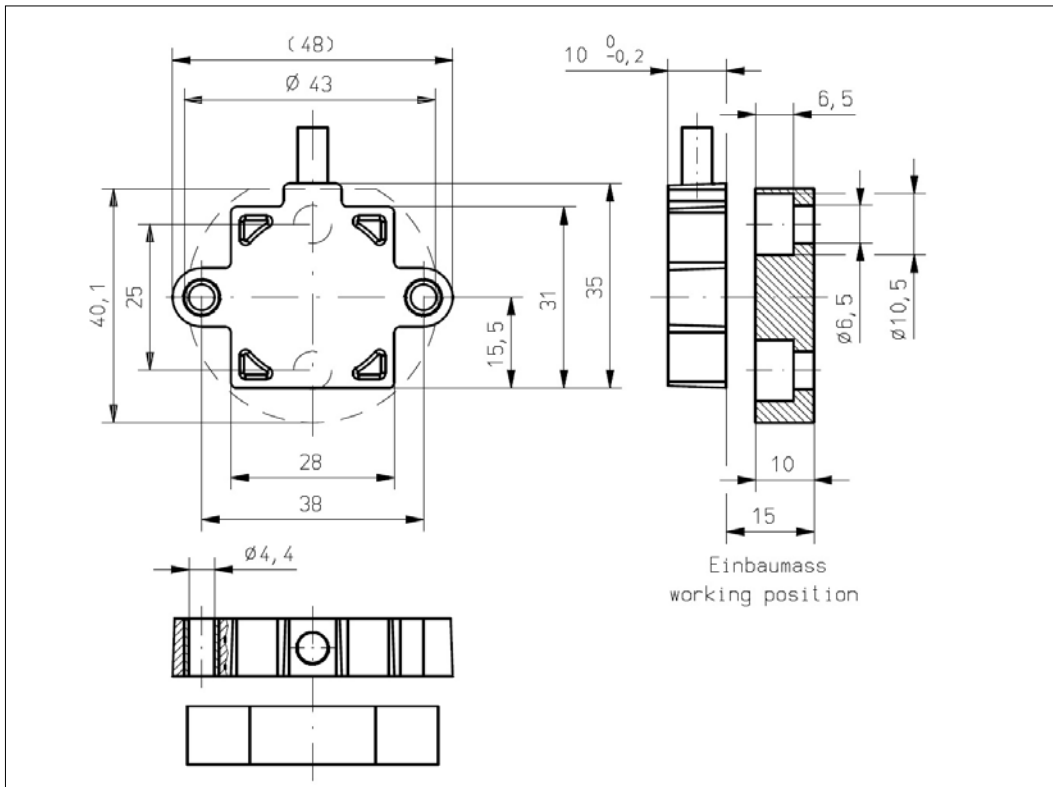
Vert-X 31E7axxx xxx 4xx
Vert-X 31E7axxx xxx 6xx

Accessoires (incl.)

- None

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

see mounting information



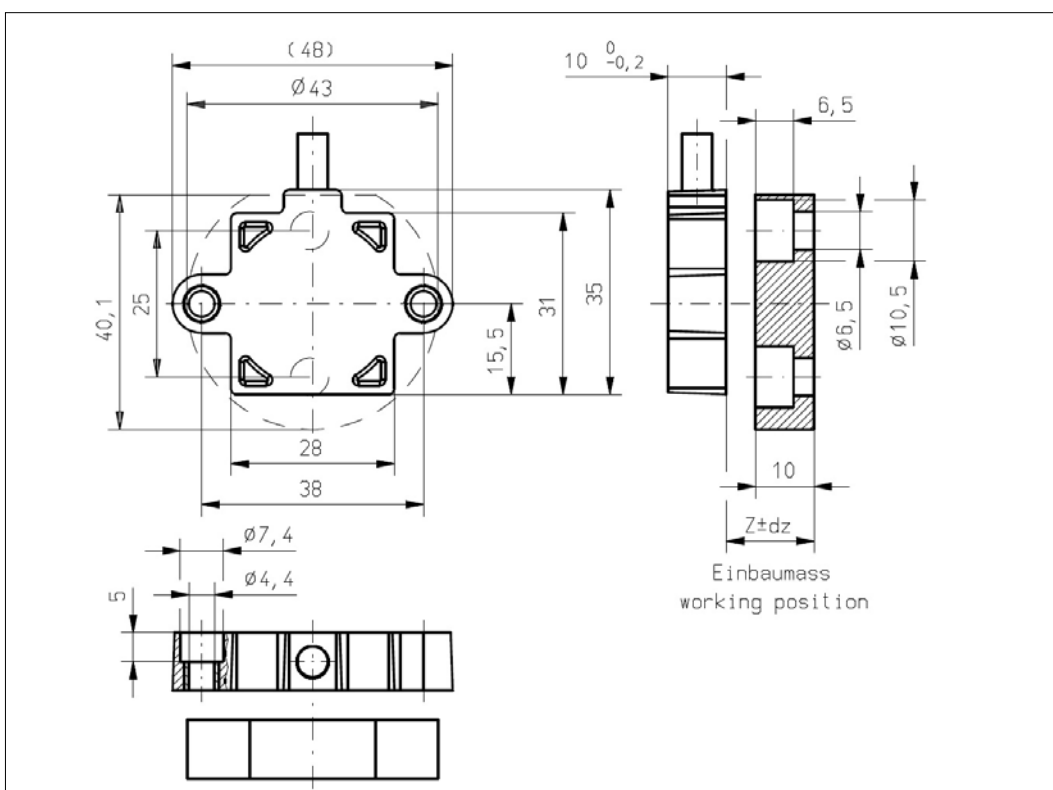
Vert-X 31E7bxxx xxx 4xx
Vert-X 31E7bxxx xxx 6xx

Accessoires (incl.)

- None

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

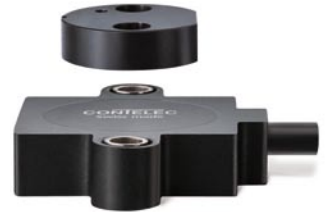
see mounting information



Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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 31E5

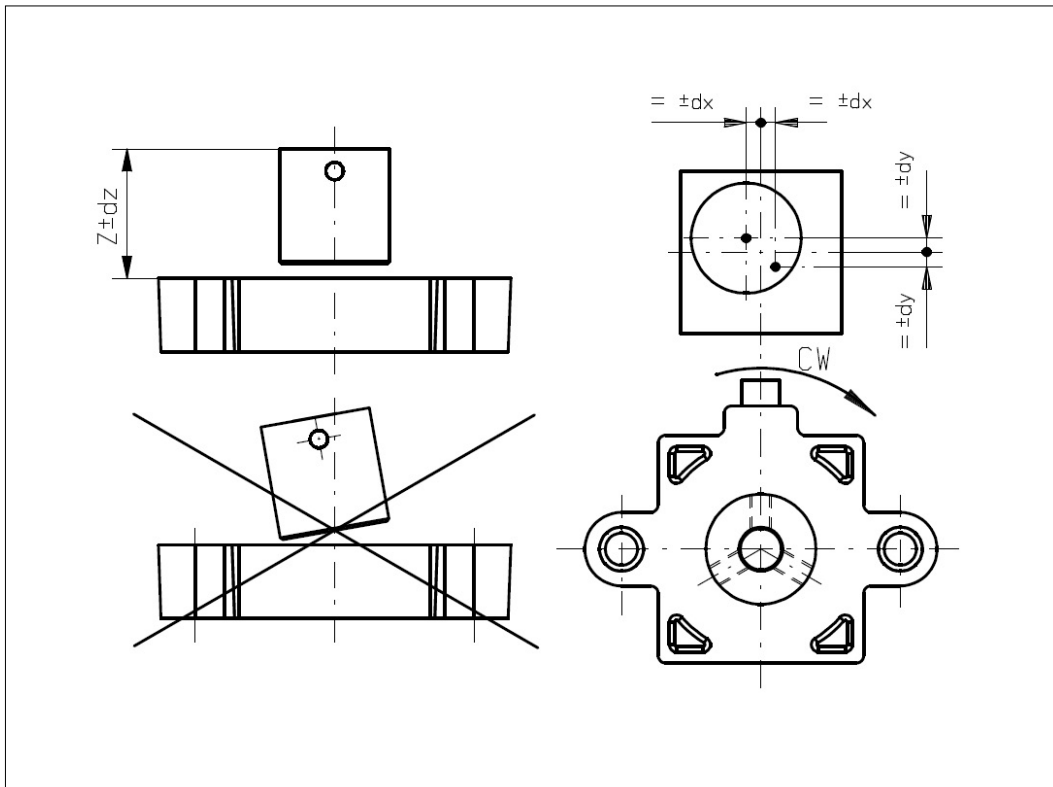
Mounting information

Working position (Z)

MH-C	17.50mm
MH-C2	17.50mm

Max. permitted misalignment of the magnetic actuator

dx	±0.50mm
dy	±0.50mm
dz	±1.00mm



Vert-X 31E6

Mounting information

Working position (Z)

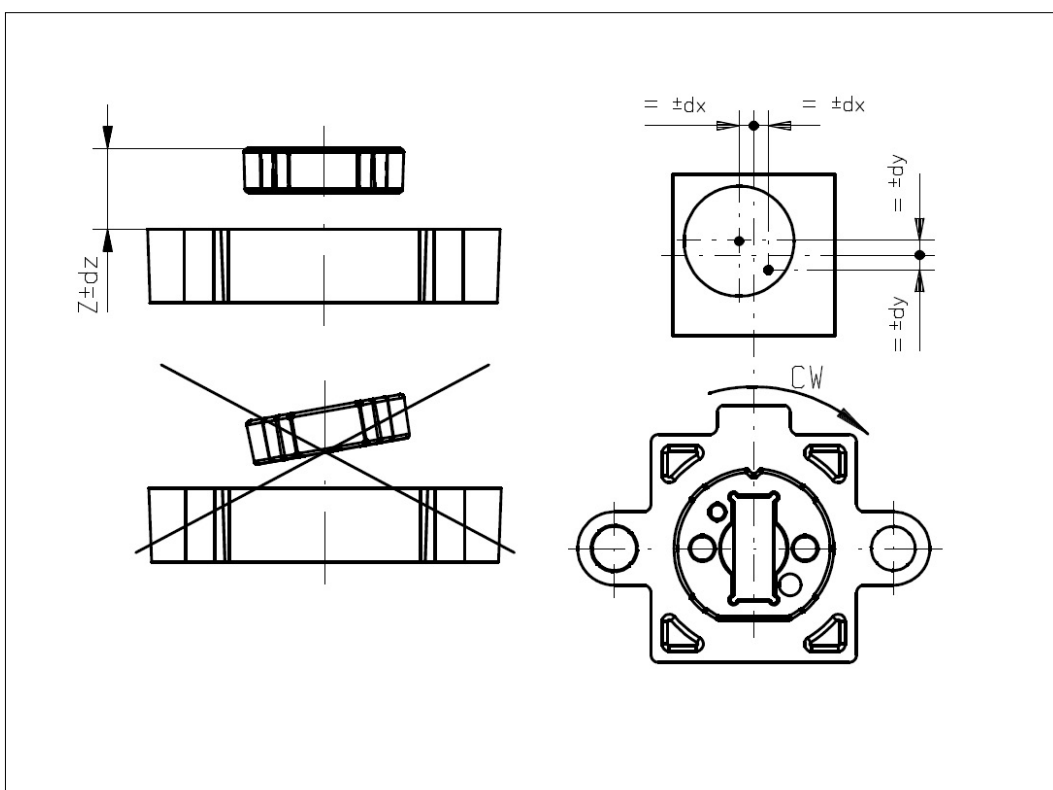
MH-C	7.50mm
MH-C2	7.50mm

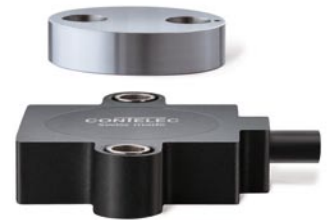
Max. permitted misalignment of the magnetic actuator

dx	±0.50mm
dy	±0.50mm
dz	±0.75mm

Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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





Vert-X 31E7

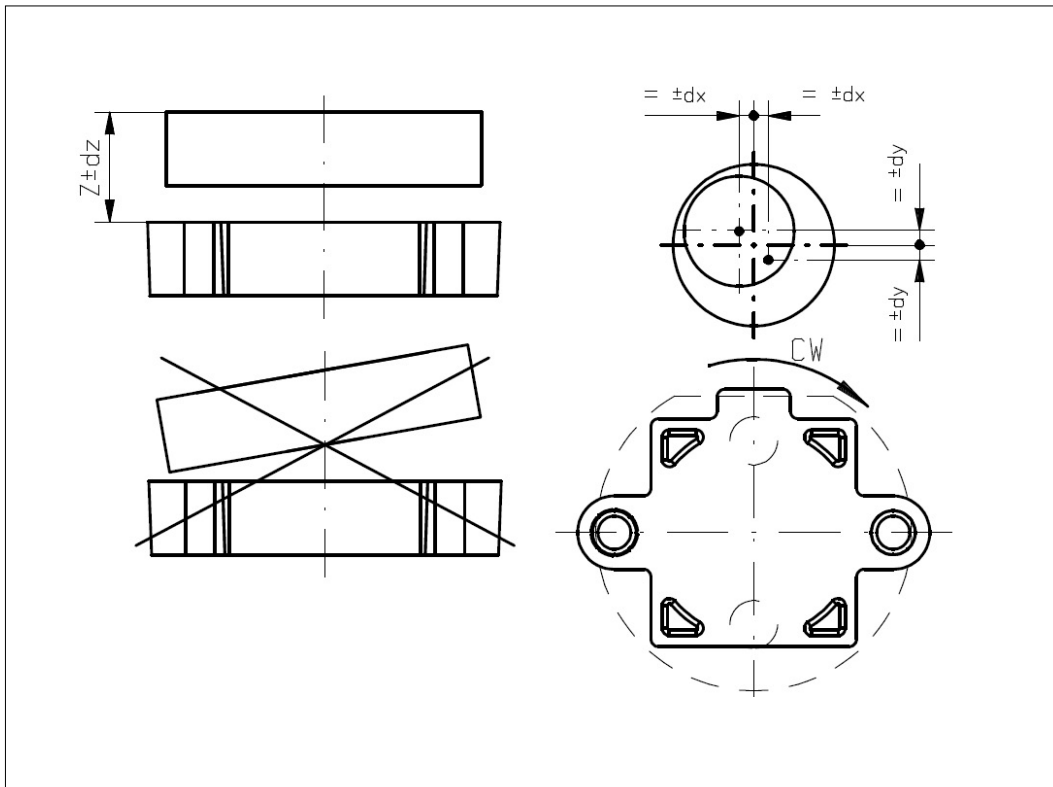
Mounting information

Working position (Z)

MH-C	15.80mm
MH-C2	15.80mm

Max. permitted misalignment of the magnetic actuator

dx	±1.00mm
dy	±1.00mm
dz	±2.00mm



Errors and omissions excepted. Subject to change without notice. / State: 13.07.11

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