

Vert-X 31E 5V / 10...90% Ub

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
- Full redundancy possible
- 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

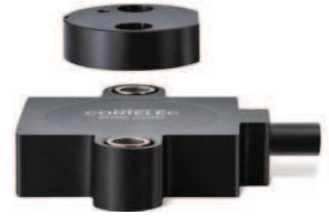
Sensor principle		MH-C	MH-C2
Electrical data			
Measuring range	°	0 ... 360	0 ... 360
Indep. linearity (without misalignment)	% of meas. range	±0.3	±0.3
Indep. linearity (with allowed misalignment @ 360°)	% of meas. range	±0.5	±0.5
Max. hysteresis	°	0.1	0.1
Resolution	bit	12	14
Max. repeatability	°	0.1	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	50	50
MTTFd / MTBF	years	668 / 668	308 / 308
Power supply voltage	VDC	5 (±10%)	5 (±10%)
Current consumption without load (typ.) fast mode	mA	(14)	(15)
Current consumption without load (typ.) slow mode	mA	9	10
Min. ohmic load at output	kOhm	10	10
Max. capacitive load at output	nF	100	100
Reverse polarity protection of power supply		yes	no
Electrical connection		Cable 3pole	Cable 3pole
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		yes	no
Electrical connection redundant		Cable 6pole	-
Cross section of single wires redundant	mm ²	0.25 (AWG24)	-

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 5V / 10...90% Ub
Ordering code**

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

Output characteristics	
Positive gradient CW	Standard 1
Positive gradient CCW	Optional 2
Redundant, positive gradient CW	Optional 3
Redundant, positive gradient CCW	Optional 4
Redundant, crossed signal curves	Optional 5
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

Output signal	
10% ... 90% Ub	Standard 2
x% ... y% Ub (within 5 ... 95%)	Optional 3

Power supply voltage	
5VDC	Standard 2

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

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 acutator type 7
31E9	Optional Special magnetic actuator

Vert-X	
3	1 E 6 a 7 3 6 2 2 1 4 0 2

	MH-C	MH-C2
Custom magnetic actuator	X	X
Custom cable	X	X
Interface x% ... y% Ub (within 5% ... 95% Ub)	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



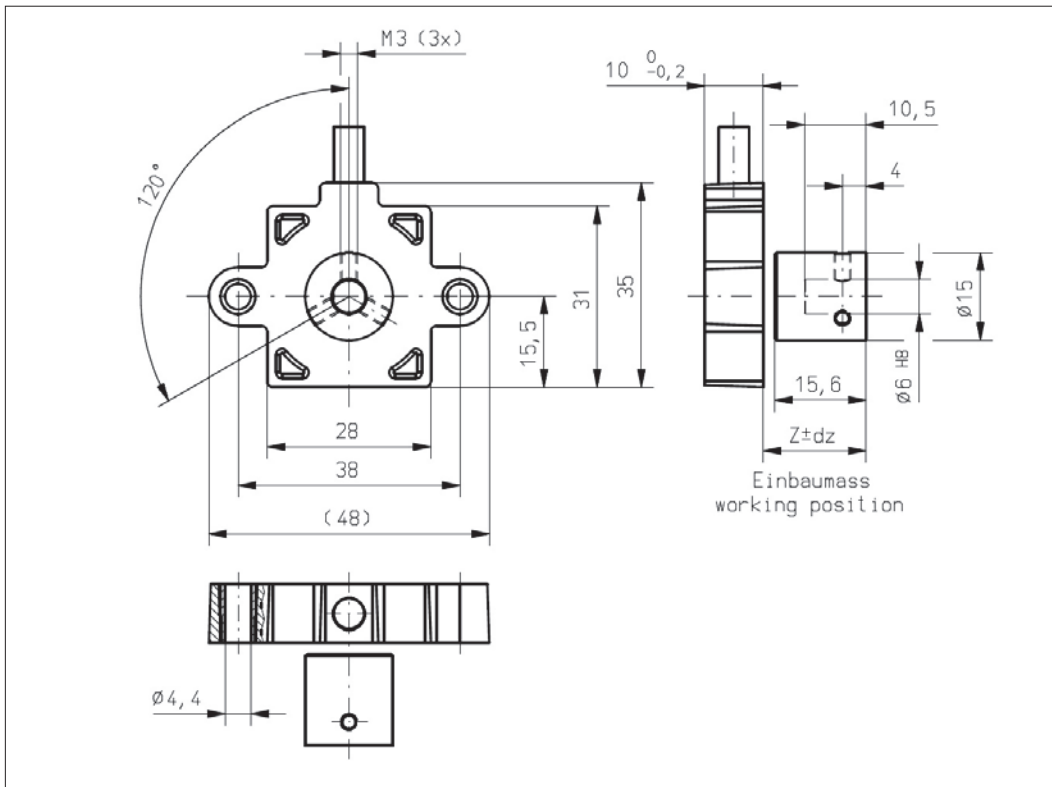
Vert-X 31E5axxx xxx 4xx
Vert-X 31E5axxx xxx 6xx

Accessoires (incl.)

- None

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

see mounting information



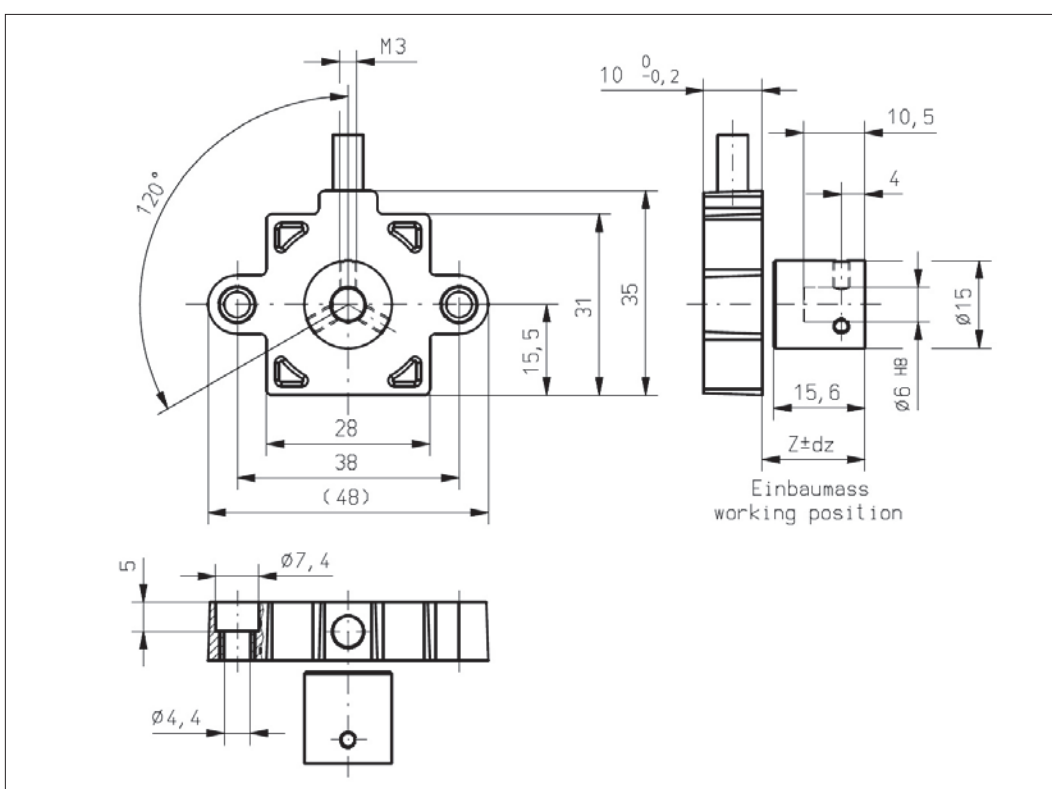
Vert-X 31E5bxxx xxx 4xx
Vert-X 31E5bxxx xxx 6xx

Accessoires (incl.)

- None

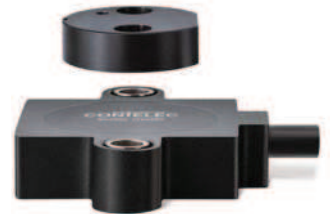
Working position (Z) and max. permitted misalignment of the magnetic actuator

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



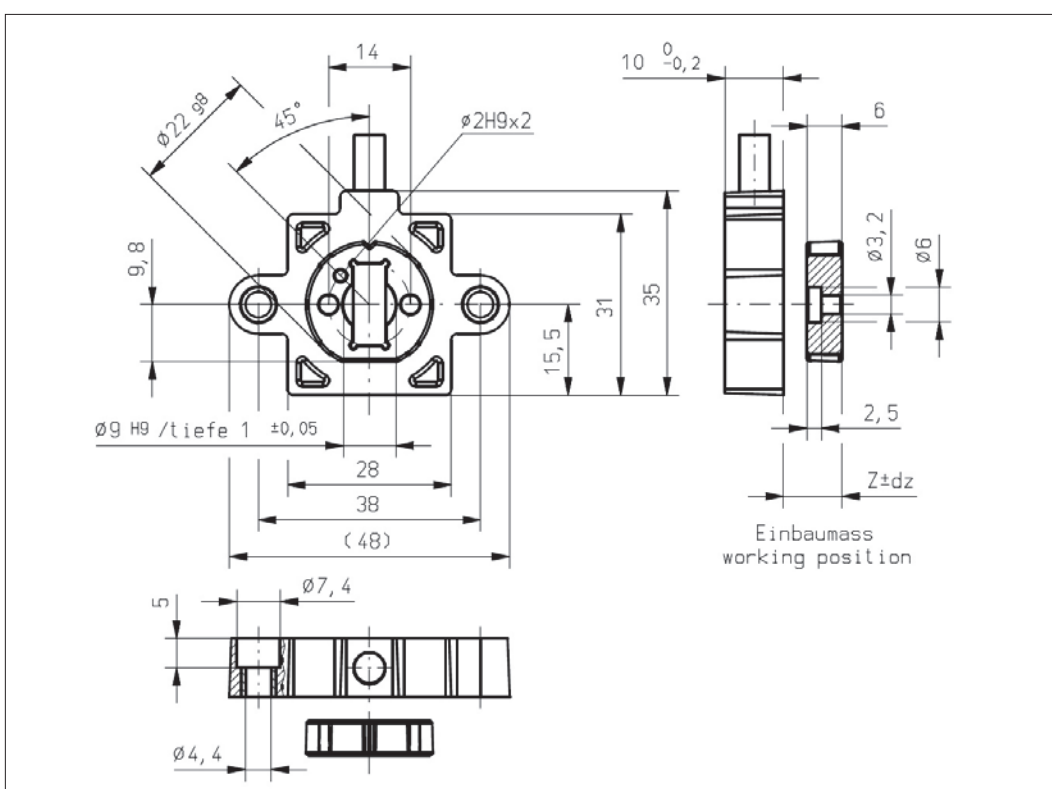
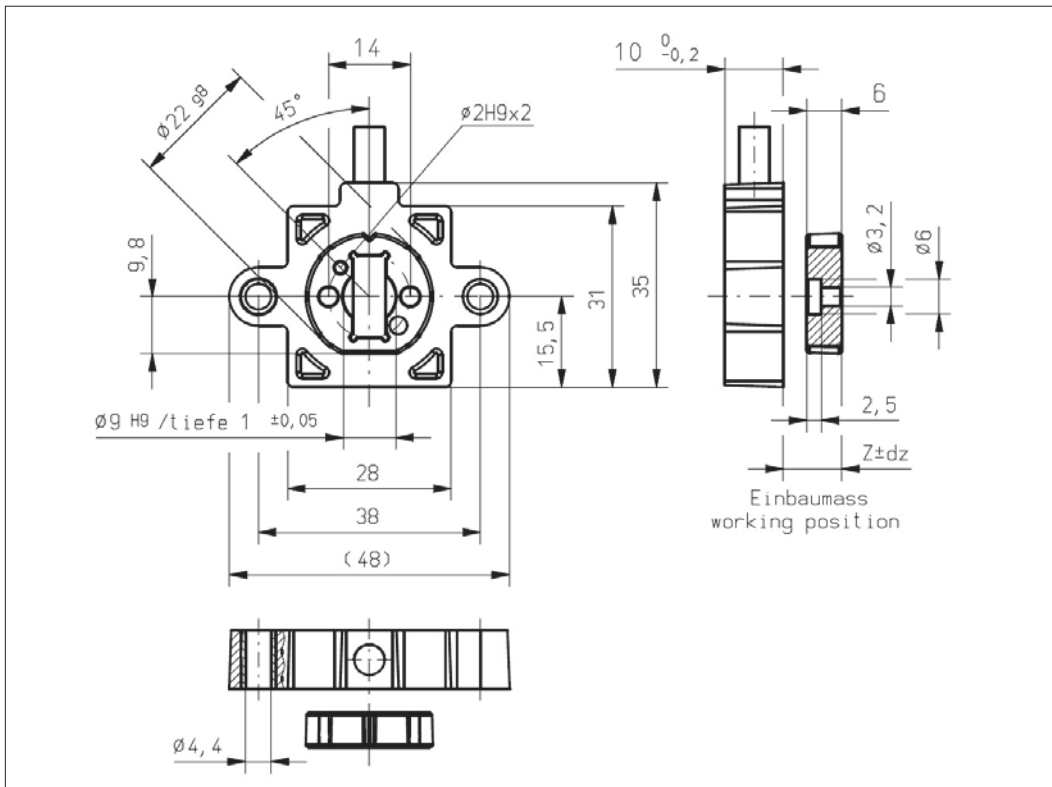
Vert-X 31E6axxx xxx 4xx
Vert-X 31E6axxx xxx 6xx

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

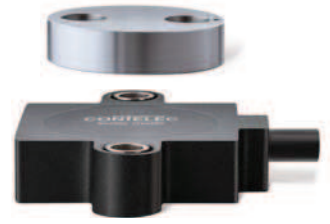
Working position (Z) and max. permitted misalignment of the magnetic actuator

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



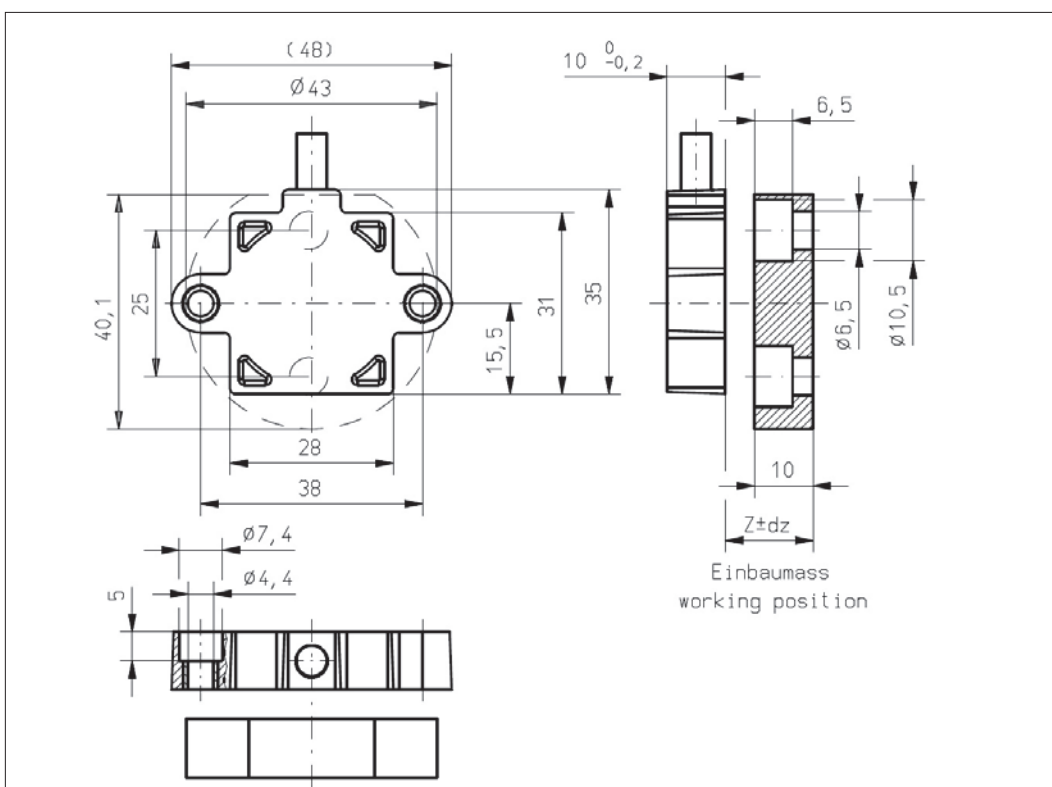
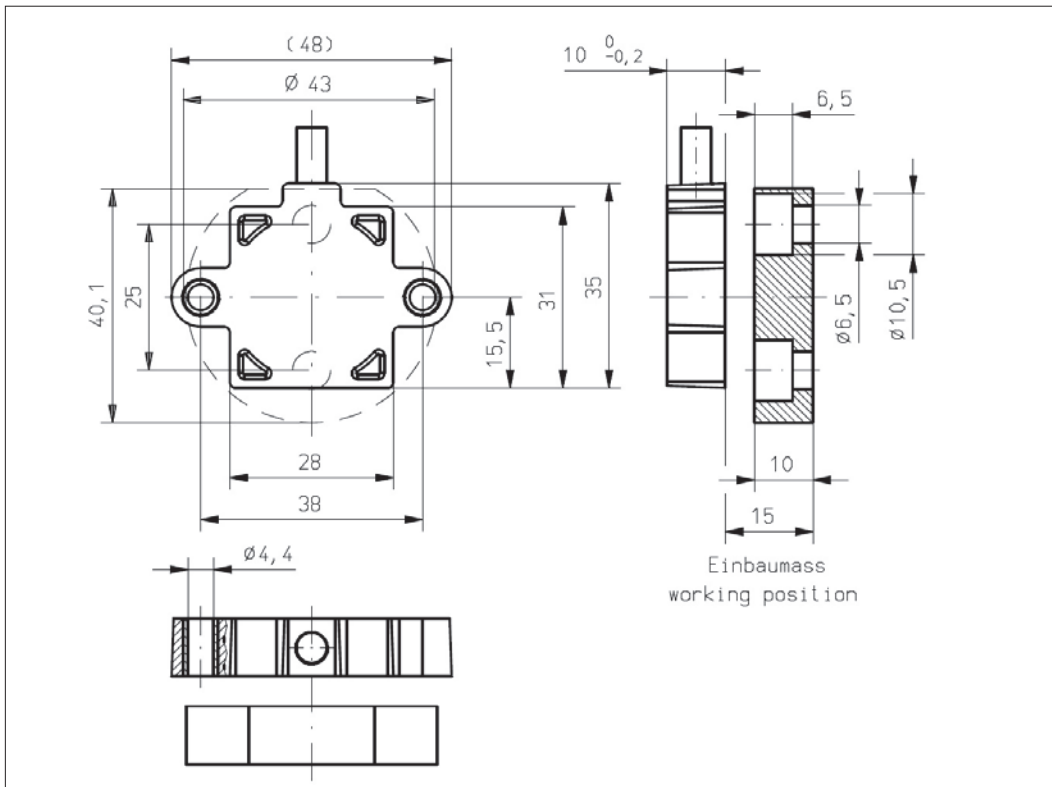
Vert-X 31E7axxx xxx 4xx
Vert-X 31E7axxx xxx 6xx

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

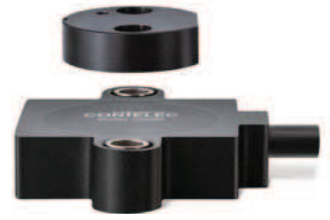
Working position (Z) and max. permitted misalignment of the magnetic actuator

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

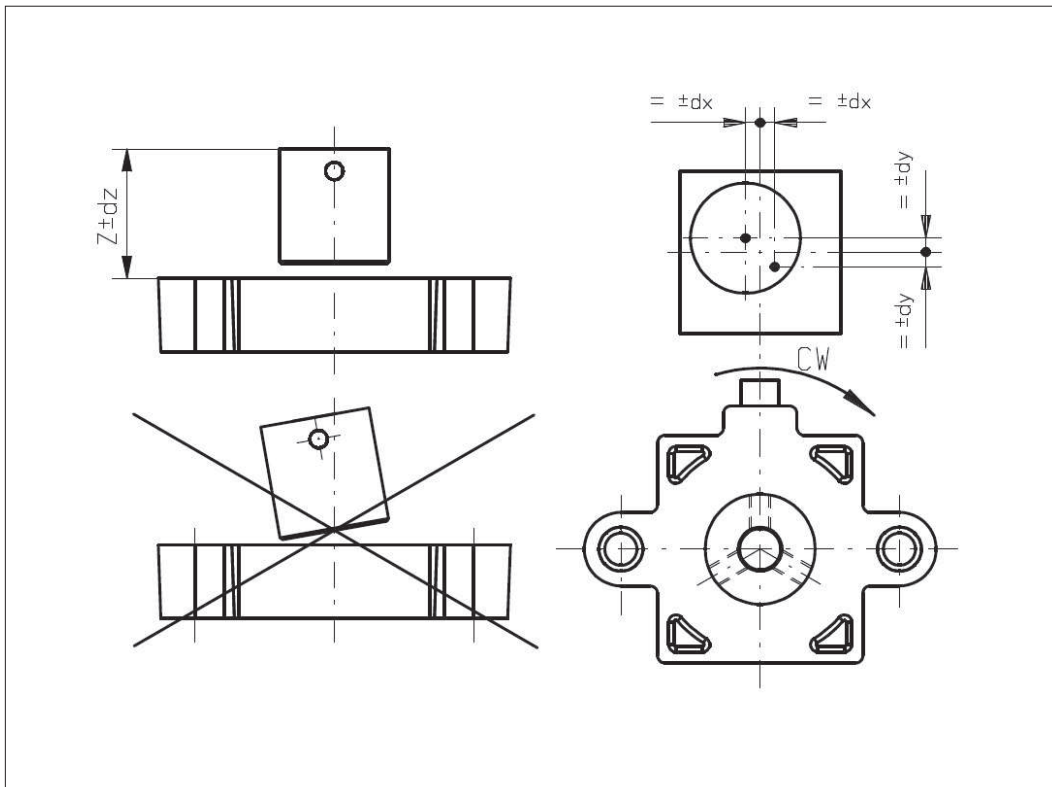
Mounting information

Working position (Z)

MH-C	17.50mm
MH-C redundant	17.00mm
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)

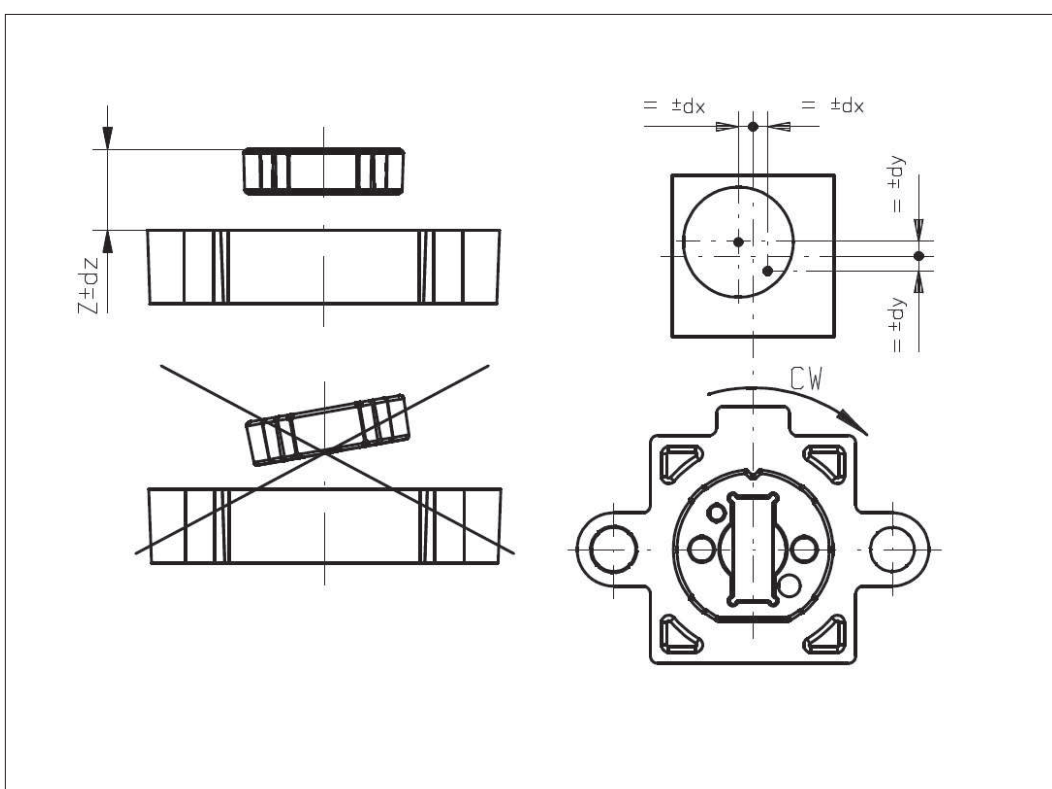
MH-C	7.50mm
MH-C redundant	7.00mm
MH-C2	7.50mm

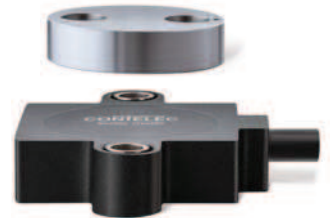
Max. permitted misalignment of the magnetic actuator

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

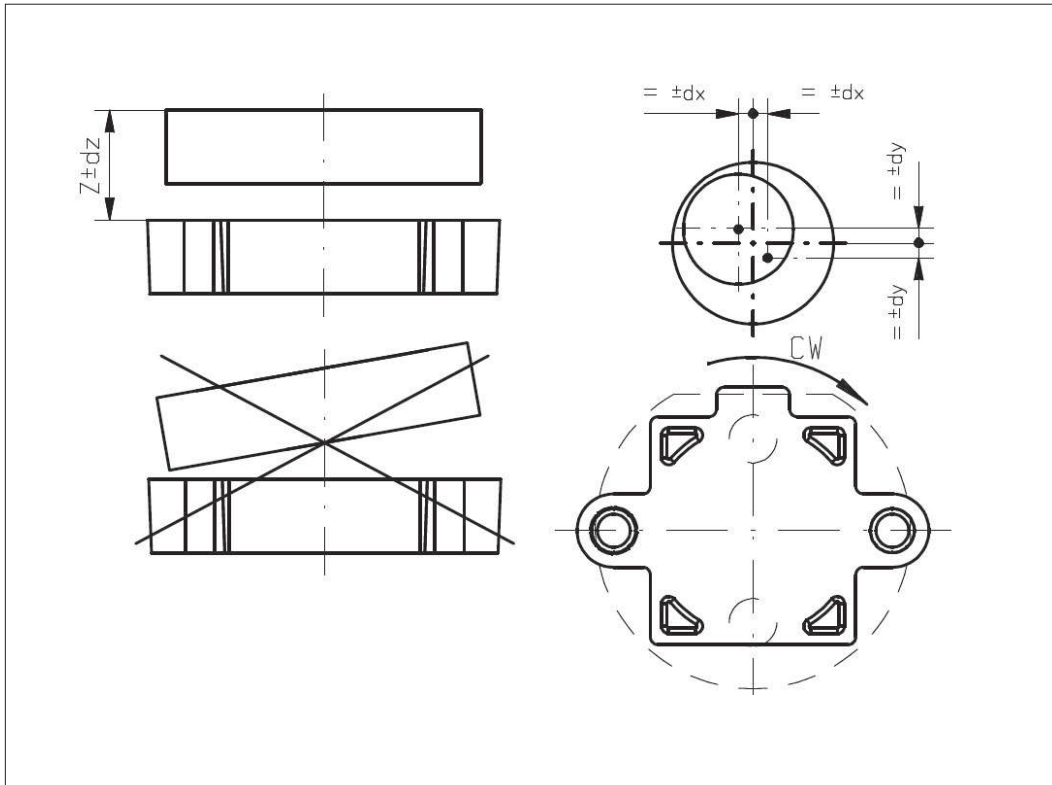
Mounting information

Working position (Z)

MH-C	15.80mm
MH-C redundant	15.30mm
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