



 **SmartFork**[®]
The intelligent SensorFork





**The major challenge:
Logistics of the future must become safer...**

...there is much to be done

Truck driver severely injured in accident in brewery
 ws/khh - wirsiegen.de
 A 55-year-old truck driver was badly injured on Thursday evening in an industrial accident in a bottling and logistics plant... The serious accident occurred during loading activities of a pallet loaded with around 800 kg.

Worker hurt in rollover
 www.forkliftaction.com 29.04.2021
 A worker was rushed to hospital after becoming trapped under a forklift truck at the side of the road in Batley. An air ambulance was called to the scene after the forklift rolled over, trapping one person. Reports suggest workers had been unloading the lorry at the side of the road when the accident occurred.

Accident with forklift: 1000 liters of corrosive liquid leak
 www.haz.de 14.02.2021 14:12
 On the premises of a forwarding agency near Hanover, the driver of a lift truck damaged a plastic container so badly that around 1000 litres of corrosive liquid leaked out. The fire brigade arrived with a large contingent and was in attendance in the freezing cold until late into the night.

34,900 fork truck accidents annually *

85 fork truck deaths annually *

\$188,000 average costs for serious accidents *



SmartFork® – Intelligent SensorForks

7 good reasons for the use in logistics 4.0

1
Improve visibility:
Even with loaded cargo

2
Higher level of safety:
For staff and goods

3
Reduce damages: Through improved visibility and intelligent sensor technology

4
Reduce costs: Through less damage to goods and packaging











7
Easy handling: Intelligent sensors integrated in the forks make your work easier

6
Save time: Through safe navigation when transporting goods and faster workflows

5
Better ergonomics: Full visibility without uncomfortable rotation of the head and the upper body

The SmartFork® applications at a glance

Each SmartFork® application is clever. But only in combination they form an intelligent overall solution that guarantees more safety and efficiency.

	SmartFork® FrontCam	SmartFork® SideCam	SmartFork® Laser
Function	Integrated camera in the fork tip for the best view ahead the load 	Semi-integrated camera in the lateral fork blade for the best view of the load 	Integrated laser projection onto the central block of the load carrier to pick up loads safely 
Installation			
Applications	 Unobstructed forward view  Storing of goods		
Signal output	SmartFork® monitor	SmartFork® monitor	
Signal transmission	Wired or WiFi	Wired or WiFi	
Power supply	Battery or wired with interface on the fork head	Battery or wired with interface on the fork head	Battery or wired with interface on the fork head
Possible combinations	SmartFork® Laser	SmartFork® Laser	SmartFork® FrontCam SmartFork® SideCam

Note: These are commercial representations of principles that do not form a contractual basis or guarantee services. As an assistance system, SmartFork® does not release you from due diligence and personal responsibility during the assignment.

Very stable design for HEAVY DUTY applications

- ▶ Continuous shock resistance up to 100g vibration resistance up to 5g (100g corresponds to 100-fold gravity)
- ▶ High mechanical loading capability according to independent testing laboratories

SmartFork® FrontCam

The only solution for best view ahead the load



Monitor view with loaded cargo



SmartFork® FrontCam integrated in the fork tip

Features / characteristics



Extension of the field of vision ahead the load



Sighting of carriers



Safe loading



Detecting persons / obstacles when the load is picked up



Camera lens with 0° angle of inclination
Tip thickness only 1"

Scope of supply

- ▶ 1 SmartFork® incl. camera and LED
- ▶ 1 fork as counterpart

- ▶ **Signal output:** SmartFork® monitor
- ▶ **Signal transmission:** Wired or WiFi
- ▶ **Power supply:** Battery or wired with interface on the fork head

For even higher safety we recommend the combination with SmartFork® Laser.

CAMERA
MADE IN
GERMANY



SmartFork® SideCam

Perfect view of the load



Features / characteristics



Easy and safe retraction in pallets



Improved lifting of loads



Reduced manoeuvring damages



Both forks in the camera field of view



Aiming along the fork



Unique, semi-integrated camera installation:
Overhang of camera only 0,47"
(instead of approx. $\geq 1,22''$)



Cable routing integrated into the fork



Significantly stronger and more durable solution compared to previous systems

Scope of supply

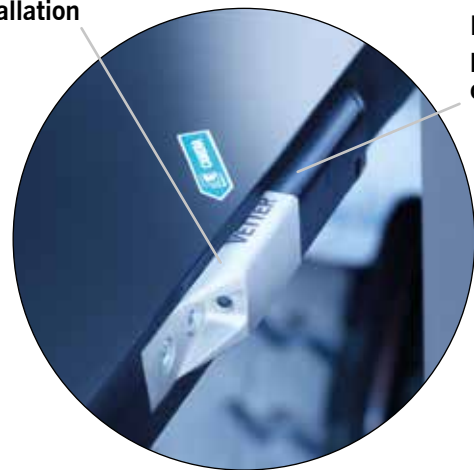
- ▶ 1 SmartFork® incl. side camera
- ▶ 1 fork as counterpart
- ▶ **Signal output:** SmartFork® monitor
- ▶ **Signal transmission:** Wired or WiFi
- ▶ **Power supply:** Battery or wired with interface on the fork head

For even higher safety we recommend the combination with SmartFork® Laser.



Monitor view before load pick-up

No risk of being sheared off due to robust camera installation



Robust connector protection to prevent damage

Approx. 60 % reduction in installation height due to partially recessed camera

SmartFork® SideCam – semi-integrated camera installation in the lateral fork blade



Optional combination of SmartFork® SideCam and SmartFork® Laser





SmartFork® Laser

Targeting made easy



Features / characteristics SmartFork® Laser



Precise targeting of pallets and loads **even with loaded cargo**



Safe loading



Simple load pick-up in the warehouse



Less damage to the transported goods



Laser safety class 1M, no risk of eye injuries



Laser available in red or green, depending on the surrounding conditions



Integration into the lift trucks' s height control system possible (only wired version)



Minimum tip thickness only 1"



Clear laser projection onto the central block of the load carrier

Scope of supply

- ▶ 1 SmartFork® incl. laser
- ▶ 1 fork as counterpart
- ▶ **Energy supply:** Battery or wired via electrical system

For even higher safety we recommend the combination with: SmartFork® FrontCam / SmartFork® SideCam.



SmartConnect

Energy supply / data transfer



Signal output



Mast cable

- ▶ For data- and energy transfer
- ▶ Permanent energy supply, connection to the electrical system

Spiral cable

- ▶ For data- and energy transfer
- ▶ Permanent energy supply, connection to the electrical system
- ▶ Quick and easy assembly

WiFi / Digital radio transmission

- ▶ No mast cable necessary (minimal installation effort)
- ▶ Interference resistant through 2,4 GHZ digital radio
- ▶ Up to 10 systems simultaneously applicable
- ▶ **SmartEnergy:** automatic deactivation at a standstill (energy saving mode)

Monitor

- ▶ Proven video standard
- ▶ Up to 4 camera images simultaneously
- ▶ Installation with RAM mount

Article overview

		Cross section	Load center	Mounting	Fork tip	Blade length	Part Number	
SmartFork® FrontCam	1.5 x 4.75"	5,500 lbs at 24"	ITA Class 2	1"	42"	IMP1204010702AFCA01		
					48"	IMP1204012202AFCA01		
	2 x 4.75"	9,250 lbs at 24"	ITA Class 3		42"	IMP1205010703AFCA01		
					48"	IMP1205012203AFCA01		
SmartFork® SideCam	1.5 x 4.75"	5,500 lbs at 24"	ITA Class 2	0.5"	42"	IMP1204010702ASCA01		
					48"	IMP1204012202ASCA01		
	2 x 4.75"	9,250 lbs at 24"	ITA Class 3		42"	IMP1205010703ASCA01		
					48"	IMP1205012203ASCA01		
SmartFork® Laser	Laser red	1.5 x 4.75"	5,500 lbs at 24"	ITA Class 2	1"	42"	IMP1204010702ALAR01	
						48"	IMP1204012202ALAR01	
		2 x 4.75"	9,250 lbs at 24"			ITA Class 3	42"	IMP1205010703ALAR01
							48"	IMP1205012203ALAR01
	Laser green	1.5 x 4.75"	5,500 lbs at 24"	ITA Class 2		1"	42"	IMP1204010702ALAG01
							48"	IMP1204012202ALAG01
		2 x 4.75"	9,250 lbs at 24"	ITA Class 3			42"	IMP1205010703ALAG01
							48"	IMP1205012203ALAG01

Other blade lengths for your individual application on request!

SmartFork® FAQ

? Can existing forks be reworked into a SmartFork®?

! Our SmartForks® are designed and made per your individual request. It is not possible, to rework existing forks into a SmartFork®.

? Is the load capacity limited with integrated SmartFork® solutions?

! The SmartFork® is rated with the capacities according the ITA class they are made for. Compliance with ISO 2330 is ensured at all time (e.g. a safety factor of 3).

? Is it possible to fit SmartFork® applications to special forks or forks for attachments?

! Yes, SmartFork® applications may be installed into almost all special forks. Thus use on attachments, for example multiple pallet clamps, is possible. We will gladly check your particular application!

? Are SmartFork® suitable for all load carriages, transport goods and application ranges?

! Yes, in principle the SmartFork® can be applied in many different environments - though sometimes special adjustments and designs are required. We will gladly check your individual demands (special load carrier, transported goods and environmental conditions). Information on minimum dimensions / structural dimensions for the individual application can be found under scope of delivery.

? How will I proceed if the SmartFork® basic fork is worn: Is it possible to reuse the electric components?

! Yes, spare parts supply of the SmartFork® comprises an exchange of the base fork as well as an exchange of individual electric components. The overall condition / operating hours of the complete SmartFork® should always be checked during wear examination or exchange of spare parts to take economically sensible decisions. We will be happy to check your request, contact us!

? The SmartFork® FrontCam design has the camera at the very tip of the fork. How is the camera protected against damage?

! The camera is recessed in the fork tip and additionally protected by a cover plate to protect the lens. We have very good experience with this method and can provide each individual part to be exchanged in case of a damage. The system is designed to have components exchanged plug&play.

SmartFork® in practice



Limited driver's visibility when storing goods without SmartFork® FrontCam



Driver's visibility on the monitor when storing goods with SmartFork® FrontCam



SmartFork® SideCam – partially integrated installation



SmartFork® SideCam: monitor during pallet pick-up

The best solution for your lift truck!

Installation to an attachment? Use with special load carriages?
Special environmental conditions (heat / cold zones / light conditions /
outdoor operation / heavy duty, etc.)?

Let us talk about your individual application!



5 good reasons for VETTER:

- 1.** Trust in the competence and experience of a world-wide leading fork manufacturer.
- 2.** Fast and independent decisions - that is what VETTER stands for since 1889.
- 3.** You have access to the largest fork program worldwide, standard or customized, in all sizes, for each and any application and always with an eye to your individual demands.
- 4.** Take part in revolutionizing the logistics of the future: VETTER is leader in the field of forks for Logistics 4.0.
- 5.** Individual service – personally and on site.

Logistics is future
... and VETTER provides the tool:
THE FORK*****



At your service - worldwide!

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