

Space-saving photoelectric sensors designed for wash down applications



**STAIN-LESS STEEL**

**IP 69K**

**JohnsonDiversey**

**ECOLAB**

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**Product description**

The stainless steel housing of the MH15V is specifically designed to operate in very harsh environments that use cleaning methods such as HPLV (High Pressure Low Volume), CIP (Clean-In-Place), and SIP (Sterilize-In-Place). Years of research and collaboration with customers in the food and beverage industry perfected the stainless steel housing design of the MH15V. It is designed to withstand chemical cleaning processes, high humidity, and high-pressure cleaning, all in order to reduce downtime

caused by failing sensors in harsh wash down environments. The MHTB15V's superior resistance to acidic and alkaline cleaning and disinfecting agents is field tested and certified in independent tests by ECOLAB and JohnsonDiversey. The 316L stainless steel housing and 3 mm thick flat sensor lens construction also allow for quick and easy, yet thorough, cleaning. This thorough cleaning reduces the risk of dirt build-up, bacteria growth and process contamination.

**At a glance**

- Field-tested resistance to acidic and alkaline cleaning and disinfecting agents
- Corrosion-resistant stainless steel housing 316L, certified by ECOLAB und JohnsonDiversey
- IP 69K-rated housing is resistant to wash down environments
- Available as complete family including proximity, BGS, retro-reflective and through-beam
- 3 mm chemical resistant sensor lens

**Your benefits**

- Field-tested, compact, stainless steel IP 69K design of the MH15V reduces downtime and replacement costs
- 3 mm flat, chemically resistant material of the sensor lens offers a long service life, reducing maintenance time and costs
- Reliable object detection, even in difficult environments reduces miscount and increases machine throughput
- Short M18 housing with flush mounting fits in tight areas, which saves machine space
- ECOLAB and JohnsonDiversey certified MH15V are suitable for hygienic environments, reducing maintenance costs
- Innovative stainless steel mounting accessories provide fast and low-cost installation

→ [www.mysick.com/en/MH15V](http://www.mysick.com/en/MH15V)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

### Features

	MHTB15V	MHT15V	MHL15V	MHSE15V
<b>Sensor principle</b>	Photoelectric proximity sensor		Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
<b>Detection principle</b>	Background suppression	Energetic	Standard optics	-
<b>Housing design (light emission)</b>	Cylindrical, straight			
<b>Housing length</b>	52.9 mm			
<b>Thread diameter (housing)</b>	M18 x 1			
<b>Sensing range max.</b>	3 mm ... 300 mm <sup>1)</sup>	10 mm ... 350 mm <sup>1)</sup> (depending on type)	0.035 m ... 5 m <sup>2)</sup>	0 m ... 5 m
<b>Sensing range</b>	3 mm ... 300 mm	10 mm ... 250 mm (depending on type)	0.035 m ... 3.5 m <sup>2)</sup>	0 m ... 3.8 m
<b>Type of light</b>	Visible red light	Infrared light	Visible red light	
<b>Light source <sup>3)</sup></b>	PinPoint LED	LED		
<b>Angle of dispersion</b>	-	Approx. 4.5°	Approx. 1.5°	
<b>Wave length</b>	650 nm	950 nm	650 nm	
<b>Adjustment</b>	Potentiometer, 270°		-	

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

<sup>2)</sup> PL80A.

<sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

### Mechanics/electronics

	MHTB15V	MHT15V	MHL15V	MHSE15V
<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC			
<b>Ripple <sup>2)</sup></b>	≤ 5 V <sub>pp</sub>			
<b>Power consumption <sup>3)</sup></b>	≤ 30 mA			
<b>Output type</b>	PNP/NPN (depending on type)			
<b>Switching mode</b>	Dark-switching/Light switching (depending on type)			
<b>Signal voltage PNP HIGH/LOW</b>	U <sub>v</sub> - (< 2,9 V) / ca. 0 V			
<b>Signal voltage NPN HIGH/LOW</b>	U <sub>v</sub> / < 2,9 V			
<b>Output current I<sub>max.</sub></b>	≤ 100 mA <sup>4)</sup>	≤ 100 mA		
<b>Response time <sup>5)</sup></b>	≤ 0.72 ms	≤ 1.25 ms	≤ 1.4 ms	
<b>Switching frequency <sup>6)</sup></b>	700 Hz	400 Hz	350 Hz	
<b>Connection type <sup>7)</sup></b>	Male connector, M12			
<b>Circuit protection</b>	A <sup>8)</sup> , C <sup>9)</sup> , D <sup>10)</sup>			
<b>Protection class</b>	III			
<b>Weight</b>	50 g			100 g
<b>Polarisation filter</b>	-	-	✓	-
<b>Housing material</b>	Stainless steel V4A (1.4404, 316L)			
<b>Optics material</b>	PMMA			
<b>Enclosure rating</b>	IP 67, IP 68, IP 69K			
<b>Ambient operating temperature <sup>11)12)</sup></b>	-25 °C ... +55 °C			
<b>Ambient storage temperature</b>	-25 °C ... +70 °C			

<sup>1)</sup> Limit values.

<sup>2)</sup> May not exceed or fall short of V<sub>S</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Reduced output current at ambient operating temperatures > 50 °C: I<sub>Amax</sub> = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> With gold plated contact pins.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

<sup>11)</sup> Use at higher ambient temperatures reduce the sender LED lifetime.

<sup>12)</sup> +100 °C for 15 minutes.

## Ordering information

Other models available at [www.mysick.com/en/MH15V](http://www.mysick.com/en/MH15V)

## MHTB15V

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** background suppression
- **Adjustment:** potentiometer, 270 °

Sensing range max. <sup>1)</sup>	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
3 mm ... 300 mm	Ø 7 mm (100 mm)	PNP	Dark-switching	Connector M12, 4-pin	Cd-066	MHTB15-P3267V	1047160
			Light switching	Connector M12, 4-pin	Cd-066	MHTB15-P3367V	1046537
		NPN	Dark-switching	Connector M12, 4-pin	Cd-066	MHTB15-N3267V	1047159
			Light switching	Connector M12, 4-pin	Cd-066	MHTB15-N3367V	1046536

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

## MHT15V

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic
- **Adjustment:** potentiometer, 270 °

Sensing range max. <sup>1)</sup>	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
10 mm ... 100 mm	Ø 20 mm (100 mm)	PNP	Dark-switching	Connector M12, 4-pin	Cd-066	MHT15-P3217V	1043805
			Light switching	Connector M12, 4-pin	Cd-066	MHT15-P3317V	1043806
		NPN	Dark-switching	Connector M12, 4-pin	Cd-066	MHT15-N3217V	1043803
			Light switching	Connector M12, 4-pin	Cd-066	MHT15-N3317V	1043804
10 mm ... 350 mm	Ø 50 mm (350 mm)	PNP	Dark-switching	Connector M12, 4-pin	Cd-066	MHT15-P3247V	1043810
			Light switching	Connector M12, 4-pin	Cd-066	MHT15-P3347V	1043811
		NPN	Dark-switching	Connector M12, 4-pin	Cd-066	MHT15-N3247V	1043808
			Light switching	Connector M12, 4-pin	Cd-066	MHT15-N3347V	1043809

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

## MHL15V

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics

Sensing range max. <sup>1)</sup>	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0.035 m ... 5 m	Ø 80 mm (3.5 m)	PNP	Dark-switching	Connector M12, 4-pin	Cd-066	MHL15-P3236V	1043814
			Light switching	Connector M12, 4-pin	Cd-066	MHL15-P3336V	1043815
		NPN	Dark-switching	Connector M12, 4-pin	Cd-066	MHL15-N3236V	1043812
			Light switching	Connector M12, 4-pin	Cd-066	MHL15-N3336V	1043813

<sup>1)</sup> PL80A.

MHSE15V

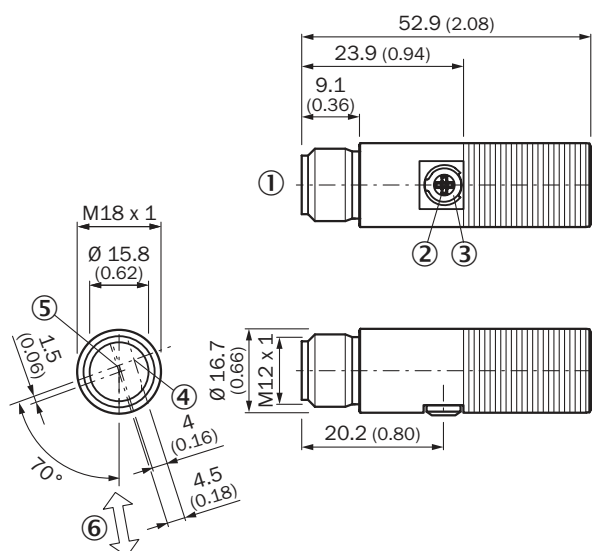
- **Sensor principle:** through-beam photoelectric sensor

Sensing range max.	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0 m ... 5 m	Ø 65 mm (4 m)	PNP	Dark-switching	Connector M12, 4-pin	Cd-057	MHSE15-P3236V	1043818
			Light switching	Connector M12, 4-pin	Cd-057	MHSE15-P3336V	1043819
		NPN	Dark-switching	Connector M12, 4-pin	Cd-057	MHSE15-N3236V	1043816
			Light switching	Connector M12, 4-pin	Cd-057	MHSE15-N3336V	1043817

Dimensional drawings

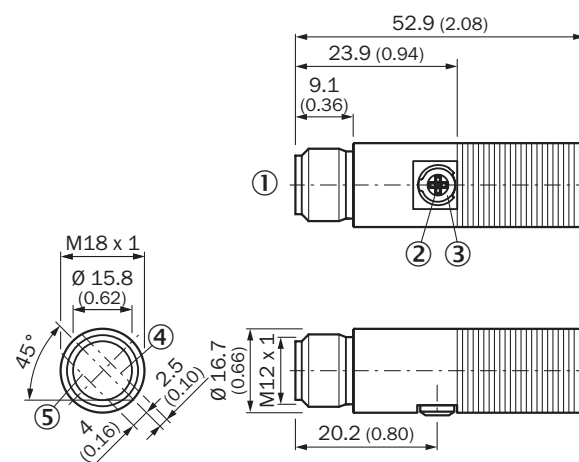
Dimensions in mm (inch)

MHTB15V



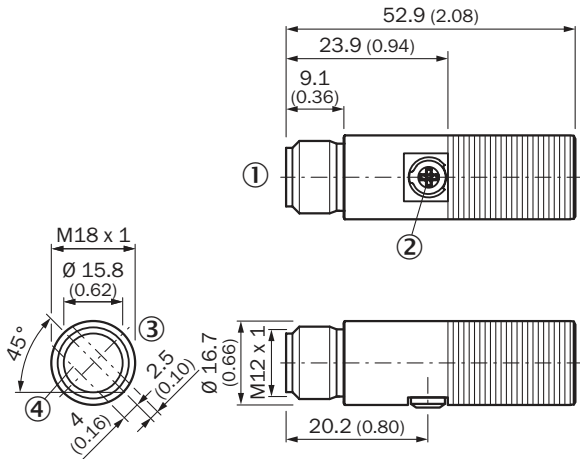
- ① Connector M12, 4-pin
- ② Sensing range adjustment: potentiometer, 270°
- ③ Status indicator LED, yellow: Status of received light beam
- ④ Optical axis, sender
- ⑤ Optical axis, receiver
- ⑥ Standard direction of the material being detected

MHT15V



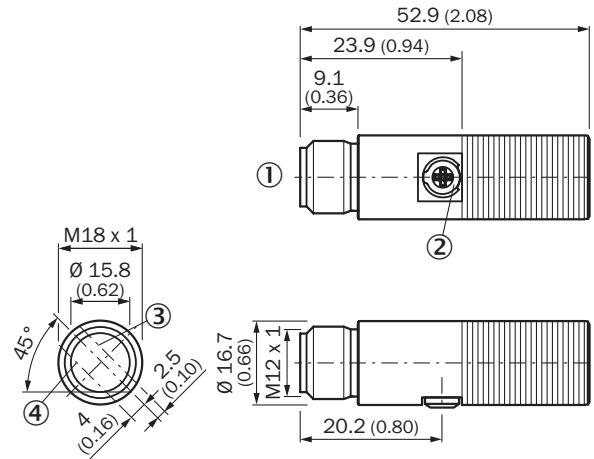
- ① Connector M12, 4-pin
- ② Sensing range adjustment: potentiometer, 270°
- ③ Yellow LED indicator, -lights continuously: Light reception > reserve factor  
1.3-blinks: Light reception, reserve factor > 1.0 ... < 1.3
- ④ Optical axis, sender
- ⑤ Optical axis, receiver

**MHL15V**



- ① Connector M12, 4-pin
- ② Yellow LED indicator, lights continuously: Light reception > reserve factor 1.5-blinks: Light reception, reserve factor > 1 ... < 1.5
- ③ Optical axis, sender
- ④ Optical axis, receiver

**MHSE15V**

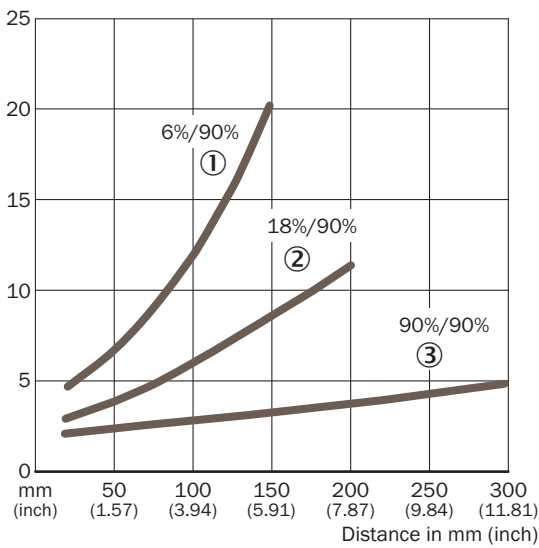


- ① Connector M12, 4-pin
- ② Yellow LED indicator- lights continuously: Light reception, Reserve factor > 1
- ③ Optical axis, sender
- ④ Optical axis, receiver

**Characteristic curves**

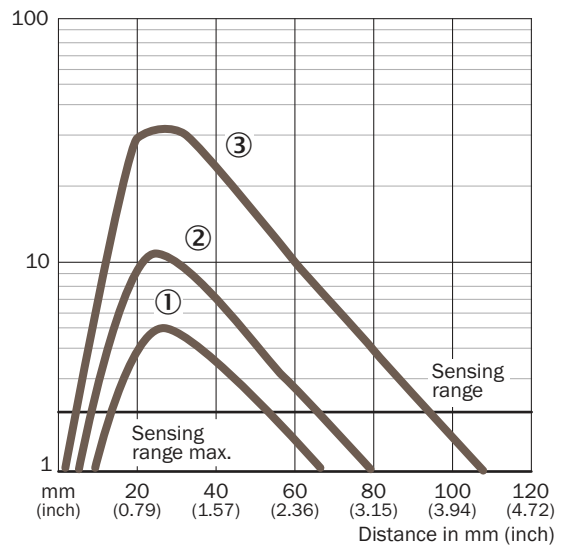
Black-white shift

**MHTB15V**



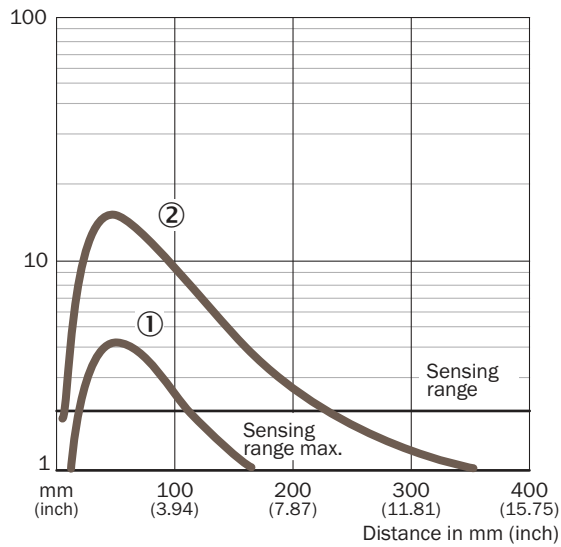
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

**MHT15V, 100 mm**



- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

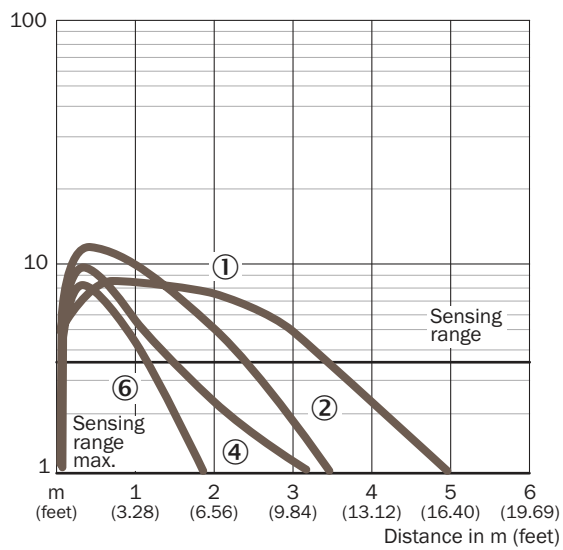
**MHT15V, 350 mm**



- ① Sensing range on gray, 18 % remission
- ② Sensing range on white, 90 % remission

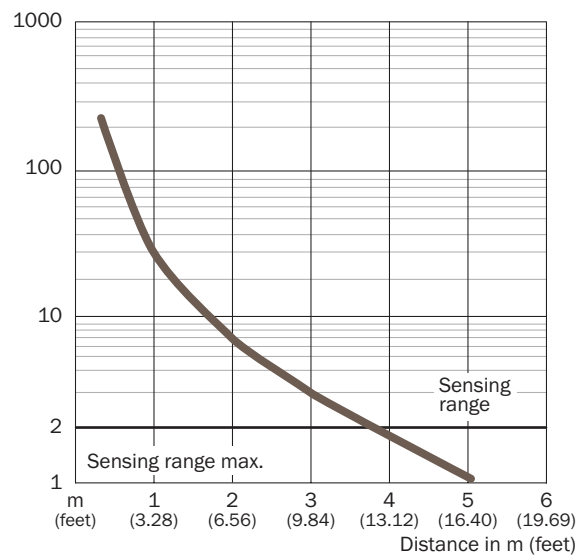
**Operating reserve**

**MHL15V**



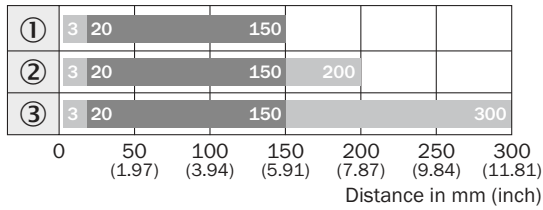
- ① PL80A
- ② P250
- ④ PL50A, PL40A
- ⑥ PL20A

**MHSE15V**



Bar diagrams

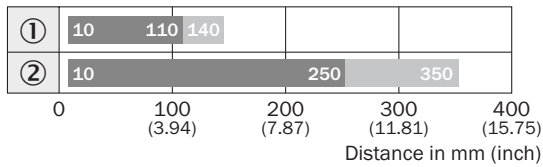
MHTB15V



■ Sensing range    ■ Sensing range max.

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

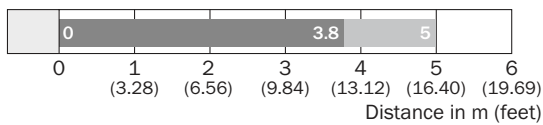
MHT15V, 350 mm



■ Sensing range    ■ Sensing range max.

- ① Sensing range on gray, 18 % remission
- ② Sensing range on white, 90 % remission

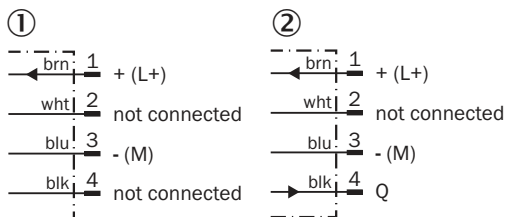
MHSE15V



■ Sensing range    ■ Sensing range max.

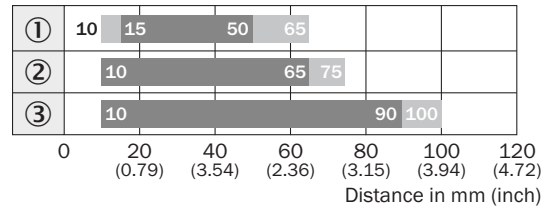
Connection diagram

Cd-057



- ① Sender
- ② Receiver

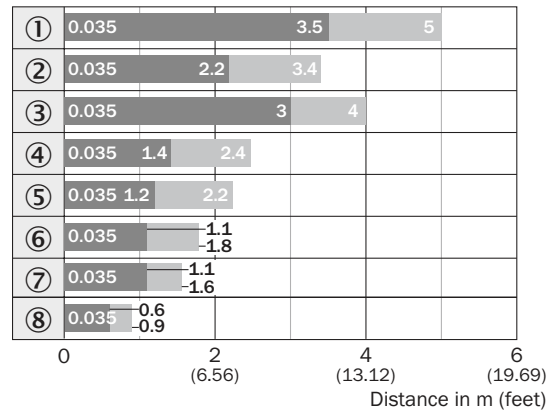
MHT15V, 100 mm



■ Sensing range    ■ Sensing range max.

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

MHL15V





■ Sensing range    ■ Sensing range max.

- ① PL80A
- ② P250
- ③ C110A
- ④ PL50A, PL40A
- ⑤ PL30A, PL31A
- ⑥ PL20A
- ⑦ P250 CHEM
- ⑧ PL20 CHEM


## Recommended accessories

### Mounting brackets/plates

#### Mounting plates



Figure	Material	Description	Model name	Part no.
	Stainless steel	Mounting plate for M18 housing	BEF-WG-M18N	5320948
		Mounting bracket	BEF-WN-M18N	5320947

### Universal bar clamp systems



Figure	Material	Description	Model name	Part no.
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N06N for universal clamp bracket, M18	BEF-KHS-N06N	2051622

### Reflectors


#### Angular

Figure	Material	Description	Model name	Part no.
	Plastic	Chemically resistant, screw connection, 47 mm x 47 mm	P250 CHEM	5321097
	PMMA/ABS	Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

#### Fine triple reflectors







Figure	Material	Description	Model name	Part no.
	Plastic	Fine triple, chemically resistant, screw connection, 18 mm x 18 mm	PL10F CHEM	5321636
		Fine triple, chemically resistant, screw connection, suitable for laser sensors, 16 mm x 38 mm	PL20F-CHEM	5326089

#### Reflective tape


Figure	Description	Model name	Part no.
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244





**Special reflectors**

Figure	Material	Description	Model name	Part no.
	Plastic	Chemically resistant, screw connection, 38 mm x 15 mm	PL20 CHEM	5321089
	PMMA/ABS	Antifog, for prevention of moisture fogging on the reflection area, screw connection, 56 mm x 37 mm	PL40A Antifog	5322011
	Plastic	Rectangular, screw connection M3, countersunk screw head, chemical resistant, 56 mm x 37 mm	PL40B-CHEM	5326088
	Stainless steel V4A (1.4404, 316L)	Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, D12-adapter shaft, 25 mm x 25 mm	PLH25-D12	2063404
		Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, M12-adapter thread, 25 mm x 25 mm	PLH25-M12	2063403
		Stainless steel reflector, wash-down design, chemically resistant, Enclosure rating IP 69K, screw connection, 14 mm x 14 mm	PLV14-A	2063405

**Terminal and alignment brackets****Alignment brackets**

Figure	Material	Description	Model name	Part no.
	Plastic	Mounting bracket with ball-and-socket	BEF-WN-M18-ST02	5312973

**Terminal brackets**

Figure	Material	Description	Model name	Part no.
	Plastic (PA12), glass-fiber rein- forced	Clamping block for round sensors M18, without fixed stop	BEF-KH-M18	2051481
		Clamping block for round sensors M18, with fixed stop	BEF-KHF-M18	2051482
	Stainless steel	Mounting ring	BEF-WN-MH15-2V	4053358

→ For additional accessories, please see page L-861

