Magnetic proximity switches Series CST - CSV and CSH

Reed, Electronic

- Designed to fit into the cylinder profile barrel
- 3 models (CST - CSV - CSH) are suitable for all Camozzi's cylinder range
- With or without M8 connector

Switches are available in two different versions: Reed with mechanical switching and electronic with electronic switching. The electronic versions are suggested for heavy duty with frequent operations and strong vibrations.

The magnetic proximity switches CST-CSV-CSH detect the position of the cylinder piston. When the internal contact is actuated by a magnetic field, the sensors complete an electrical circuit and provide an output signal to directly actuate a solenoid valve or a PLC. A yellow LED diode shows when the internal magnetic contact is closed.

GENERAL DATA

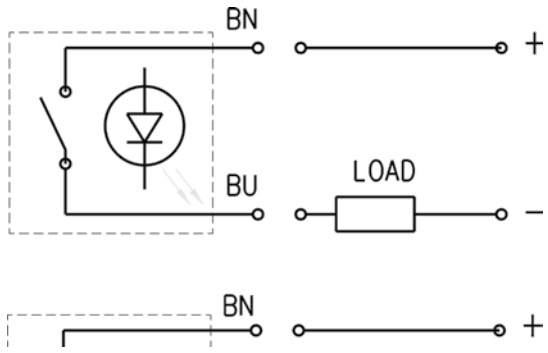
Models	CST-... CSV-... CSH-...
Operation	Reed contact Electronic
Output	Static or electronic PNP
Type of contact	All switches have Normally Open contact
Voltage	See model characteristics
Max current	See model characteristics
Max load	Reed switches 8 W DC and 10 VA AC Electronic switches 6 W DC
Protection level	IP 67
Materials	Plastic body encapsulating epoxy resin cable PVC, connector PVC connector body PUR
Mounting	Directly into the groove, or by means of adapters.
Signalling	By means of yellow diode Led
Protections	See model characteristics
Switching time	Reed switches <1,8 ms Electronic switches <1 ms
Operating temperature	-10ºC – 80ºC (14ºF - 176ºF)
Electrical duration	Reed switches 10.000.000 cycles Electronic switches 10.000.000.000 cycles
Electrical connection	cable 2x0,14 (2m) high flexibility cable 3x0,14 (2m) high flexibility connector M8 and cable 0,3 m

CODING EXAMPLE

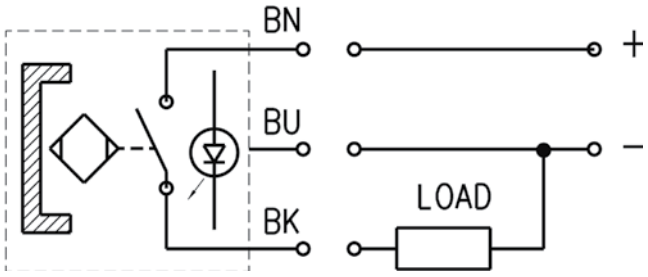
CS	T	-	2	2	0	N	-	5

CS	SERIES
T	SLOT TYPE T = T-slot V = V-slot H = frontal inserting slot
2	OPERATION 2 = reed 3 = electronic
2	CONNECTIONS 2 = 2 wires (Reed only) 3 = 3 wires 5 = 2 wires with M8 connector (Reed only) 6 = 3 wires with M8 connector
0	POWER SUPPLY VOLTAGE 0 = 10-110V DC; 10-230V AC (PNP) 1 = 30-110V DC; 30-230V AC (PNP) 2 = 3 wires cst (PNP) 3 = 10-30V AC/DC (PNP) 4 = 10-27V DC (PNP)
N	NOTE N = ACCORDING TO NORM (CST/CSV-250N only)
5	LENGTH OF THE CABLE (for CSH only): 2 = 2 mt 5 = 5 mt

SWITCHES ELECTRICAL CONNECTIONS



Reed switches
BN = brown
BU = blue
BK = black

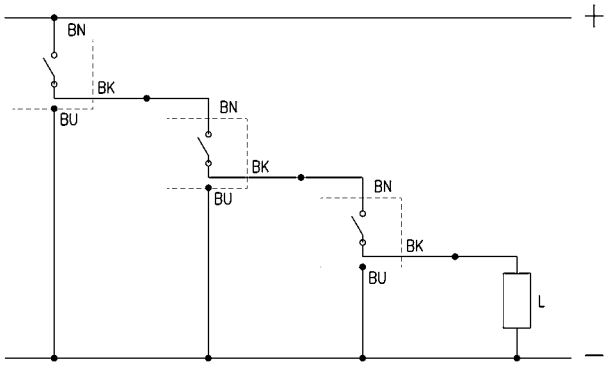


Electronic switches
BN = brown
BU = blue
BK = black

Connecting schemes in series

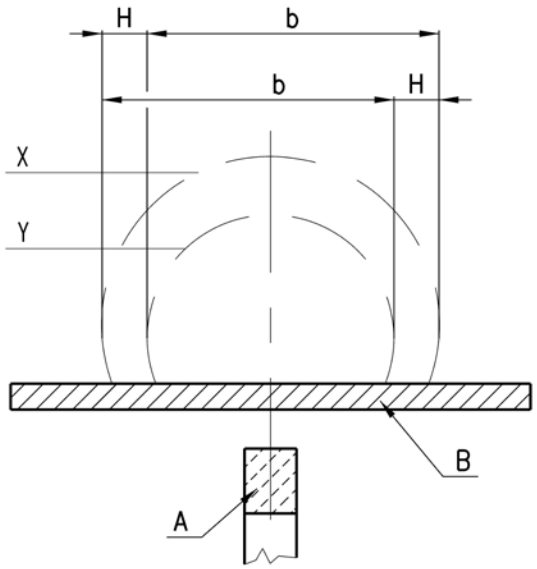
The Reed version with 3 wires allows the connection of several sensors in series, as there is no voltage drop between the supply and the load (see connecting scheme).
The voltage drop is 2,8V for the Reed sensors with 2 wires and 1V for Hall effect sensors with 3 wires.

BN = brown
BU = blue
BK = black
L = load



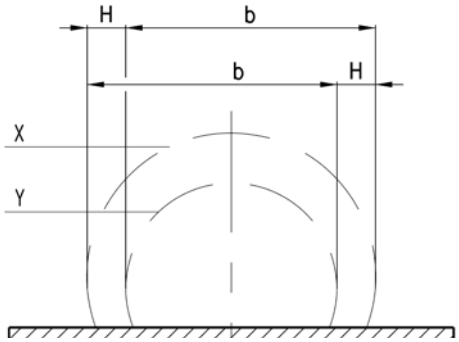
Useful information for correct use of the magnetic sensors

The magnetic sensors consist of a reed switch which is enclosed in a glass bulb containing a rarified gas. The contacts, which are made of magnetic material (nickel-iron), are flexible and are coated, at the contact points with a high quality non-arcing material.
Switching is effected by means of a suitable magnetic field and actuation is achieved by means of the permanent magnet inside the piston. The two sensors are of the normally open type and, therefore, when they are subject to the effect of the magnetic field, they close the circuit.
The operating field of the sensors with respect to the magnetic piston is shown in this picture. The dimension b indicates the amplitude of the magnetic field or switching field during which the circuit is closed. The value H represents the operational hysteresis of the sensor with respect to the form and amplitude of the magnetic field. The operating field, as a result of hysteresis, is displaced by the dimension H in the opposite direction to movement of the piston.
The values b and H are shown in the table and are classified according to bore.
The maximum speed permitted for each cylinder is a function of the value b and the response time of the various components connected after the sensor.
The maximum speed for a cylinder guided by magnetic sensors is calculated as follows: b / t = Speed
where: b = contact stroke in mm (see table)
t = total reaction time in milli seconds of electric control components connected after the sensor
Speed = maximum speed in m/second



CONTACT STROKE AND HYSTERESIS

Useful information for correct use of the magnetic sensors:
H = operational hysteresis of the sensor with respect to the form and amplitude of the magnetic field
b = contact stroke in mm



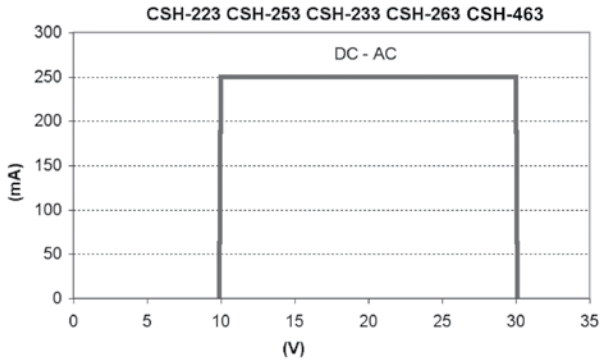
Series	Ø	b (mm)	H (mm)
24-25	16	9,2	1,2
24-25	20	12	1
24-25	25	11,7	1,1
27	20	10,5	1,6
27	25	10,9	1,6
27	32	10,7	1,1
27	40	12,1	1,7
27	50	12,1	1,2
27	63	14,1	1,3
QP	12	10	1,3
QP	16	11,8	1,5
QP	20	11,1	1,6
QP	25	10,6	1,6
QP	32	12,7	1,2
QP	40	12,5	1,1
QP	50	15,4	1,6
QP	63	16,7	1,5
QP	80	13,2	1,7
QP	100	16,8	1,8
31	12	9,2	1,4
31	16	7,9	1,3
31	20	9,1	1,5
31	25	10,6	1,5
31	32	11,9	1,7
31	40	12,9	2,2
31	50	14,7	1,2
31	63	15,2	1,4
31	80	16,6	1,8
31	100	16,8	1,7
40	160	24	2
40	200	26	2

Series	Ø	b (mm)	H (mm)
60	32	9,9	1
60	40	8,9	1,2
60	50	10,7	1
60	63	12,9	1,2
60	80	11,5	1,4
60	100	14,9	1,4
60	125	22	1
61	32	9	1
61	40	9,3	1,3
61	50	11	1,6
61	63	13,4	1,3
61	80	13,2	1,6
61	100	15,2	1,7
61	125	22,1	1,3
42	32	10,8	1,5
42	40	11,2	1,6
42	50	12,6	1,7
42	63	14,1	1,7
QCT	20	10	1,7
QCT	25	11,4	1,8
QCT	32	12,1	1,8
QCT	40	12,4	1,8
QCT	50	13,7	1,9
QCT	63	13,5	1,8
69	32	34,5	3,8
69	40	29,6	4,1
69	50	31,5	4,6
69	63	32,3	3,1
69	80	24	2,9
69	100	25,6	2,9
69	125	30,1	1,7

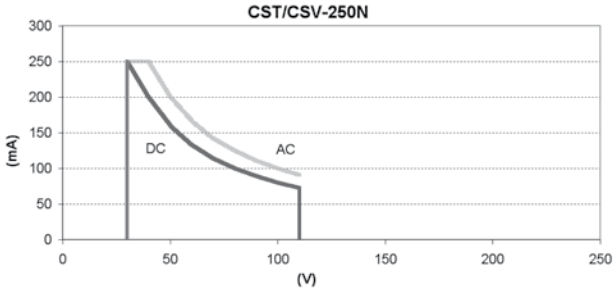
Series	Ø	b (mm)	H (mm)
62	32	10	1
62	40	11	1
62	50	12	1,2
62	63	13	1
62	80	13	1
62	100	16	1

Load curves

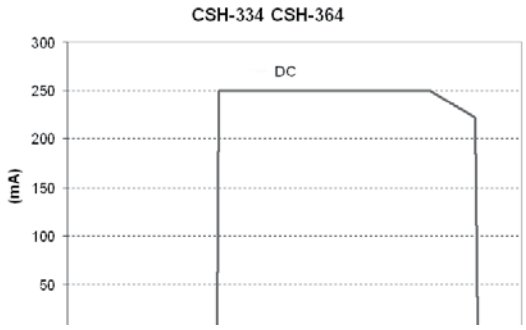
Load curve - CSH



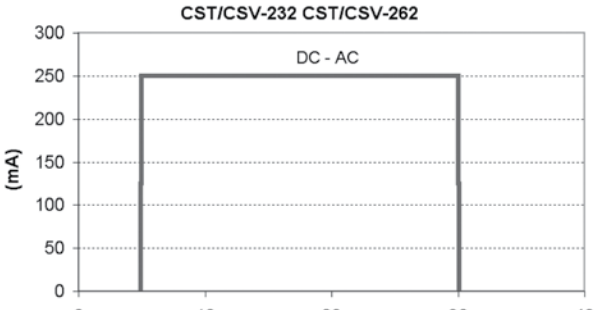
Load curve - CST/CSV



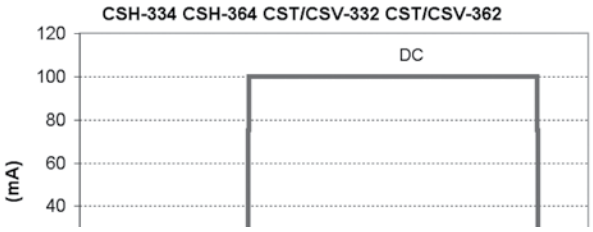
Load curve - CSH



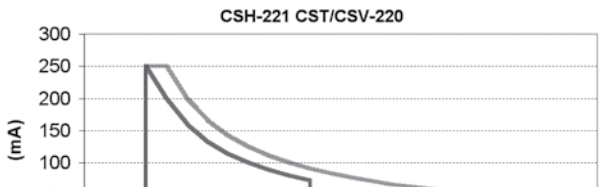
Load curve - CST/CSV



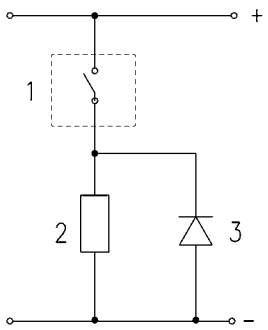
Load curve - CSH, CST/CSV



Load curve - CSH, CST/CSV

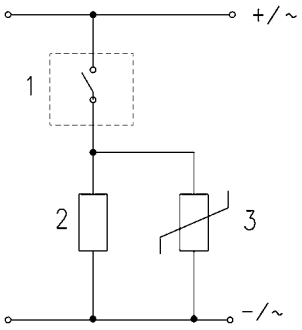


Electric circuit with protection against voltage spikes

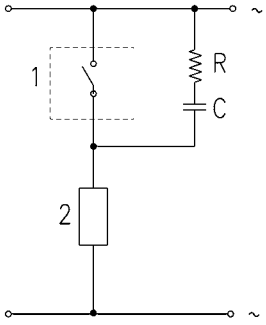


DC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric ciruit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
3 = Protection diode

Electric circuit with protection against voltage spikes



DC and AC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric ciruit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
3 = Protection varistor

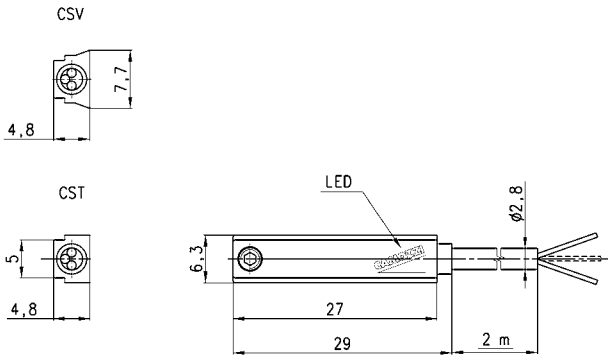


AC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric circuit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
C + R = Series of resistor and protection capacitor

Magnetic proximity switch Series CST

Length cable 2 mt. or 5 mt.
* = Mod. CST-220 and CSV-220 suitable up to 230 V AC.

In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.



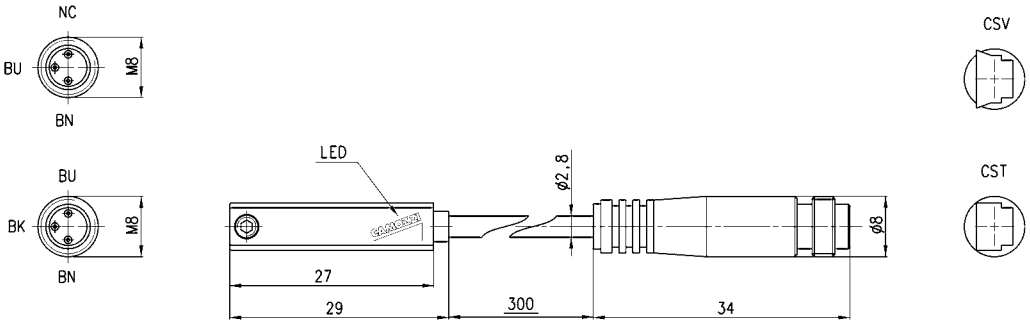
DIMENSIONS (mm)

Mod.	Operation	Voltage (V)	Output	Max. current	Max. Load	Protection
CST-220	Reed	10-110*AC/DC	-	250 mA		None
CSV-220	Reed	10-110*AC/DC	-	250 mA		None
CST-220-5	Reed	10-110*AC/DC	-	250 mA		None
CST-232	Reed	5-30 AC/DC	PNP	250 mA		Against polarity reversing
CSV-232	Reed	5-30 AC/DC	PNP	250 mA		Against polarity reversing
CST-332	Electronic	10-27 DC	PNP	100 mA		Against polarity reversing and overvoltage
CSV-332	Electronic	10-27 DC	PNP	100 mA		Against polarity reversing and overvoltage

Magnetic proximity switch Series CST with male connector M8

Length cable 0,3 mt.

In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

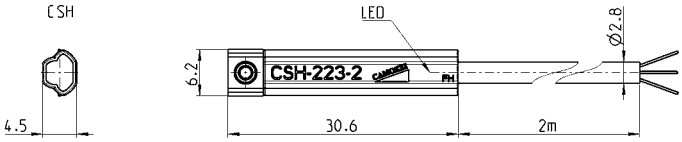


Mod.	Operation	Voltage (V)	Output	Max. current	Max. Load	Protection
CST-250N	Reed	10-110* AC/DC	-	250 mA		None
CSV-250N	Reed	10-110* AC/DC	-	250 mA		None
CST-262	Reed	5-30 AC/DC	PNP	250 mA		Against polarity reversing
CSV-262	Reed	5-30 AC/DC	PNP	250 mA		Against polarity reversing
CST-362	Electronic	10-27 DC	PNP	100 mA		Against polarity reversing and overvoltage
CSV-362	Electronic	10-27 DC	PNP	100 mA		Against polarity reversing and overvoltage

Magnetic proximity switches with 2-wire or 3-wire cable Series CSH

For max. operating current see load curves diagrams.

In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

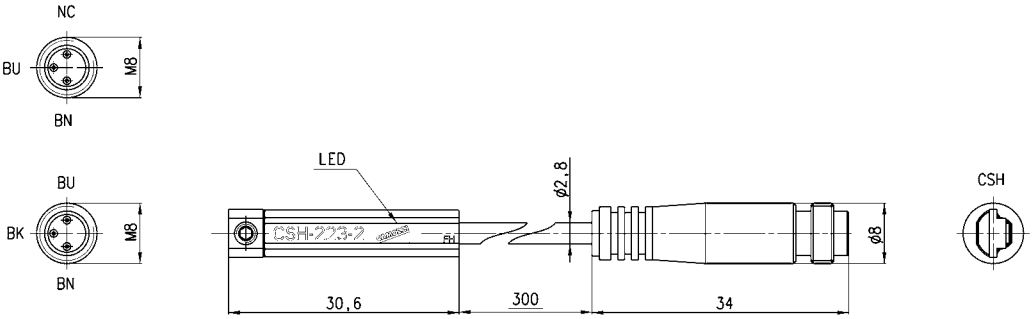


Mod.	Operation	Voltage (V)	Output	Max current	Protection
CSH-223-2	Reed	10-30 AC/DC	-	250 mA	Against polarity reversing
CSH-223-5	Reed	10-30 AC/DC	-	250 mA	Against polarity reversing
CSH-221-2	Reed	30-230 AC 30-110 DC	-	250 mA	Against polarity reversing
CSH-221-5	Reed	30-230 AC 30-110 DC	-	250 mA	Against polarity reversing
CSH-233-2	Reed	10-30 AC/DC	PNP	250 mA	Against polarity reversing
CSH-233-5	Reed	10-30 AC/DC	PNP	250 mA	Against polarity reversing
CSH-334-2	Electronic	10-27 AC/DC	PNP	250 mA	Against polarity reversing and overvoltage
CSH-334-5	Electronic	10-27 AC/DC	PNP	250 mA	Against polarity reversing and overvoltage

Magnetic proximity switches with male connector M8 Series CSH

For max. operating current see load curves diagrams.

In case of polarity reversing the sensor will still be operating, but LED diode won't turn on.

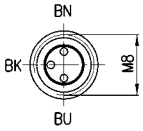


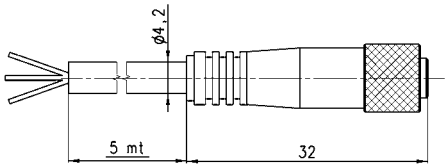
Mod.	Operation	Voltage (V)	Output	Max current	Max Load	Protection
CSH-253	Reed	10-30 AC/DC	-	250 mA		Against polarity reversing
CSH-263	Reed	10-30 AC/DC	PNP	250 mA		Against polarity reversing
CSH-364	Electronic	10-27 AC/DC	PNP	250 mA		Against polarity reversing and overvoltage

Extension with female connector M8 Mod. CS-5

Extension length 5 mt.

BN = Brown
BK = Black
BU = Blue

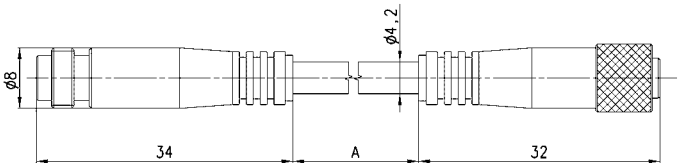




In case of the use of sensors with two wires with connector M8 models CST-250N, CSV-250N, CSH-253 connect the brown wire to the input (+) and the black wire to the load.

Mod.
CS-5

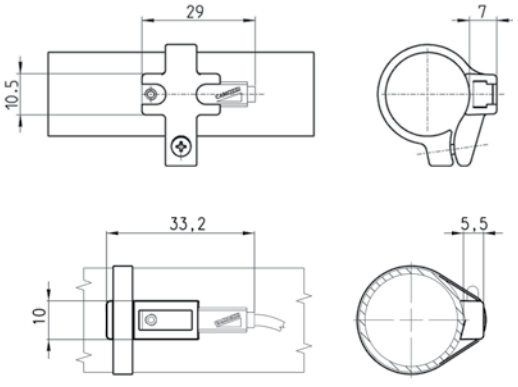
Extension with female/male connector M8



Mod.	A
CS-DW03HB-C250	250 mm
CS-DW03HB-C500	500 mm

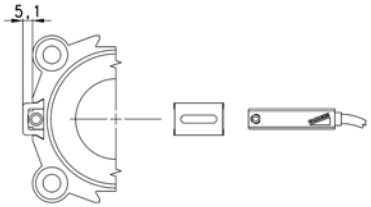
Mounting brackets for sensors Series CST - CSH

Materials:
- from S-CST-05-12 stainless steel
- from S-CST-02-04 and S-CST-18-21 technopolymer.



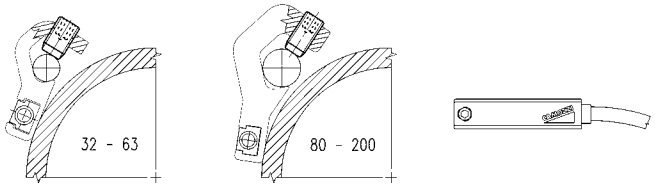
Mod.	Cylinder series	Ø	Mod.	Cylinder series	Ø	Mod.	Cylinder series	Ø
S-CST-02	24-25-27	16	S-CST-07	90-92	40	S-CST-12	90	125
S-CST-03	24-25-27	20	S-CST-08	90-92	50	S-CST-18	27-42	32
S-CST-04	24-25-27	25	S-CST-09	90-92	63	S-CST-19	27-42	40
S-CST-05	94-95	16-20-25	S-CST-10	90	80	S-CST-20	27-42	50
S-CST-06	90-92	32	S-CST-11	90	100	S-CST-21	27-42	63

Mounting brackets for sensors Series CST



Mod.	Cylinders series	Ø
S-CST-01	QP - QPR	20-100
S-CST-01	50	32-80

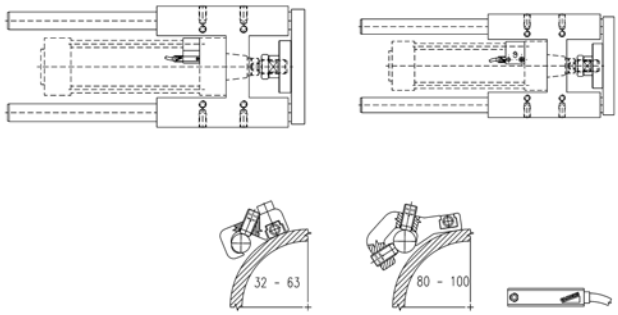
Mounting brackets for sensors Series CST and CSH



Mod.	Cylinders series	Ø
S-CST-25	60	32-63
S-CST-26	60	80 - 100
S-CST-27	60	125
S-CST-28	40	160 - 200

Mounting brackets for sensors Series CST and CSH

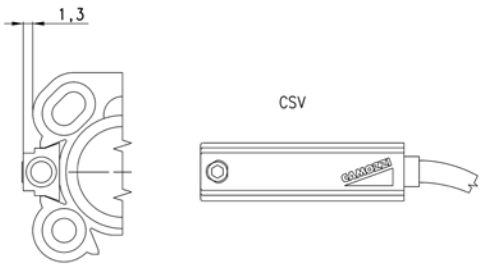
For cylinders series 60 mounted with guides series 45NHT or 45NHB.



Mod.	Cylinders series	Ø
S-CST-45N1	60	32-63
S-CST-45N2	60	80 - 100

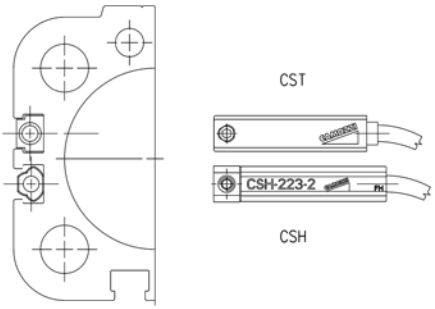
Sensors Series CSV

CST sensors must be assembled directly into the groove:
for cylinders ø16-25 Series 50
for cylinders ø12-16 Series QP-QPR.



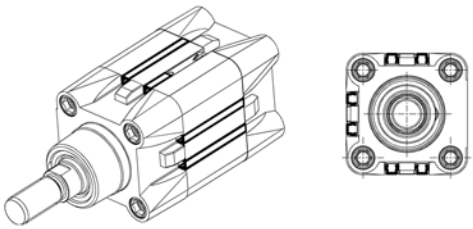
Sensors Series CST - CSH

CST/CSH sensors can be directly mounted on the following cylinders:
Series 31 - 31R
Series 32 - 32R
Series 52
Series 61
Series 62 (CSH only)
Series 69
Series QC - QCBF - QCTF



Slot cover profile Mod. S-CST-500

Supplied in unit lengths of 500mm ea.



Slot cover profile for cylinders Series:
31 - 31 tandem and multi-position - QCT - QCB - QCBT-QCBF - 61 - 69 - 32 - 32 tandem and multi-position.

Mod.
S-CST-500