

## MAGNETIC SENSORS Series DF, DH, KM

The sensors mounted onto the cylinders detect the position of the piston by commutating an electric signal when approaching the magnetic field produced by the magnet incorporated in the piston itself. They are manufactured using two different technologies: electromechanical with Reed bulb; electronic with magneto-resistive effect (normally open with PNP output); upon request with NPN output. The first one with Reed bulb function both in d.c. and a.c.; the second ones, electronic type function only in d.c. 30V max. In both versions the active status is indicated by the lighting of a luminous diode.



CHARACTERISTICS	TYPE	ELECTROMECHANICAL			ELECTRONIC
		DF-220 2 wires NO	DF-330 3 wires PNP NO	DF-440 3 wires PNP NC	DF-770 3 wires PNP NO
Working voltage	V AC/DC	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V DC
Max switching current	mA	100	100	100	100
Max switching power	W/VA	3	3	3	3
Max voltage drop	V AC/DC	<3,5V	0,1V	0,1V	0,7V
Minimum magnetic field	gauss	60	60	60	30
Opening response time	ms	< 0,5	< 0,5	< 0,5	0,08
Closing response time	ms	< 1	< 1	< 1	0,03
Electric life with resistive load	cycles	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>9</sup>
State indicator	LED	red	red	red	red
Cables number and section	mmq	2x0,14	3x0,14	3x0,14	3x0,14
Electric circuit	-	A	C	D	C
Protection degree	EN60529	IP67			
Working temperature	°C	-20 ÷ +80 °C			

### Part numbers

- Sensor with cable 3 m	DF-770	DF-220	DF-330	DF-440	
- Sensor with cable 20 cm male connector M08	DF-770M08	DF-220M08	DF-330M08	DF-440M08	
- Sensor with cable 20 cm male connector M12	DF-770M12	DF-220M12	DF-330M12	DF-440M12	
- Cable extension M08 3 m 3 poles	DHF-033M08				
- Cable extension M08 5 m 3 poles	DHF-053M08				
- Cable extension M12 3 m 3 poles	DHF-033M12				
- Cable extension M12 5 m 3 poles	DHF-053M12				
- Cable clamping	DF-001				

**For the use of 3-pole cable extensions M08 and M12 with magnetic sensor DF-220, DF-220M08, DF-220M12 exclude blue wire when connecting.**

Note: observe polarity for d.c. use, avoid that magnetic fields affect the sensor, for cables with length exceeding 10 m insert filter KM-008200, for use with inductive loads foresee suitable filters on the load itself.



CHARACTERISTICS	TYPE	ELECTROMECHANICAL			ELECTRONIC
		KM-032000 2 wires NO	DH-200 2 wires NO	DH-500 2 wires NO	DH-700 3 wires PNP NO
Working voltage	V AC/DC	5÷48 V AC/DC	5÷48 V AC/DC	5÷48 V AC/DC	10÷30 V DC
Max switching current	mA	100	100	100	100
Max switching power	W/VA	5	5	5	5
Max voltage drop	V AC/DC	< 3,5 V	< 3,5 V	< 3,5 V	0,7 V
Minimum magnetic field	gauss	85	85	60	30
Opening response time	ms	< 0,5	< 0,5	< 0,5	0,08
Closing response time	ms	< 1	< 1	< 1	0,03
Electric life with resistive load	<b>cycles</b>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>9</sup>
State indicator	LED	<b>red</b>	<b>red</b>	<b>red</b>	<b>red</b>
Cables number and section	mmq	2x0,25	2x0,25	2x0,25	3x0,25
Electric circuit	-	A	A	A	C
Protection degree	EN60529	IP65			
Working temperature	°C	-20 ÷ +80 °C			

#### Part numbers

- Cable 3 m	PNP	DH-700	KM-032000	DH-200	DH-500
- Sensor with cable 3 m	NPN	DH-700A	-	-	-
- Sensor with cable 5 m	PNP	DH-700L5	-	DH-200L5	DH-500L5
- Sensor with cable 10 m	PNP	DH-700L10	-	DH-200L10	DH-500L10
- Sensor with cable 20 cm male connector M08 60V	PNP	DH-700M08	-	DH-200M08	DH-500M08
- Sensor with cable 20 cm male connector M12	PNP	DH-700M12	-	DH-200M12	DH-500M12
- Cable extension M08 3 m 60V max 3 poles	DHF-033M08				
- Cable extension M08 5 m 60V max 3 poles	DHF-053M08				
- Cable extension M12 3 m 3 poles	DHF-033M12				
- Cable extension M12 5 m 3 poles	DHF-053M12				

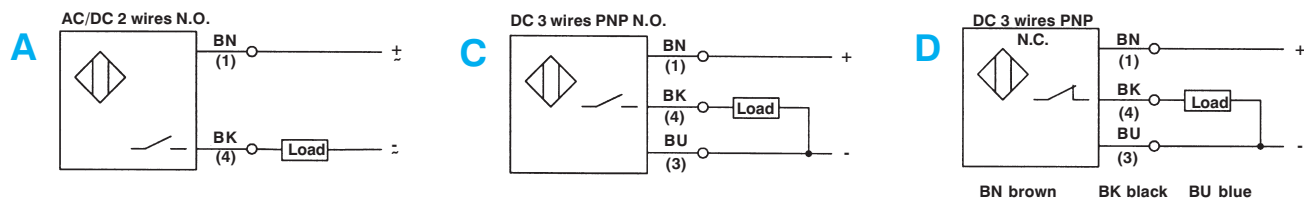
For the use of 3-pole cable extensions M08 and M12 with magnetic sensor DH-100/KM..., DH-200, DH-500 exclude blue wire when connecting.

Note: observe polarity for d.c. use, avoid that magnetic fields affect the sensor, for cables with length exceeding 10 m insert filter KM-008200, for use with inductive loads foresee suitable filters on the load itself. The cable extension can be supplied with lengths upon request. For those versions without LED add suffix E to the part number.

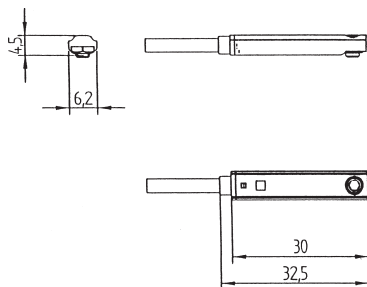
Technical modifications keep in reserve !

(2014/07)

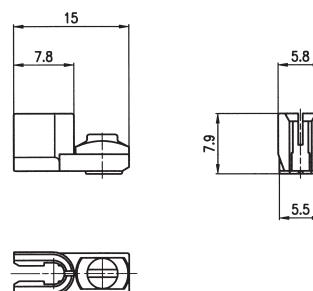
## Electric circuits



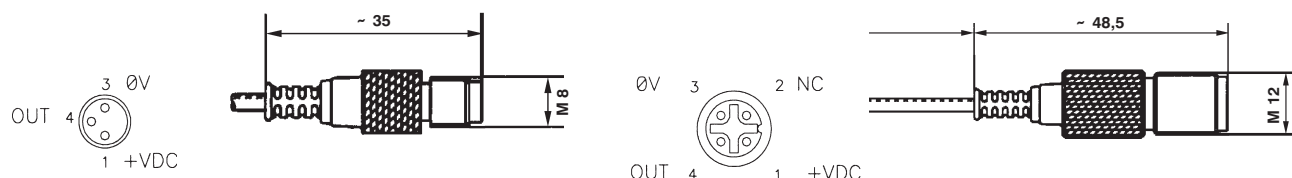
## Overall dimensions DF-...



## Cable clamping DF-001



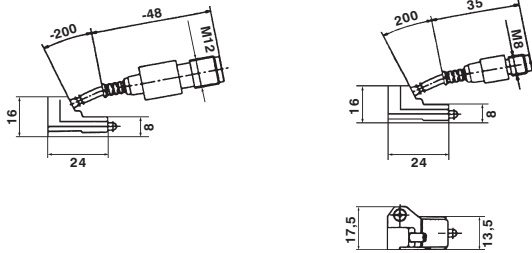
## Male connector M08, M12



## Possible combinations of cylinders / magnetic sensors / brackets

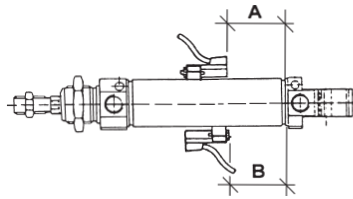
CYLINDER	MAGNETIC SENSOR	BRACKET
M/CDEM	DF-220 (5-30VAC/DC 100mA 2 wires) DF-770 (5-30VDC 100mA 3 wires) DH-200 (5-48VAC/DC 100mA 2 wires) DH-700 (10-30VDC 100mA 3 wires)	DHM..DF DHM..DF DHM DHM
K	KM-032/063/125 (5-48VAC/DC 100mA 2 wires) DH-200 (5-48VAC/DC 100mA 2 wires) DH-700 (10-30VDC 100mA 3 wires)	included DHK DHK
KL	DF-220 (5-30VAC/DC 100mA 2 wires) DF-770 (5-30VDC 100mA 3 wires) DH-200 (5-48VAC/DC 100mA 2 wires) DH-700 (10-30VDC 100mA 3 wires)	not needed not needed DHK DHK
KD/RP/RS/R	DF-220 (5-30VAC/DC 100mA 2 wires) DF-770 (5-30VDC 100mA 3 wires)	not needed not needed
W Ø16-100 Ø16-100 Ø12-100 Ø12-100	DF-220 (5-30VAC/DC 100mA 2 wires) DF-770 (5-30VDC 100mA 3 wires) DH-200 (5-48VAC/DC 100mA 2 wires) DH-700 (10-30VDC 100mA 3 wires)	not needed not needed not needed not needed
S1	DH-200 (5-48VAC/DC 100mA 2 wires) DH-700 (10-30VDC 100mA 3 wires)	DHS DHS

## Overall dimensions DH...

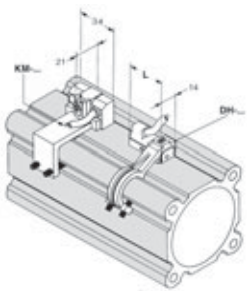


## Correct mounting

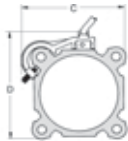
The magnetic sensor is mounted onto the cylinder by means of a special clamp or bracket or simply inserted in the groove of the cylinder barrel.



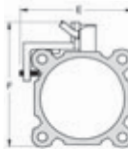
## ISO cylinders K series



DH-....



KM-....



Cyl. Ø	A-B	C	D	Bracket part number	E	F	Sensor + bracket part number
32	4 - 4	50	57	DH-K032050	50	62	KM-032050
40	6 - 6	56	63		55	67	
50	6 - 6	64	74		65	77	
63	6 - 7	81	87	DH-K063125	80	82	KM-063100
80	9 - 10	96	104		97	109	
100	10 - 10	114	125		114	126	
125	18 - 18	138	150	DH-K160200	137	149	KM-125000
160	25 - 27	180	180				
200	24 - 26	200	220				

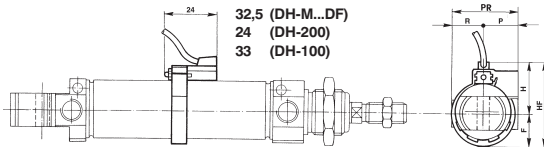
## Microcylinders M series



DH-....



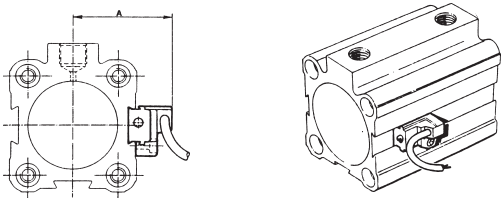
DH-M...DF



Cyl. Ø	A-B	F	H	HF	P	R	PR	M series part number
10	11 - 11	12,5	22,5	35	17	10	27	DH-M10
12	12,5 - 12,5	11,5	23,5	35	17	10	27	DH-M12
16	14 - 14	15	25	40	18	13	31	DH-M16
20	18,5 - 18,5	19	27	46	18	17	35	DH-M20
25	19 - 19	18	30	48	20	17	37	DH-M25

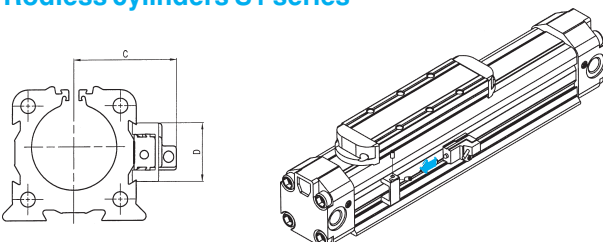
To order the holder for the recessed sensor DF... Series add suffix DF to the part number.

## Short-stroke cylinders W series (no fixing necessary)



Cyl. Ø	16	20	25	32	40	50	63	80	100
A-B	8-8	9-9	11-10	11-10	7-7	6-6	5-5	8-7	11-11
A	26,8	28,8	31,3	35,3	39,5	44	52	60,5	71

## Rodless cylinders S1 series



Cyl. Ø	A-B	C	D	Bracket part num.
25	25 - 35	34	21	DH-S25
32	35 - 35	39	22	DH-S32
40	50 - 50	46	29	DH-S40
50	60 - 60	54	35	DH-S50