



DeltaPac

BRIDGING THE GAP

MultiTask photoelectric sensors

SICK
Sensor Intelligence.

RELIABLE GAP-LESS SENSING: DeltaPac FROM SICK PERFECTS PRODUCTION

ON ITS QUEST TO INCREASE EFFICIENCY, SICK IS PROVIDING SOLUTIONS THAT IMPROVE PRODUCT FLOW BY CLOSING THE GAPS ON THE CONVEYOR

Now products can be counted and detected on the conveyor in a way that was not possible before. Without gaps. Without delays. The DeltaPac accurately detects and differentiates between successive packaging items on the fly. This ensures faster, smarter and more economical production.

In other words: The DeltaPac is a patented technological world first, implemented in a unique way.

The DeltaPac closes every gap. It eliminates product separation on the conveyor and reduces downtime caused by collision. The DeltaPac is an energy-efficient solution that increases production and requires less hardware, opening up new applications for systems engineering! Deterministic product positioning opens up a new world of automation.

DeltaPac: the new, uniquely efficient photoelectric sensor from SICK.

Packaging industry



Consecutive rows of apple juice packaging



Click here for the
application video
www.sick.com/DeltaPac

A SEAMLESS LINE OF BENEFITS: HOW DeltaPac SOLVES THE PACKAGING PROBLEM

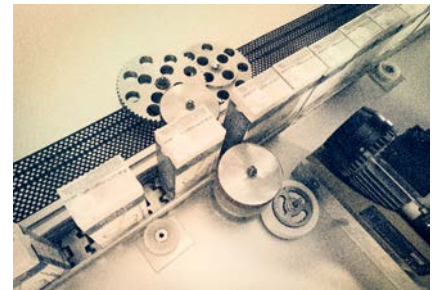
The MultiTask photoelectric sensor DeltaPac solves fundamental problems in the packaging industry. Whether it is inefficient idle running or machine downtime and loss of quality due to crashes, the DeltaPac ensures faster and more reliable production with maximum quality.



A prime example of clean production



Industry learns to count



A lean production line

Optimum product flow:

No collisions due to falling packages mean less machine downtime. Time is saved if packaging items are grouped correctly and labels are accurately positioned. Plus, steady production ensures energy efficiency.

Production that can be monitored:

You always know how many packaging items are in the process. Revolutionary for optimizing production. As a result of this new information, new measures can be implemented that increase efficiency.

Resources saved:

No more product jams and packages queues. And, no need to separate items before grouping them. This saves on mechanical costs and reduces hardware, which ultimately saves space.



Can be individually adapted to production requirements

High flexibility:

Smart Sensor communication via SOPAS-ET opens up new possibilities such as enhanced diagnostics and automatic sensor optimization. The DeltaPac adapts to the system and the optimization criteria and enables the production system to be clearly differentiated.



Automation creates simplicity

Simple operation:

All you have to do is connect and start it up. Pre-configured, automated devices guarantee fast and simple installation and fault-free operation.



PRODUCTION AT A GLANCE: DeltaPac KNOWS EXACTLY WHAT TYPE OF PACKAGE IS CONVEYED

The unique DeltaPac MultiTask photoelectric sensor is able to detect the widest range of contours. It enables products to be counted without gaps. It is ideal for detecting items typically found in today's packaging industry. Pre-configured, automated sensors detect rounded, rounded out, prism-shaped packaging items, and folded boxes. In addition, the DeltaPac is an IO-Link-compatible sensor, which unlocks further features to maximize application flexibility.

Save time with the quick installation and fault-free operation of the DeltaPac.



Rounded, round out and prism-shaped packages:

This range of packaging comprises typical beverage, food and cosmetics packaging, that is used for milk, juice, yogurt, cream and more. The DeltaPac can reliably detect these objects without any additional sensor settings.

Folded boxes:

Due to various DeltaPac versions that have been specifically adjusted at the factory, even transitions that are barely visible can be detected. For example transitions on folded boxes that are often present on packaging for tablets and cigarettes. With virtually rectangular radii.

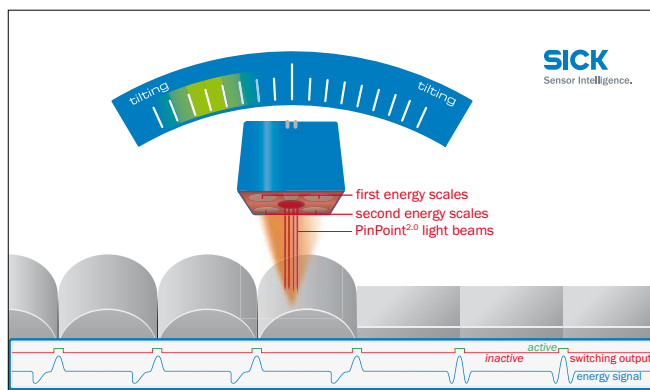
Multiple products:

Different packaging items need to be detected. With maximum sensor performance. The IO-Link-compatible DeltaPac versions are ideally suited to this task. They can detect various types of packaging and also improve the system capacity and conveyor speeds in a targeted way.

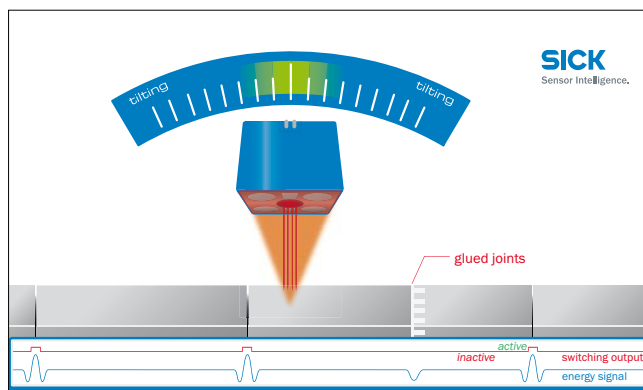


With Delta-S-Technology®, the DeltaPac can detect items better than the human eye. Although similar in terms of speed, accuracy, and flexibility. Just more reliable. It is a technological world first with unimaginable application possibilities.

AN OVERVIEW OF Delta-S-TECHNOLOGY®: THE NEW PERSPECTIVES IN USE



Energy is balanced



Detecting different object contours

Simple yet effective technology:

From side to side, the DeltaPac uses the light beams of four PinPoint 2.0 LEDs to track the contours of packaging edges. If the edge of packaging item is detected by a beam, it reflects the light. Two energy scales each with two receivers re-absorb the light. They identify the changed direction from which the light is reflected. And send corresponding switching signals. From the smallest changes in angles to the tiniest corners and edges to extremely flat angles and transitions with the smallest radii – everything is reliably detected.

The unique technology:

The DeltaPac contains the patented Delta-S-Technology®: two high-resolution energy scales with the light beams of four PinPoint 2.0 LEDs and SICK's specific SIRIC® ASIC technology. And range measurement. It is ideal for gap-free detection of corners, folds, and grooves – irrespective of color, object size, surface, and background.

Why technology fusion?

The multiple use of technology principles to prevent all types of glare, changes in contrast, unevenness, and reflective interference guarantees reliable detection of all popular types of packaging and folded boxes.



More information at
www.sick.com/siric

BRIDGING THE GAP



SIRIC
optical ASIC
invented by SICK



Additional information

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Product description

For higher efficiency and quality in the packaging industry, the DeltaPac MultiTask photoelectric sensor utilizes Delta-S technology®, which combines four PinPoint emitters and two receivers with SIRIC® and distance measurement technology. The photoelectric sensor detects object contours with radii up to 20 mm – independent of the direction and irrespective of the object's surface color – with the highest level of immunity to active and passive interference. As a result, packages do not need to be manually separated, reducing collisions and increasing throughput. The operat-

ing distance is between 30 and 40 mm to the front edge of the object. This means that the packaging does not have to be manually separated. Collisions are avoided. For better space and time utilization. The DeltaPac provides information about how many packages are present in the process for full production monitoring. The photoelectric sensor is available as a pre-configured device for fast and error-free commissioning. IO-Link, which is also available, enables tailored configuration and adaptation to match the desired application.

At a glance

- Delta-S technology®: four PinPoint emitters and two receivers combined with SIRIC® and distance measurement technology
- Direction-independent object contours with radius up to 20 mm
- For conveyor speeds up to 1.2 m/s or production capacities up to 55,000 packages per hour
- Pre-configured sensors and individual setting via IO-Link
- Compact housing (42 mm x 42 mm x 45 mm) with an IP 67 enclosure rating

Your benefits

- Selective process optimization: information about the number of packages in the process enables better production monitoring
- Better space utilization: no mechanical devices are required to isolate packages, reducing the width of packaging systems and saving space
- Better time management: packages run in push-push mode, which prevents collisions and toppling, and reduces machine downtime
- Stable production for reduced energy consumption
- Fast and intuitive commissioning due to pre-configuration
- Configuration via the IO-Link enables users to customize features based on the applications
- Space-saving mounting due to compact housing

→ www.mysick.com/en/DeltaPac

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

Sensor principle	Delta-S-Technology
Dimensions (W x H x D)	42 mm x 42 mm x 45 mm
Housing design (light emission)	Rectangular
Sensing range max.	30 mm ... 40 mm ¹⁾ (depending on type)
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	4 x Ø 1 mm (30 mm)
Wave length	635 nm
Optimized parameterization for the following objects	Folding box or stacked empty packaging / rounded, rounded out and prism shaped packaging, such as beverage cartons and soft packaging (depending on type)

¹⁾ The sensing range max. refers to the object leading edge. The individual object leading edges must be within the operating range.

²⁾ Average service life of 100,000 h at T_A = +25 °C .

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Power consumption	≤ 70 mA ²⁾ ≤ 160 mA ²⁾ (depending on type)
Output current I_{max.}	≤ 2 x 100 mA
Connection type	Connector, M12 Cable, 2 m ³⁾ (depending on type)
Circuit protection	A ⁴⁾ B ⁵⁾ C ⁶⁾
Protection class	III
Weight	130 g
IO-Link	✓ (COM2) (depending on type)
Housing material	Bayblend
Enclosure rating	IP 67
Ambient operating temperature	-40 °C ... +55 °C
Ambient storage temperature	-40 °C ... +75 °C
Switching accuracy	≤ 2 x radius
Repeatability	Typ. < 1 mm

¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ 70 mA at 24 V; 160 mA at 10 V.

³⁾ Do not bend below 0 °C.

⁴⁾ A = V_S connections reverse-polarity protected.

⁵⁾ B = inputs and output reverse-polarity protected.

⁶⁾ C = interference suppression.

Ordering information

Other models available at www.mysick.com/en/DeltaPac

WTD20E, for folding boxes

- **Object speed max.:** 0.6 m/s
- **Productivity max.:** ≤ 40,000 pcs./h
- **Switch on delay Q_1 & Q_2 :** ≤ 80 ms
- **Time delay off Q_1 :** ≤ 80 ms
- **Pulse length (Q2):** ≤ 20 ms
- **Background suppression:** ≥ 60 mm
- **Object height min.:** ≥ 30 mm ¹⁾

Object width min.	Radius of the object contour	Key feature of the object	Sensing range	Output type	Connection	Connection diagram	Model name	Part no.
≥ 10 mm	1 mm ... 2 mm	Edges	30 +/- 2 mm	PNP	Connector M12, 4-pin	Cd-243	WTD20E-V2445	1065772
				NPN	Cable, 4-wire, 2 m, PVC	Cd-242	WTD20E-W1145	1065773

¹⁾ The minimum object height is relevant only for mounting the DeltaPac above the belt.

WTD20E, IO-Link for folding boxes ¹⁾

- **Object speed max.:** 0.6 m/s
- **Productivity max.:** ≤ 200,000 pcs./h
- **Switch on delay Q_1 & Q_2 :** 0 ms ... 255 ms
- **Time delay off Q_1 :** 0 ms ... 255 ms
- **Pulse length (Q2):** 0 ms ... 63 ms
- **Background suppression:** ≥ 60 mm
- **Object height min.:** ≥ 30 mm ²⁾

Object width min.	Radius of the object contour	Key feature of the object	Sensing range	Output type	Connection	Connection diagram	Model name	Part no.
≥ 10 mm	1 mm ... 2 mm	Edges	30 +/- 2 mm	PNP, IO-Link	Connector M12, 4-pin	Cd-244	WTD20EC-3V2449	1064783

¹⁾ The SOPAS-ET software makes it possible to customize the DeltaPac product properties. For more information about this software, go to www.sick.de/DeltaPac.

²⁾ The minimum object height is relevant only for mounting the DeltaPac above the belt.

WTD20E, rounded, rounded out and prism shaped packaging

- **Object speed max.:** 1.2 m/s
- **Productivity max.:** ≤ 54,000 pcs./h
- **Switch on delay Q_1 & Q_2 :** ≤ 60 ms
- **Time delay off Q_1 :** ≤ 60 ms
- **Pulse length (Q2):** ≤ 20 ms
- **Background suppression:** ≥ 80 mm
- **Object height min.:** ≥ 50 mm ¹⁾

Object width min.	Radius of the object contour	Key feature of the object	Sensing range	Output type	Connection	Connection diagram	Model name	Part no.
≥ 20 mm	2 mm ... 5 mm	Rounded edges	30 mm ... 35 mm	PNP	Connector M12, 4-pin	Cd-243	WTD20E-V2414	1064778
≥ 30 mm	5 mm ... 20 mm	Rounded out body and prism shaped	30 mm ... 40 mm					
≥ 20 mm	2 mm ... 5 mm	Rounded edges	30 mm ... 35 mm	NPN	Cable, 4-wire, 2 m, PVC	Cd-242	WTD20E-W1114	1064779
≥ 30 mm	5 mm ... 20 mm	Rounded out body and prism shaped	30 mm ... 40 mm					

¹⁾ The minimum object height is relevant only for mounting the DeltaPac above the belt.

WTD20E, IO-Link for rounded, rounded out and prism shaped packaging ¹⁾

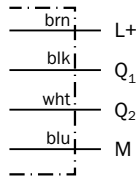
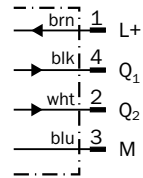
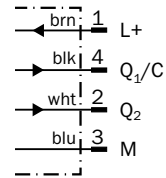
- **Object speed max.:** 3 m/s
- **Productivity max.:** ≤ 200,000 pcs./h
- **Switch on delay Q_1 & Q_2 :** 0 ms ... 255 ms
- **Time delay off Q_1 :** 0 ms ... 255 ms
- **Pulse length (Q2):** 0 ms ... 63 ms
- **Background suppression:** ≥ 80 mm
- **Object height min.:** ≥ 50 mm ²⁾

Object width min.	Radius of the object contour	Key feature of the object	Sensing range	Output type	Connection	Connection diagram	Model name	Part no.
≥ 20 mm	2 mm ... 20 mm	Rounded out body and prism shaped	30 mm ... 40 mm	PNP, IO-Link	Connector M12, 4-pin	Cd-244	WTD20EC-3V2419	1064782

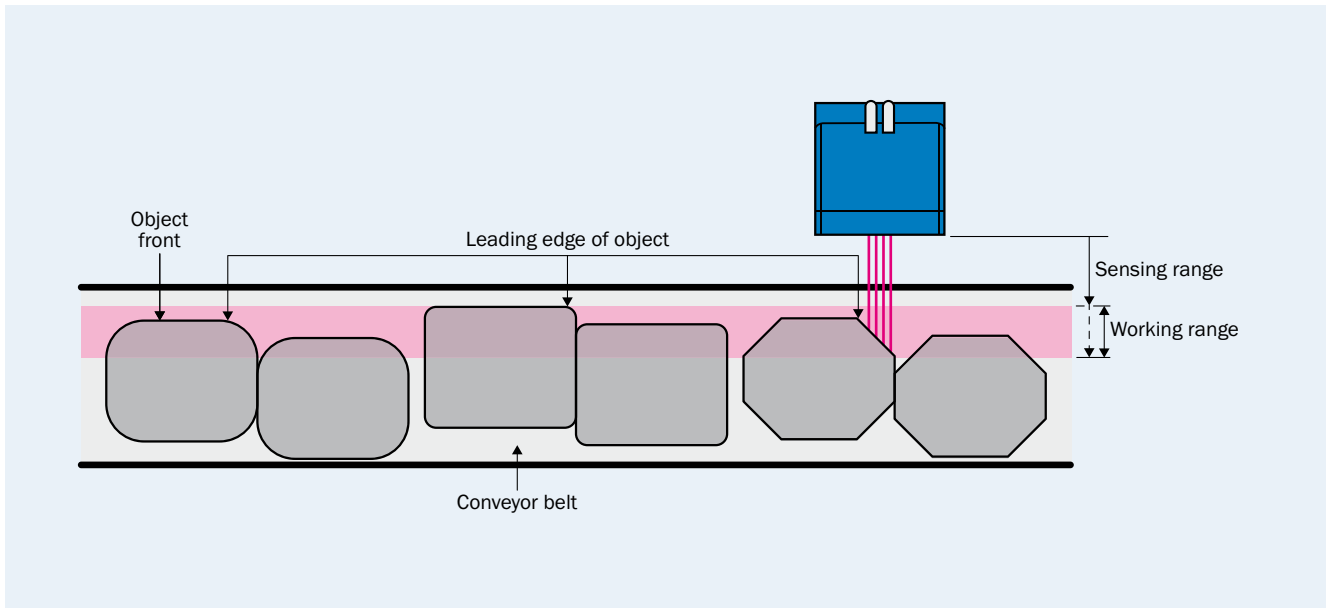
¹⁾ The SOPAS-ET software makes it possible to customize the DeltaPac product properties. For more information about this software, go to www.sick.de/DeltaPac.

²⁾ The minimum object height is relevant only for mounting the DeltaPac above the belt.

Connection diagram

Cd-242**Cd-243****Cd-244**

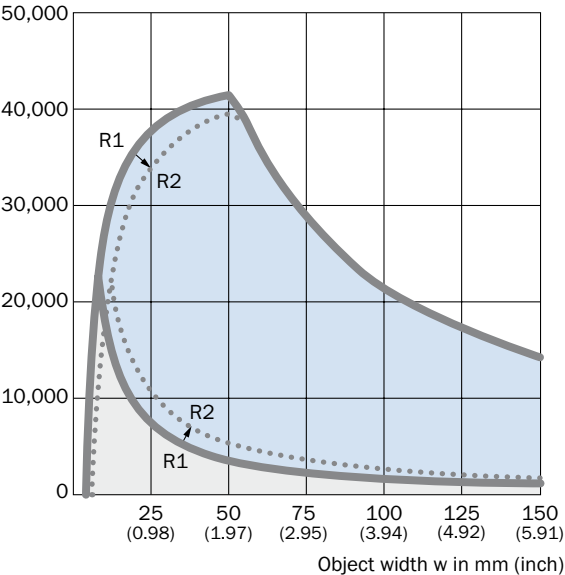
Sensing range in detail



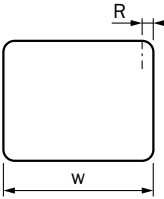
Productivity figures

WTD20E-V/Wxx4x, edges, productivity

Productivity P in pc/h



— = R1, Radii of 1 mm
..... = R2, Radii of 2 mm
■ = Working range
■ = Maximal working range

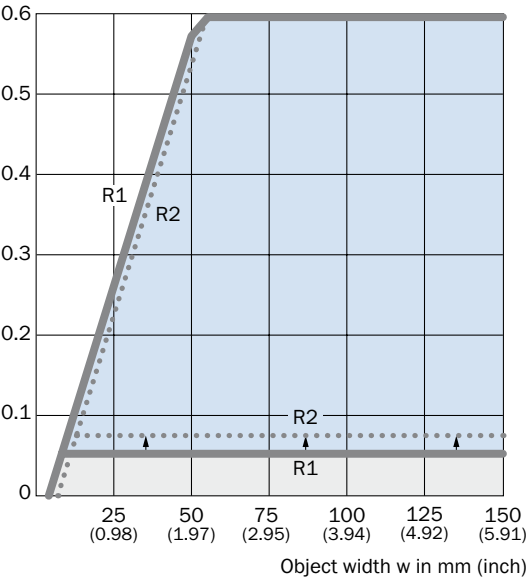


Parameter example, dimensions in mm (inch)

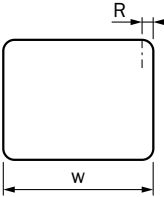
Object width	Object radii	Productivity min.	Productivity max.
25 (0.98)	1 (0.04)	7,500 pc/h	38,000 pc/h
75 (2.95)	2 (0.08)	3,500 pc/h	28,500 pc/h

WTD20E-V/Wxx4x, edges, speed

Object speed v in m/s



— = R1, Radii of 1 mm
..... = R2, Radii of 2 mm
■ = Working range
■ = Maximal working range

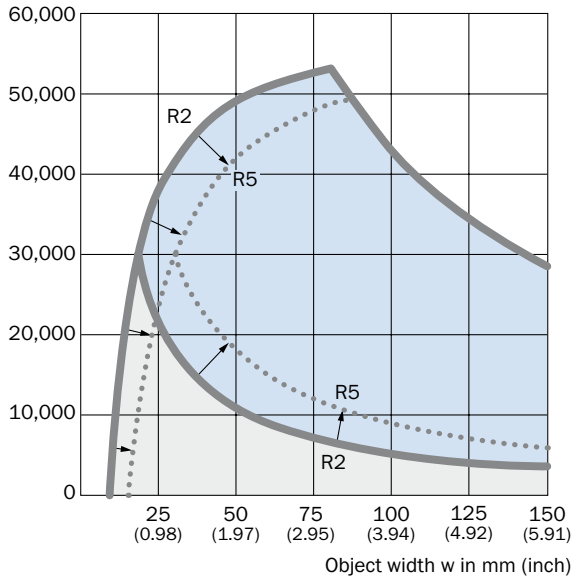


Parameter example, dimensions in mm (inch)

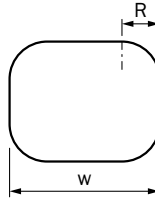
Object width	Object radii	Object speed min.	Object speed max.
25 (0.98)	1 (0.04)	0.05 m/s	0.26 m/s
75 (2.95)	2 (0.08)	0.08 m/s	0.6 m/s

WTD20E-V/Wxx1x, rounded edges, productivity

Productivity P in pc/h



- = R2, Radii of 2 mm
- = R5, Radii of 5 mm
- = Working range
- = Maximal working range

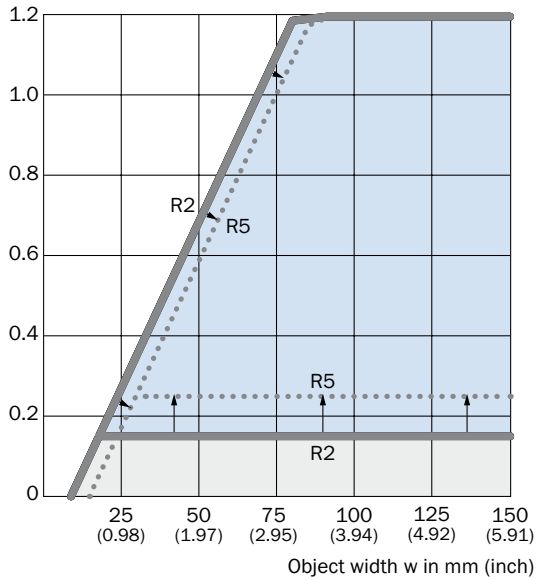


Parameter example, dimensions in mm (inch)

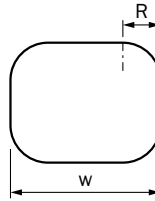
Object width	Object radii	Productivity min.	Productivity max.
75 (2.95)	2 (0.08)	7,000 pc/h	53,000 pc/h
125 (4.92)	5 (0.20)	7,000 pc/h	34,500 pc/h

WTD20E-V/Wxx1x, rounded edges, speed

Object speed v in m/s



- = R2, Radii of 2 mm
- = R5, Radii of 5 mm
- = Working range
- = Maximal working range

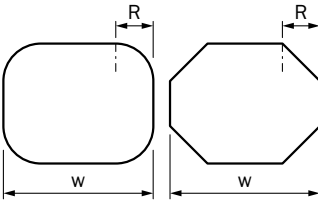
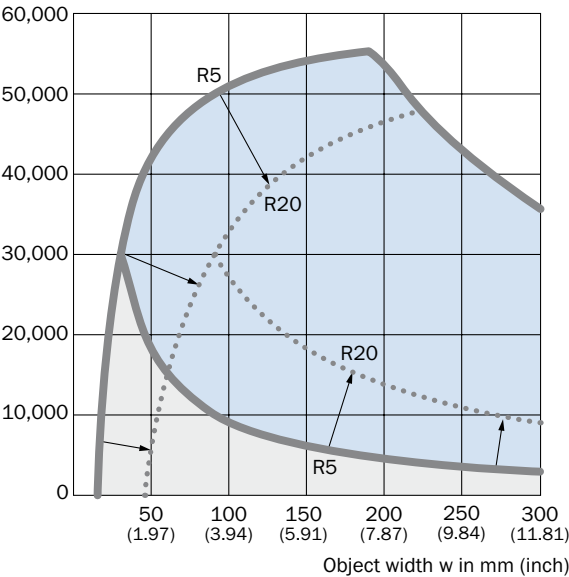


Parameter example, dimensions in mm (inch)

Object width	Object radii	Object speed min.	Object speed max.
75 (2.95)	2 (0.08)	0.15 m/s	1.1 m/s
125 (4.92)	5 (0.20)	0.25 m/s	1.2 m/s

WTD20E-V/Wxx1x, rounded out body and prism shaped, productivity

Productivity P in pc/h

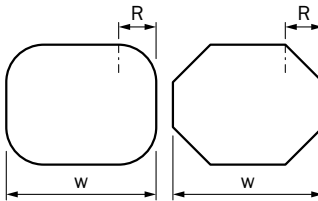
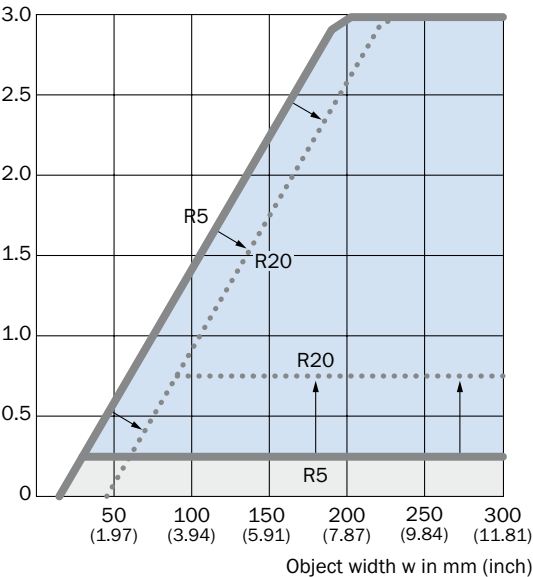


Parameter example, dimensions in mm (inch)

Object width	Object radii	Productivity min.	Productivity max.
200 (7.87)	5 (0.20)	4,500 pc/h	53,500 pc/h
250 (9.84)	20 (0.79)	11,000 pc/h	43,000 pc/h

WTD20E-V/Wxx1x, rounded out body and prism shaped, productivity, speed


Object speed v in m/s



Parameter example, dimensions in mm (inch)

Object width	Object radii	Object speed min.	Object speed max.
200 (7.87)	5 (0.20)	0.25 m/s	3.0 m/s
250 (9.84)	20 (0.79)	0.75 m/s	3.0 m/s

Cleaning agent

Figure	Description	Model name	Part no.
	Plastic cleaner and care product, anti-static	Plastic cleaner	5600006
	35 cm x 35 cm	Lens cloth	4003553

Mounting bracket/plates

Figure	Description	Material	Model name	Part no.
	Special oval mounting	Stainless steel V2A (1.4305)	Mounting set for articulated arm	2069055



Other accessories

Figure	Model	Model name	Part no.
	1.0 - 7.0 mm	Radius gauge	5328155
	7.0 - 15.0 mm	Radius gauge	5328157
	15.5 - 25.0 mm	Radius gauge	5328158

Plug connectors and cables


Connecting cable (female connector-open) M12, 4-pin, PVC

- **Enclosure rating:** IP 67

Figure	Connection type head A	Connection type head B	Cable length	Model name	Part no.
	Female connector, M12, 4-pin, straight	Cable	2 m	DOL-1204-G02M	6009382
			5 m	DOL-1204-G05M	6009866
			10 m	DOL-1204-G10M	6010543
			15 m	DOL-1204-G15M	6010753
	Female connector, M12, 4-pin, angled	Cable	2 m	DOL-1204-W02M	6009383
			5 m	DOL-1204-W05M	6009867
			10 m	DOL-1204-W10M	6010541
			15 m	DOL-1204-W15M	6036474

Connection cable (male-female connector) M12, 4-pin, PVC






- **Enclosure rating:** IP 67

Figure	Connection type head A	Connection type head B	Cable length	Model name	Part no.
	Female connector, M12, 4-pin, straight	Connector, M12, 4-pin, straight	2 m	DSL-1204-G02M	6022567
			5 m	DSL-1204-G05M	6022569
			0.6 m	DSL-1204-G0M6	6022565
			10 m	DSL-1204-G10M	6034406
			1.5 m	DSL-1204-G1M5	6034822
			20 m	DSL-1204-G20M	6034407

Reference materials

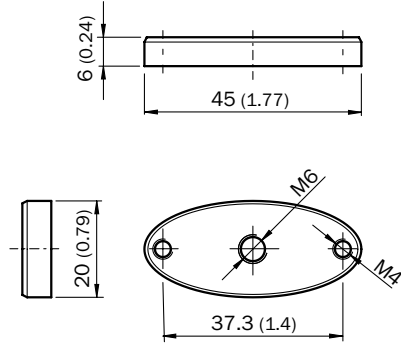
Figure	Dimensions	Material	Model name	Part no.
	10 mm x 55 mm x 40 mm	ABS	Demonstration target	4077622

Universal bar clamp systems

Figure	Description	Material	Model name	Part no.
	Universal bar clamp for mounting bars with 12 mm diameter	Zinc diecast	BEF-KHS-KH3	5322626
	Plate N10 for universal clamp bracket	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N11N	2071081
	Mounting bar, straight, 200 mm	Steel, zinc coated	BEF-MS12G-A	4056054
	Mounting bar, straight, 300 mm	Steel, zinc coated	BEF-MS12G-B	4056055
	Mounting bar, L-shaped, 150 mm x 150 mm	Steel, zinc coated	BEF-MS12L-A	4056052
	Mounting bar, L-shaped, 250 x 250 mm	Steel, zinc coated	BEF-MS12L-B	4056053
	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm	Steel, zinc coated	BEF-MS12Z-A	4056056
	Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm	Steel, zinc coated	BEF-MS12Z-B	4056057
	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	Aluminum	BEF-RMC-D12	5321878

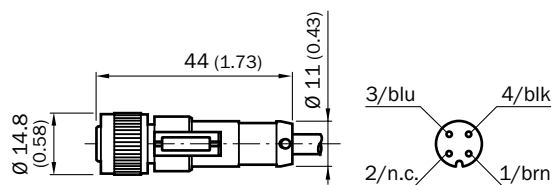
Dimensional drawings mounting bracket/plates

Mounting set for articulated arm

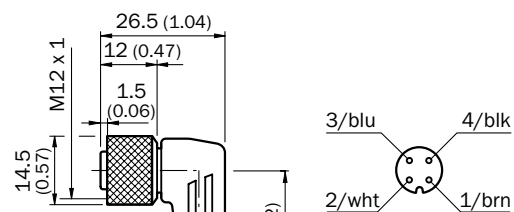


Dimensional drawings plug connectors and cables

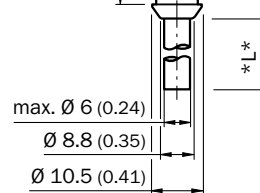
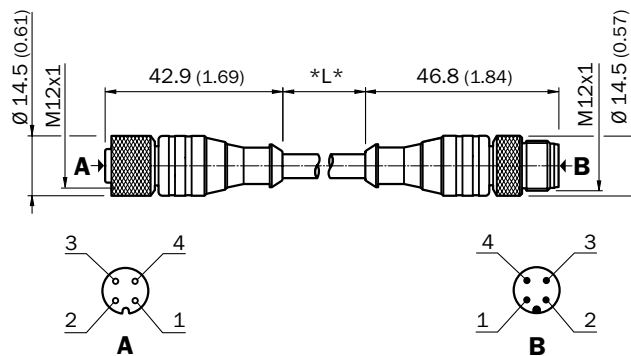
DOL-1204-GxxM



DOL-1204-WxxM

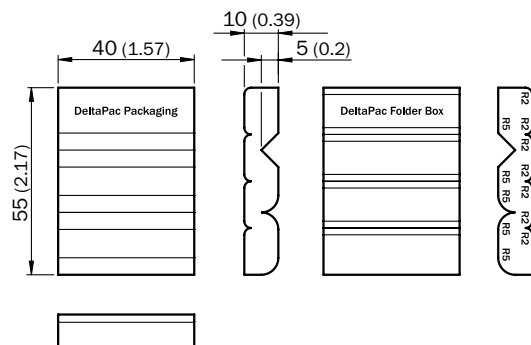


DSL-1204-GxxM, DSL-1204-GxMx



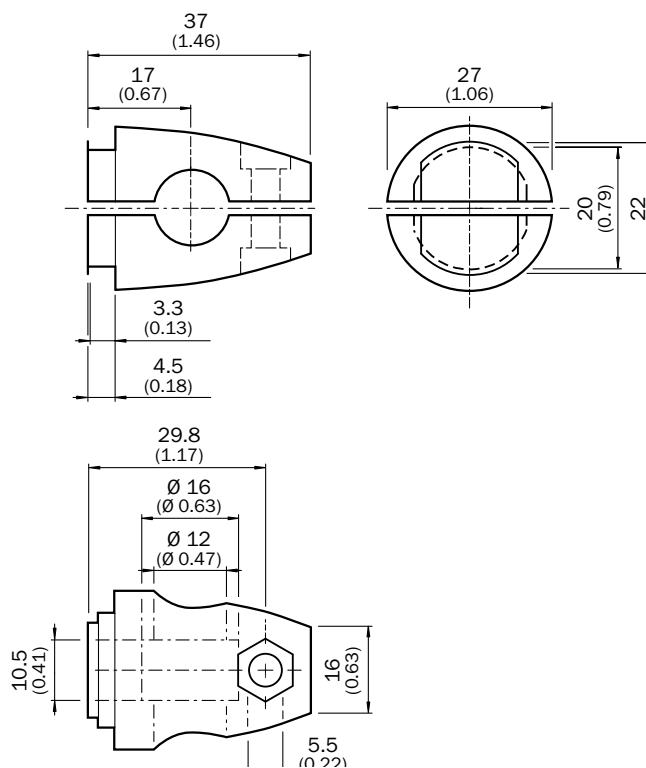
Dimensional drawings reference materials

Demonstration target



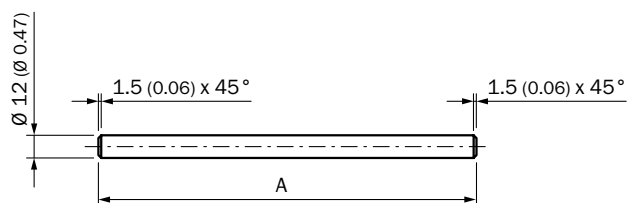
Dimensional drawings universal bar clamp systems

BEF-KHS-KH3



BEF-MS12G-A

BEF-MS12G-B

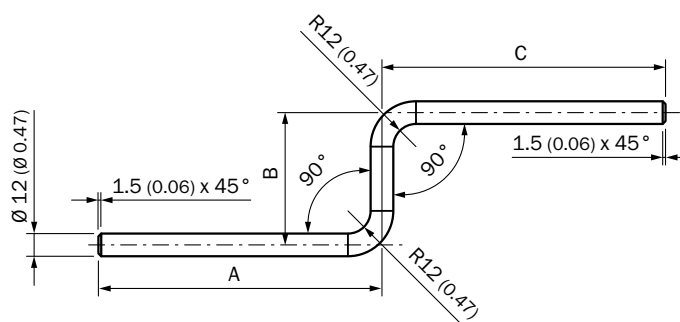


BEF-MS12G-(N)A: A = 200 mm

BEF-MS12G-(N)B: A = 300 mm

BEF-MS12Z-A

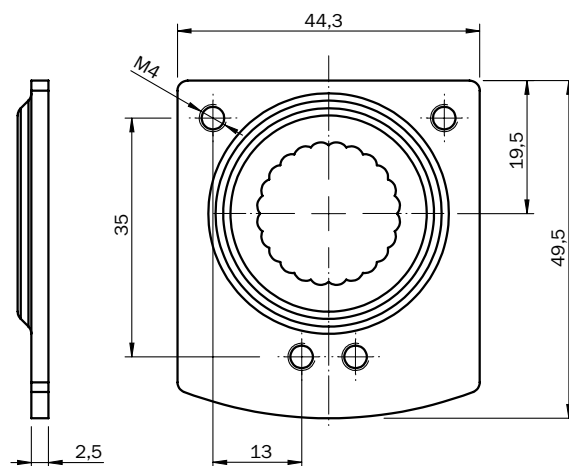
BEF-MS12Z-B



BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm

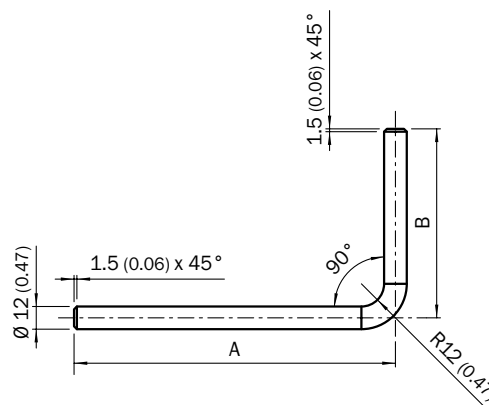
BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

BEF-KHS-N11N



BEF-MS12L-A

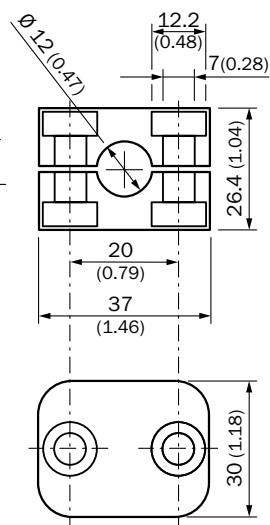
BEF-MS12L-B



BEF-MS12L-(N)A: A = 200 mm, B = 150 mm

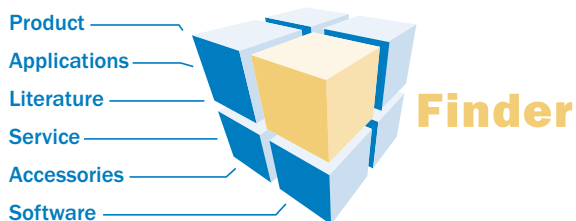
BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

BEF-RMC-D12



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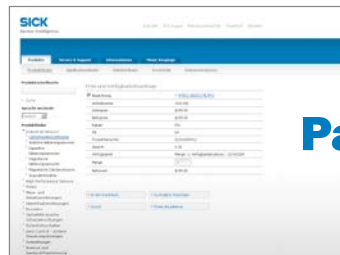


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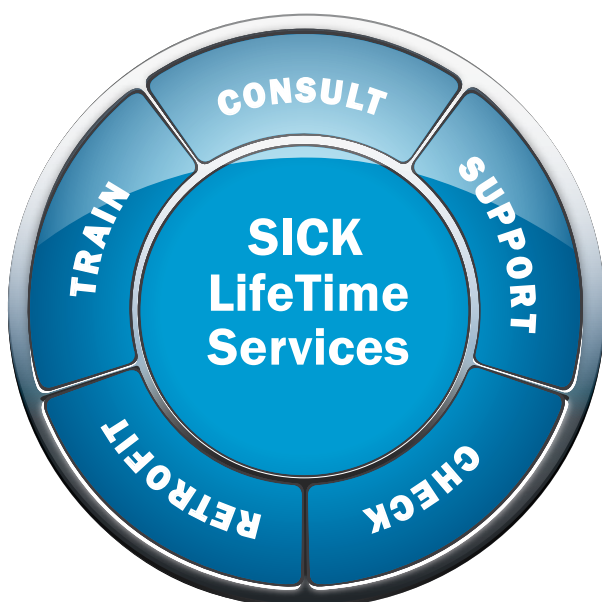
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