

ifm electronic



Processes in the Machine Tool Industry

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ifm – your partner for machine tools



The name ifm stands for a large range of different sensors and systems for automation technology worldwide.

For more than forty years the family-run company has been researching, developing and producing with the aim of optimising technical processes and conserving resources.

An extremely wide product range provides sufficient flexibility to meet customer requirements in the most varied industries: from an individual sensor and matching accessories to a complete system solution. Of course all relevant approvals are available.

As one of the global players, ifm guarantees worldwide availability of the units. More than 70 branch offices worldwide ensure competent advice on-site.

ifm – close to you!



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The company in your vicinity.



State-of-the-art communication.

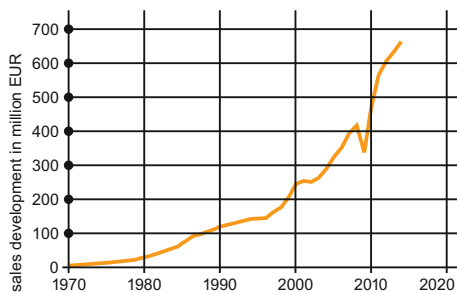
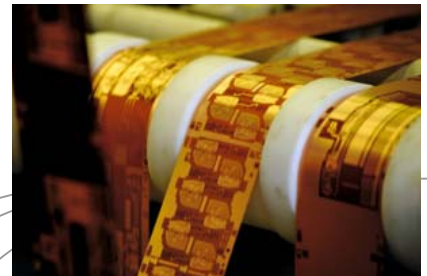
With the right address – www.ifm.com – only a mouse click separates you from the world of automation technology. See the power of our products in interactive representations. Gain an impression with 3-dimensional views of our units. Download CAD drawings for direct integration in your applications. Or order online in ifm's e-shop – fast, convenient and reliable.

We are there for you.

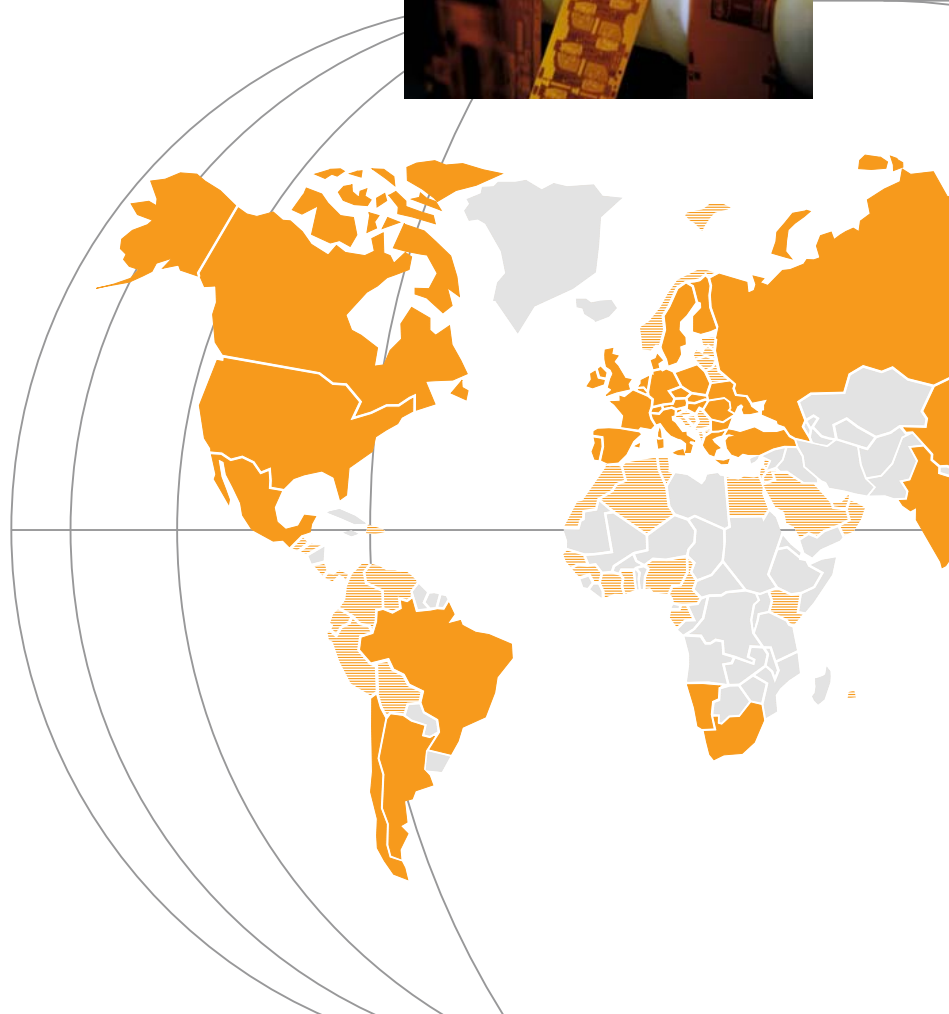
Close contact with our customers is part of our success. Therefore we have consistently developed our sales network right from the start. Today the ifm group of companies is represented in more than 70 countries – close to you! With application advice and service at the heart of our operation. For the introduction of new products and technologies we support you with workshops and seminars in our training centres or in your plant.

Security by success.

Since its foundation in 1969 ifm has constantly grown, now having more than 5500 employees worldwide, and achieved a turnover of more than EUR 720 million in 2015. This success gives you the security of having a reliable partner for the implementation of your automation projects. Comprehensive service and a warranty of 5 years on standard units are just two examples of this reliability.



Turnover development since 1970.



Not only components.

ifm stands for a large range of different sensors and systems for automation. Our range of more than 7,800 articles guarantees flexibility and compatibility. So there is always a reliable solution for your automation projects – from the individual sensor with practical accessories to the complete system.

Availability guaranteed.

Your deadlines matter to us. That is why we are constantly optimising our production processes in order to be able to quickly and flexibly produce large quantities at a constantly high quality – and to continue to shorten delivery times. Your order is dispatched via our centralised logistics centre reliably and on time.

Quality as part of our philosophy.

The quality standard of our products is an integral part of our company philosophy. And we guarantee it! So we provide you, the users, with a maximum degree of security: By means of our own production technology, ifm film technology, as well as by means of extensive quality assurance measures such as 100 % final testing. By quality we understand, for example, ecologically conscious production – Made in Germany!

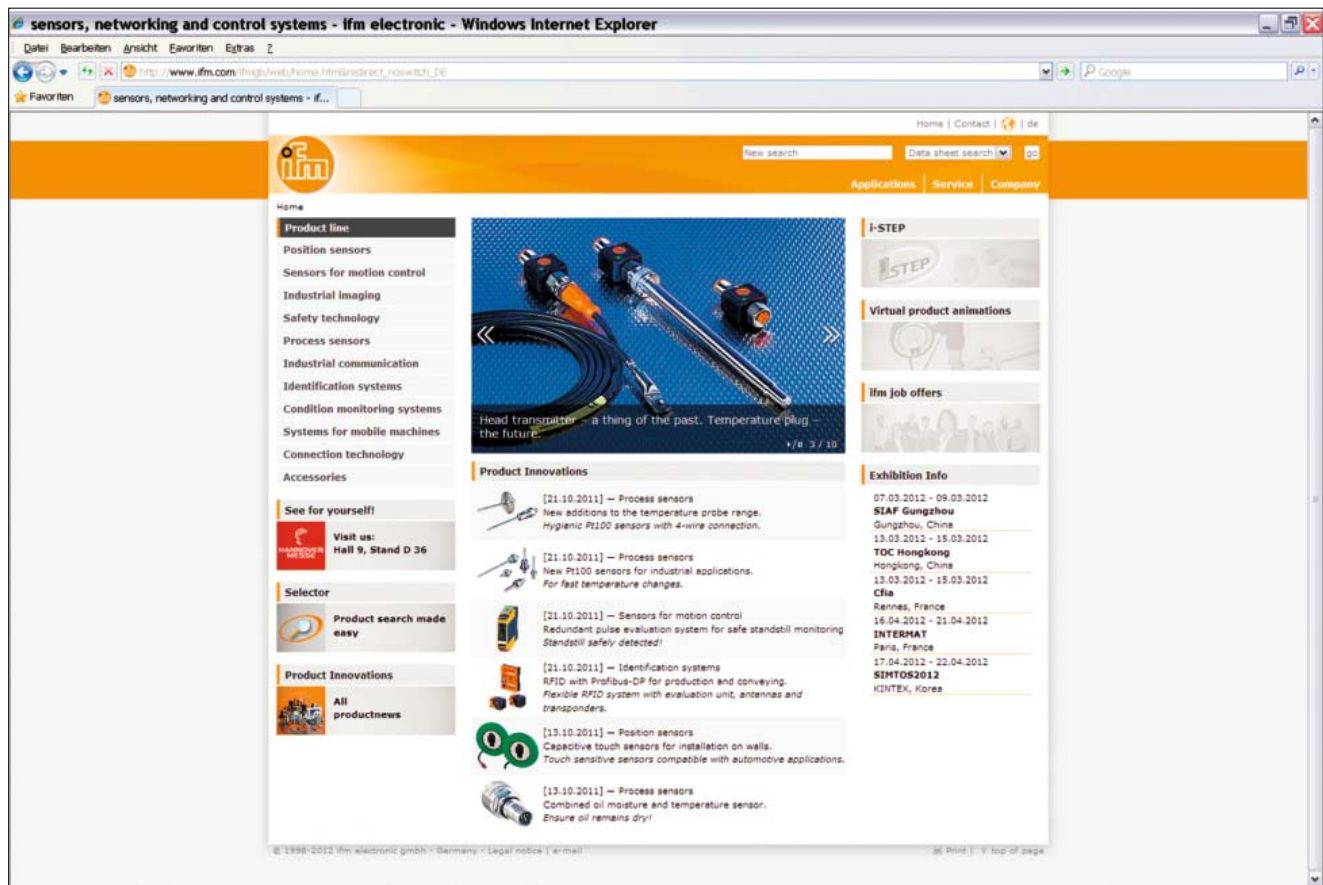


The development of innovative products is one of our core competences. From high-quality standard solutions to products specially tailored to the requirements of the individual industries – from mobile machines to the food industry.



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• Information

- product innovations
- company news
- exhibition info
- locations
- jobs

• Documentation

- data sheets
- operating instructions
- manuals
- approvals
- CAD data

• Communication*

- request for documents
- recall service
- live advice
- newsletter

• Selection

- interactive product selection aids
- configuration tools
- data sheet direct

• Animation

- virtual product animations
- flash movies (video sequences)

• Application

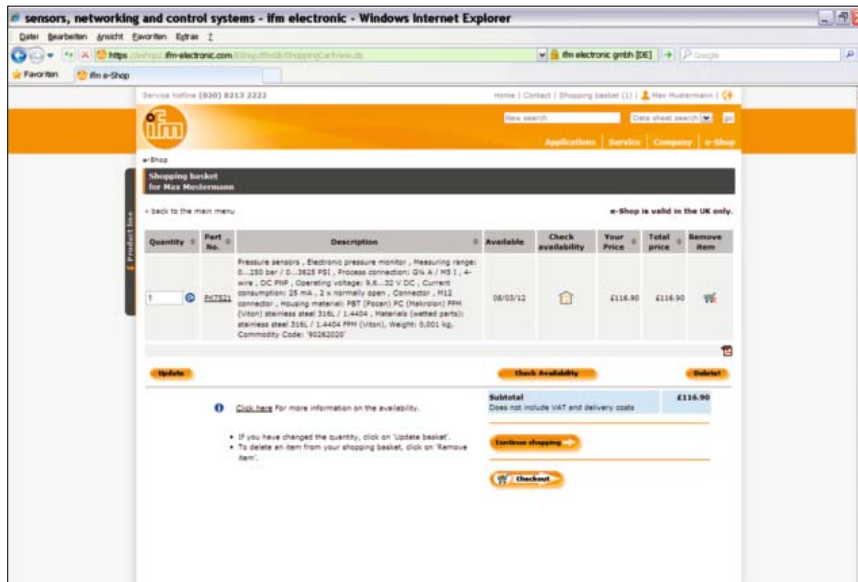
- applications
- product recommendations
- calculation aids

• Transaction*

- e-shop processing
- e-procurement catalogues

*Some offered information is available country-specific

Convenient order processing via the e-shop** on the internet.



Secured authentication

Customer-related price indication

Real time availability check

Personal product favourites

Online parcel tracking

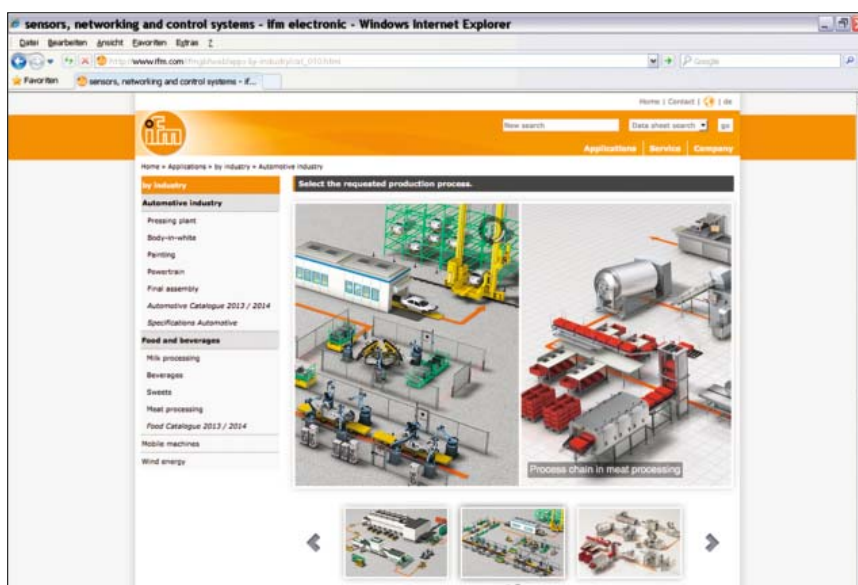
Individual order history

Convenient quick input form

Simple order processing

Management of shipping addresses

Confirmations by e-mail



ifm application database

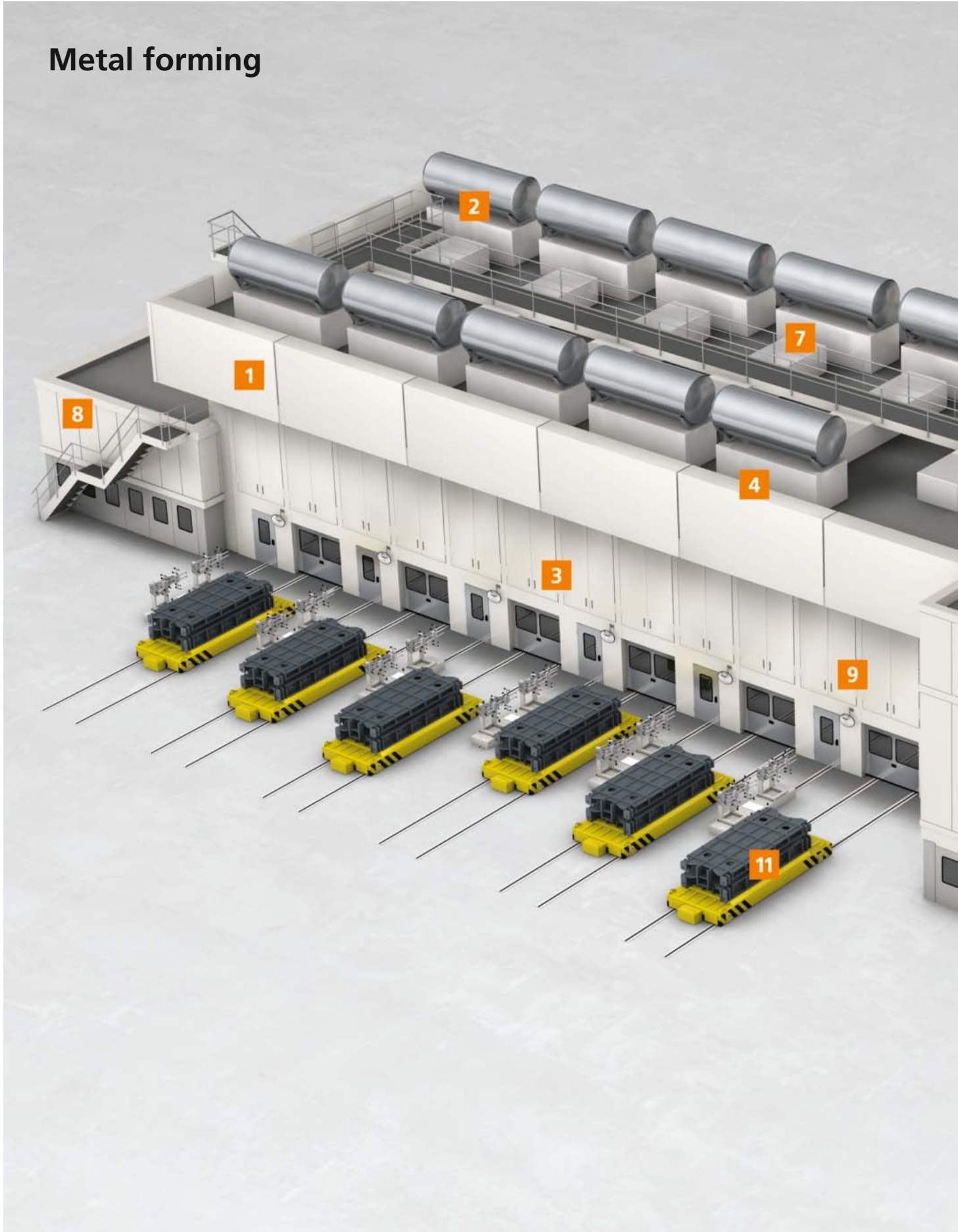
ifm's automation technology is used to for applications in many different types of plant in almost all industries. Learn how ifm can improve your production.

Application examples can be found on our website at:

www.ifm.com/gb/applications

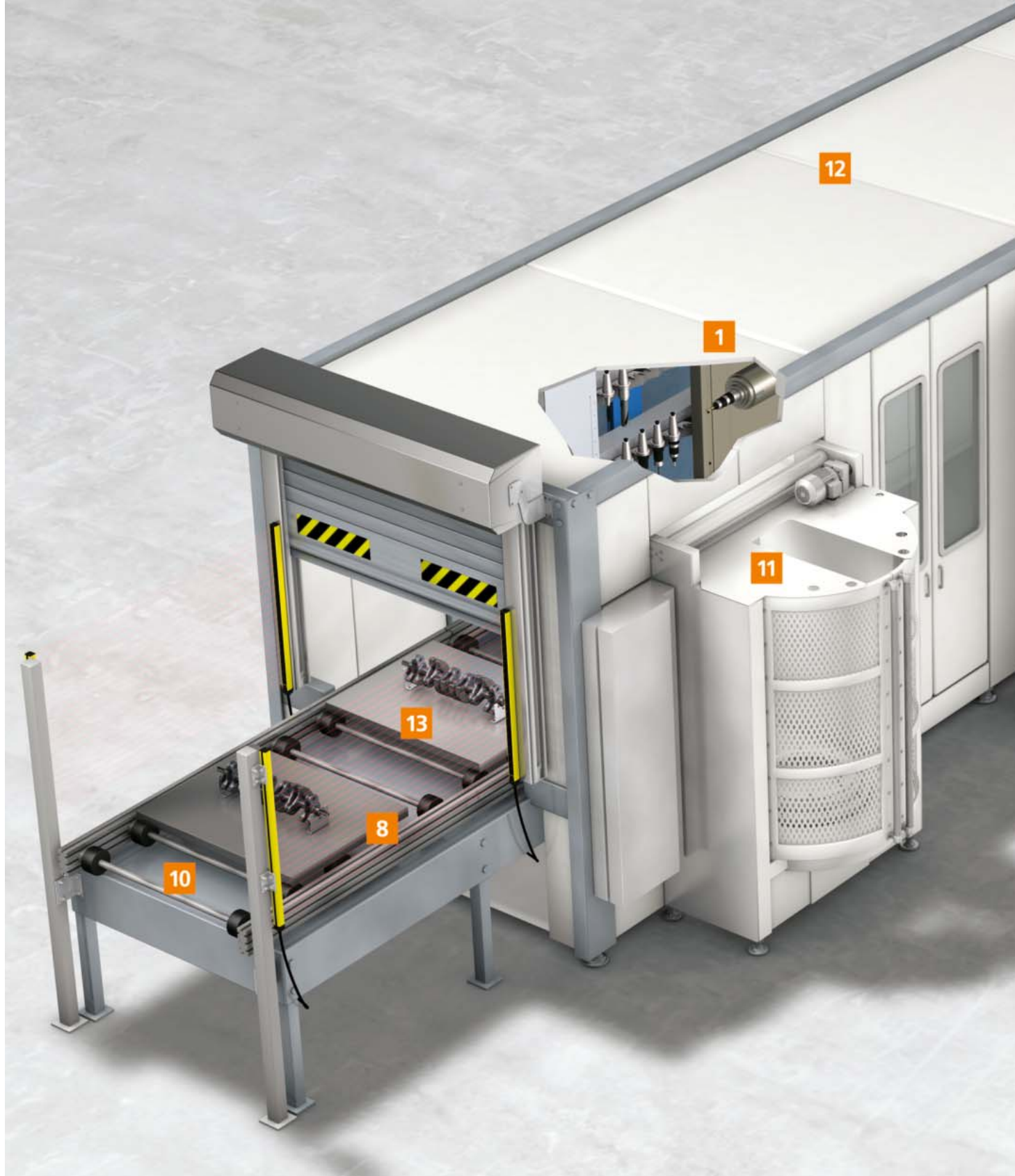
** Already available in many countries.

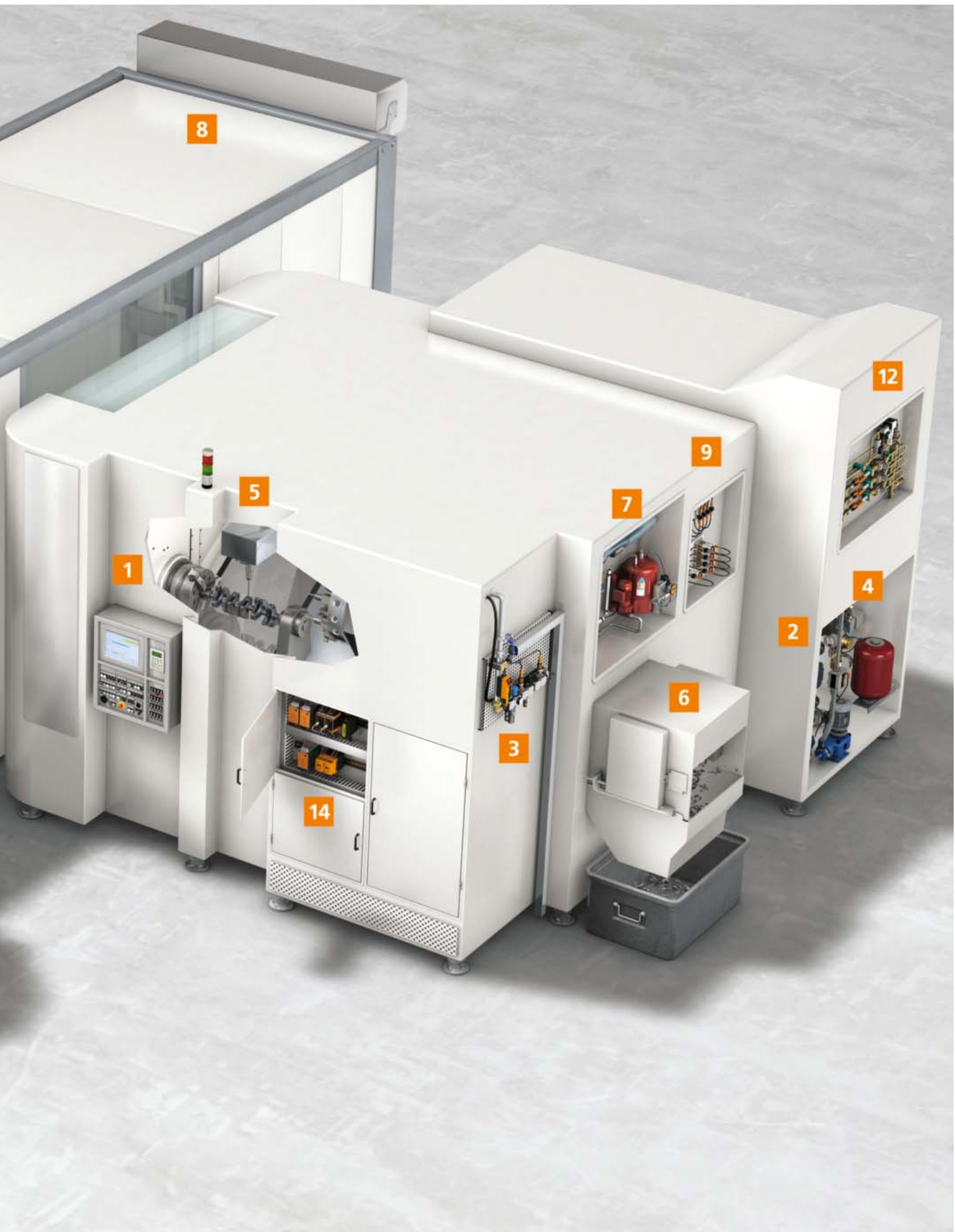
Metal forming

















Metal working

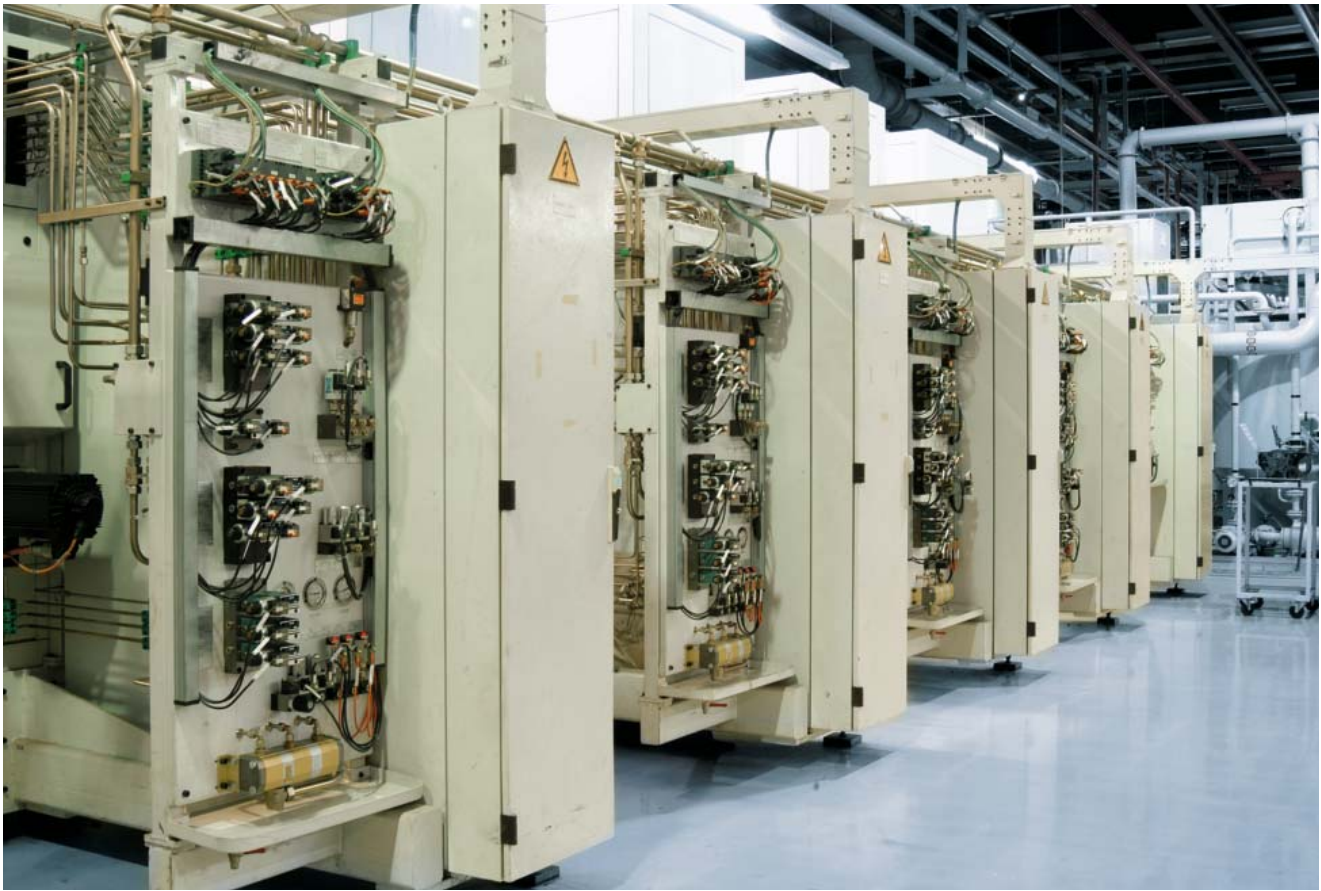




Machine	Application	Product group
1 Drives / spindles		
	Monitoring of drives	Vibration monitoring systems
	Drill bit breakage monitoring on spindles	Vibration monitoring systems
	Internal cooling of drill	Flow sensors / flow meters
2 Hydraulics		
	Level monitoring in hydraulic power packs	Level sensors
	Temperature measurement in hydraulic power packs	Temperature sensors
	Pressure measurement on filters and axes	Pressure sensors
3 Pneumatics		
	Compressed air treatment	Pressure sensors
	Measurement of compressed air consumption	Flow sensors / flow meters
	Vacuum monitoring on grippers	Vacuum sensors
4 Cooling		
	Cooling in machines	Flow sensors / flow meters
	Suction of oil mist	Flow sensors / flow meters
	Fan monitoring	Vibration monitoring systems
5 Coolants		
	Hydrostatic pressure measurement	Pressure sensors
	Leakage detection	Level sensors
	Limit level detection	Level sensors
6 Swarf / scrap disposal		
	Swarf hopper monitoring	Laser sensors / distance measurement sensors
	Rotational speed monitoring	Pulse evaluation systems
	Position detection	Laser sensors / distance measurement sensors
7 Lubrication		
	Oil condition monitoring	Systems for oil quality monitoring
	Oil moisture measurement	Systems for oil quality monitoring
	Cycle detection on lubricant distributors	Inductive sensors

Machine	Application	Product group
8 Workpiece loading		
	Finger protection	Safety light curtains
	Part detection	Fail-safe inductive sensors
	Protective opening of gantry robots	Fail-safe inductive sensors
9 Part seat monitoring		
	System solution for part seat monitoring	Pressure sensors
	Compressed air monitoring	Pressure sensors
	Differential pressure measurement	Pressure sensors
10 Workpiece transport		
	Position detection	Inductive sensors
	Part detection	Laser sensors / distance measurement sensors
	Position detection	Inductive sensors
11 Tool changing system		
	Position check of tool	Inductive sensors
	Tool identification	RFID 13.56 MHz
	Tool detection	Laser sensors / distance measurement sensors
12 Energy efficiency		
	Leakage detection	Flow sensors / flow meters
	Measurement of compressed air consumption	Flow sensors / flow meters
	Detection of water	Flow sensors / flow meters
13 Part detection / quality control		
	Quality assurance	Vision sensors
	Release for work step	Capacitive sensors
	Identification	1D/2D code readers
14 Signal transmission		
	Controllers and gateways	AS-Interface controllers / gateways
	Safe standstill monitor	Pulse evaluation systems
	Industrial communication	AS-Interface I/O modules

Sensors and systems for machine tools



Machine tools are often used as diligent helpers in almost all manufacturing companies in this world.

The machine tool sector is divided into the main fields of cutting and forming (turning, milling, drilling, grinding, sawing) as well as joining machines.

These processes are divided into the 'wet'- i.e. flooded with coolant, – MQL (minimum quantity lubrication) and 'dry' working. ifm sensors can be used in all applications.

The topics "energy efficiency" and "quality assurance" are currently the focus of a lot of attention. Here again, ifm offers application-specific sensors at a favourable price / performance ratio.


Drives / spindles



Condition monitoring of drives

VSA series sensors record the vibration levels of the drives, enabling condition-oriented maintenance.

Vibration monitoring systems



Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · Connector · housing: stainless steel 316L / 1.4404	VSA001




Drill bit breakage monitoring on spindles

VSA series sensors detect the spindle condition and the vibrations in the machine tool in case of a drill bit breakage.

Vibration monitoring systems

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · Cable with connector, screen connected to the housing · housing: stainless steel 316L / 1.4404	VSA002
	Diagnostics electronics for vibration sensors type VSA / VSP · 4 sensor inputs 0...10 mA or IEPE · TCP/IP Ethernet interface · Frequency-selective machine monitoring of up to 4 measuring points · Integrated history memory with real-time clock · Counter function · Combicon connection · PA	VSE100

Flow transmitters with non-return valve

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	G ½	0.3...25	0...60	200	< 0.01	24	SBU623


Hydraulics




Monitoring hydraulic systems

LR and TR series sensors detect the level and the temperature. Any deviations from the target values are detected at once.

Temperature sensors

Type	Measuring range [°C]	Process connection	Display	U _b [V]	Current consumption [mA]	I _{load} [mA]	Order no.
	-40...300	G ½ male	Display unit	18...32	50	250	TR7432

Level sensors with guided wave radar


Type	Process connection	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature [°C]	I _{load} [mA]	Order no.
	G ¾ male	–	L-40 (L-60)	30 / 10 (30)	18...30	0...80	200	LR7000



Oil recirculation pump station

The PG electronic contact manometer combines an easy-to-read manometer display with the advantages of an electronic pressure sensor.

Pressure sensors in the circulating oil lubrication

Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G ½	Display unit	0...100	300	700	18...32	PG2452



Hydraulics



Filter monitoring

PNI-type electronic pressure sensors with an analogue input evaluate the pressure difference in filter elements in combination with PA-type transmitters.

Differential pressure measurement with PNI and PA


Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G 1/4 female	Display unit	0...25	100	350	18...30	PNI023
	G 1/4 female	—	0...25	150	350	9.6...32	PA3023



Weight compensation Z axis (in general "vertical" axes)

A hydraulically generated primary pressure compensates the weight of the vertical axes so that the axis drives consume an almost identical amount of energy.

Pressure sensors


Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G 1/4 female	Display unit	0...100	300	650	18...36	PN7002

Pneumatics

**Maintenance unit**

The PK6524 pressure sensors monitor the correct working pressure in the compressed air supply. The SD6000 compressed air meter determines the consumption.


Pressure monitoring with PK sensor

Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G 1/4 male / M5 female	Operation	0...10	25	300	9.6...32	PK6524


**Compressed air treatment for the purging air**

The overpressure of the purging air inside spindles and distance measurement devices prevent unintended penetration of cooling lubricants.

Pressure sensors

Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G 1/4 female	Display unit	-1...10	75	150	18...36	PN5004

Compressed air meter for the measurement of compressed air consumption


Type	Process connection	Setting range [Nm³/h]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	G 1/4 (DN8)	0.12...15.00	16	< 0.1	18...30	SD5000

Pneumatics


**Vacuum sensors monitor the suction grippers**

PN7 series vacuum sensors detect the required vacuum for operating the suction grippers.

Vacuum sensors

Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G ¼ female	Display unit	-1...1	20	50	18...36	PN7009


Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro-tection	LEDs	Order no.
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	—	EVC006

**Leakage detection in compressed air systems**

The SD type compressed air meters continuously detect the consumption of the treated compressed air. Actual / target comparisons ensure early detection of leakage.

Compressed air meter for the measurement of compressed air consumption

Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	R½ (DN15)	0.6...75.0	16	< 0.1	18...30	SD6000


Cooling




Cooling with fluids

The SU flow meter monitors the flow and the temperature of the media. If oil is used in the working space, the oil mist has to be sucked away.

Flow meters

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	SU8000

Flow sensors for machine suction


Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Order no.
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	SF311A



Fan monitoring on oil coolers

The oil is cooled to a defined value. The VKV vibration monitor to DIN ISO 10816 detects any damage to the rotating parts in the fan system.

Vibration monitoring systems


Type	Description	Order no.
	Vibration monitor · Connection via M12 connector · Vibration monitor to DIN ISO 10816 · Measuring range RMS: 0...25 mm/s · Switching output NC DC PNP and analogue output 4...20 mA · Housing materials: PBT / PC / FPM / stainless steel 316L / 1.4404	VKV021

Coolants


**Level monitoring in coolant tanks**

The coolant level in tanks can be continuously monitored by LMT or the PA hydrostatic pressure sensor.

PA pressure sensor

Type	Process connection	Display	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Order no.
	G ¼ female	–	0...0.25	10	30	9.6...32	PA3028


LMT point level sensor

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	LMT121

**Overflow and leakage prevention**

The LI214x level sensor reliably monitors if any coolant escapes from the pipes and tanks through leaks.

Level sensors (to section 19 of the German Federal Water Act WHG)


Type	Probe length [mm]	Output	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Order no.
	132	Normally closed	10...36	0...35	0...65	200	LI2141

Swarf / scrap disposal

**"Full" detection for swarf hoppers**

The O1D photoelectric sensor uses the analogue output to the controller to detect the level in the swarf hopper. Both long swarf and short-chipping swarf are detected.


PMD photoelectric sensors for detecting the loading condition

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Order no.
	Photoelectric distance sensor	0.2...10 m	1...33	< 15 x 15	18...30	O1D105
	Photoelectric distance sensor	0.3...6 m	1...33	< 8 x 8	18...30	O1D155


**Removal of scrap bales**

The O5D photoelectric distance sensor detects if the conveyor belt is clear. The compact DI speed monitor detects the pulses of the conveyor driveshaft.

PMD distance sensors with time of flight measurement for detecting the loading condition

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Order no.
	Background suppression	0.03...2 m	33	< 5	10...30	O5D100

Compact speed monitors for checking the conveyor

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
	10...36 DC	1	PNP	5...300	15000	–	2	1	DI5009


Lubrication




Oil condition monitoring in circulating lubrication systems

LDP detects smallest particles in the oil. The oil is filtered in recirculating pump stations. In addition, LDH100 continuously checks the water content in the oil and the temperature.

Oil particle sensor

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	Minimess M16 x 2	–	Mineral oils (e.g. HLP), ester oils (e.g. HEES), biodegradable oils (e.g. HETG)	IP 67	LDP100

Oil moisture sensor


Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G 3/4	50	Mineral oils, synthetic esters, biodegradable oils, air	IP 67	LDH100



Principle of central lubricating system for grease

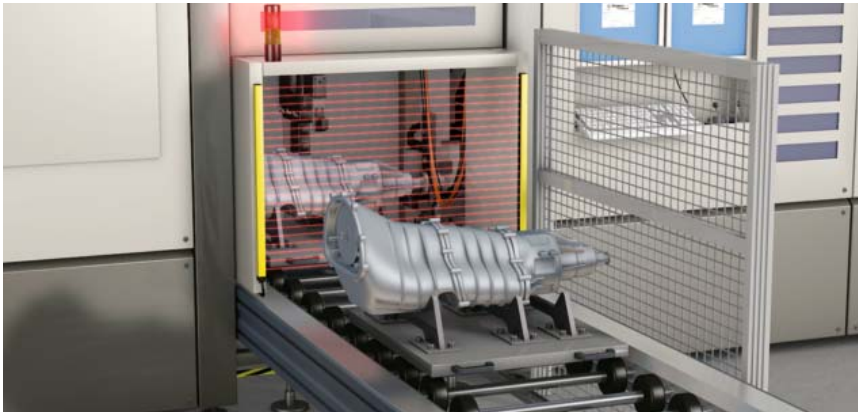
The distributor supplies the connected points of lubrication, one after the other, with the lubricant in exactly defined quantities. The complete cycle is monitored by the IR5041 piston detector.

Cycle detection on progressive distributors with piston detector

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Order no.
	–	1.5 f	steel (1.7225)	10...36	IP 67	100	100	IR5041


f = flush / nf = non flush

Workpiece loading

**Access prevention of loading openings on roller tracks**

OY series safety light curtains restrict unauthorised access to accessible areas such as the loading zones. They correspond to type 4, in accordance with EN 61496.


Safety light curtains for access prevention

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Order no.
	1263	14	1210	0...3 / 1...6	16.5	24	OY008S

**Protection of loading openings for gantry robots**


Category 4 and SIL 3 contactless inductive safety sensors directly detect the safe position of gantry robots – without requiring a special target.

Inductive fail-safe sensors to protect the loading opening

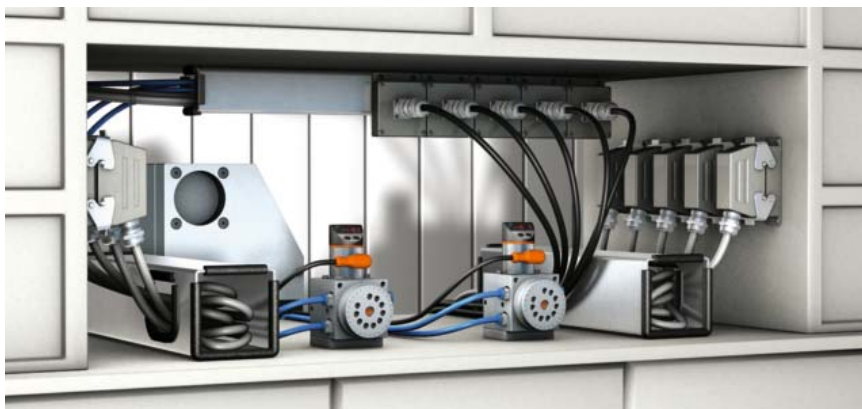
Type	Length [mm]	Enable zone [mm]	Housing material	U _b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
	66	4...20 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	GM705S

f = flush / nf = non flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro- tection	LEDs	Order no.
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	EVC003


Part seat monitoring



System solution for part seat monitoring

The workpieces to be processed must lie flat to ensure dimensional accuracy. The PS7 control unit detects any contamination due to swarf or abrasion.

Control unit for part seat monitoring



Type	Description	Order no.
	Control unit for part seat monitoring · Setting by adjustment of the pneumatic bridge · Integrated pressure sensor with 2 switching outputs · and 4-digit alphanumerical display for trend display or display of current pressure · Cable	PS7570



Part seat monitoring of workpieces by means of differential pressure measurement

All bore holes are covered when the workpiece is correctly seated. The minimum differential pressure determined is the reference value.

Differential pressure measurement with PNI and PA


Type	Process connection	Display	Measuring range [bar]	Poverload max. [bar]	Pbursting min. [bar]	U _b DC [V]	Order no.
	G 1/4 female	Display unit	0...10	50	150	18...30	PNI024
	G 1/4 female	—	0...10	75	150	9.6...32	PA3024

Workpiece transport

**Full-metal sensors for use in machining**

For reasons of weight, many components are manufactured from aluminium alloys. Full-metal inductive sensors with correction factor $K = 0$ are unaffected by aluminium swarf.

Full-metal inductive sensors with correction factor $K = 0$


Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M18 / L = 70	4.5 f	High-grade st. steel	10...36	IP 68	100	100	IGC249

f = flush / nf = non flush


**Detection of workpiece carriers and workpieces in series connections**

IM5123 inductive sensors detect the position of the workpiece carriers on accumulating conveyors. The OID photoelectric sensors signal if they are occupied.

PMD photoelectric sensors for detecting the loading condition

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	OID200

Inductive sensors for determining position

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	IM5123

f = flush / nf = non flush


Tool changing system



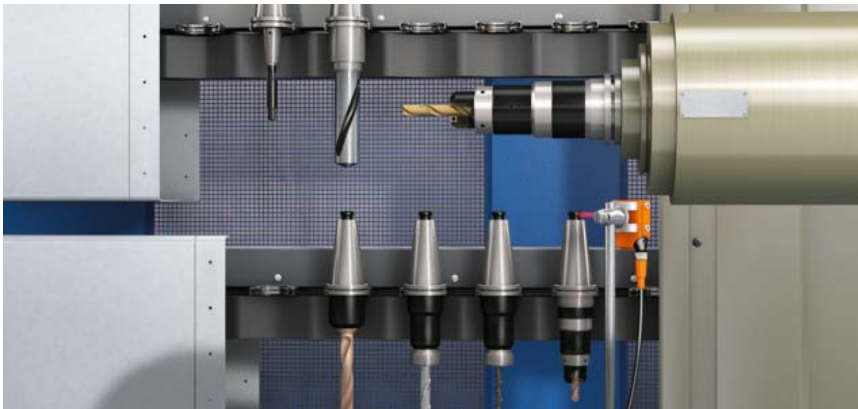
Inductive sensors detect the position of interchangeable tools

The ID rectangular inductive sensors detect the position of the workpiece on the positioning table for automatic locking.

Inductive sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Order no.
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	ID5058


f = flush / nf = non flush




Detection of interchangeable tools

The tools are retrieved from the magazine via RFID detection. The O5D photoelectric sensors detect if the selected tool is present in the fixture.

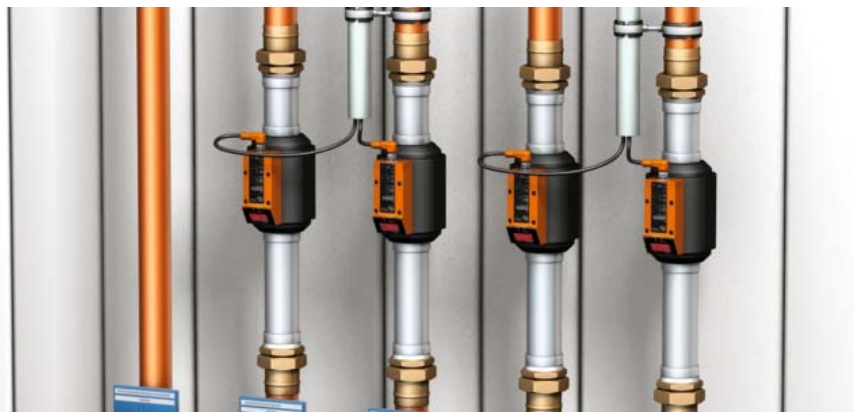
Photoelectric sensors for position control of tools

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	O5D100

Read / write head for the RFID system



Type	Description	Order no.
	Read / write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	ANT410

Energy efficiency

**Detection of compressed air in main supply lines**

Here, SD2000 compressed air meters detect both the consumptions at normal pressure (6 bar) as well as in the high-pressure system (12 bar). Consumption is recorded and any leaks detected.


Compressed air meters for consumption measurement and leakage detection

Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	R2 (DN50)	5...700	16	< 0.1	18...30	SD2000
	R1½ (DN40)	3.5...410.0	16	< 0.1	18...30	SD9000

**Detection of water**

The SM flow meter detects flow and temperature. Alarm signals can be given and the quantity can be counted via pulses (water meter) using the preset counter.

Flow meters for consumption measurement

Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Order no.
	G2 flat seal	6.5...300	16	< 0.35	18...32	SM9000
	G2 flat seal	8...600	16	< 0.35	18...32	SM2000


Part detection / quality control




Quality inspection of components

ifm vision sensors monitor if all holes to be bored are present in the component. The next machining step is only enabled if this is correct.

Vision sensors in quality assurance

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Order no.
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	2.0	10	Infrared	-10...60	O2D222

Touch sensor


Type	U _b [V]	I _{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Order no.
	24	200	30	-40...85	IP 67 / IP 69K	KT5002



Identification of components

Components are coded with a production date and batch information to ensure traceability. This information is then read and verified by the O2I code reader.

Multi-code reader for identifying codes

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed int. / ext. lighting [m/s]	Process interface	Order no.
	60 x 42 x 53.5	132 x 94	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	O2I102

Signal transmission




Controllers and gateways

The controller controls the communication in AS-i networks.

Gateways provide a connection from the AS-i to the higher-level bus system.

Controllers, gateways


Type	Number of AS-i masters	Description	Order no.
	1	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	AC1327
	2	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	AC1337



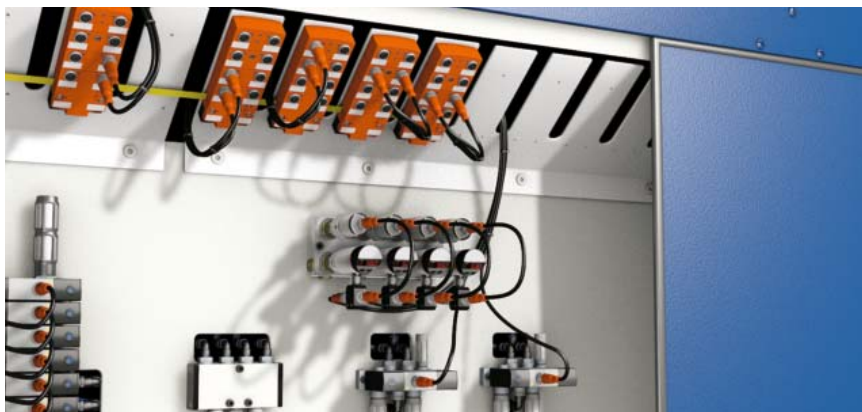
Access protection on rotating parts

Using sensor inputs the DA101S safety relay detects if rotating machine parts have actually stopped after a braking process.

Evaluation systems for safe standstill monitoring


Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
	24 DC	1	PNP	—	0.2 / 0.5 / 1.0 / 2.0	—	2	1	DA101S
	24 DC	1	PNP	—	0.2 / 0.5 / 1.0 / 2.0	—	2	1	DA102S

Signal transmission

**Intelligent wiring of machines and systems**

AS-Interface simplifies the electrical installation, reducing the amount of parallel wiring traditionally used for sensors and actuators.


AS-Interface I/O modules

Type	Description	Order no.
	Active CompactLine module · 60 x 152 x 27 · IR addressing possible · Sockets M12 x 1 · Housing materials: PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : FKM / Piercing contacts: CuSn6 surface nickel and tin-plated	AC2412
	Active CompactLine module · IR addressing possible · External sensor supply PELV · Sockets M12 x 1 · Housing materials: PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : FKM / Piercing contacts: CuSn6 surface nickel and tin-plated	AC2466


**Sensors with IO-Link functionality**

The data and parameters are saved to the memory plug. If sensors are replaced, the parameters of the new device do not have to be reset.

IO-Link memory plug – data storage in miniature format

Type	Description	Order no.
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398

AS-Interface I/O modules

Type	Description	Order no.
	Active ClassicLine module · 2 IO-Link ports · For the connection of IO-Link sensors and actuators, binary sensors and binary actuators · Addressing socket · Three orientations of the flat cable are possible · Only for operation with AS-i masters with the profile M4 · Housing materials: PA / Piercing contacts: CuSn6 surface nickel and tin-plated	AC5225

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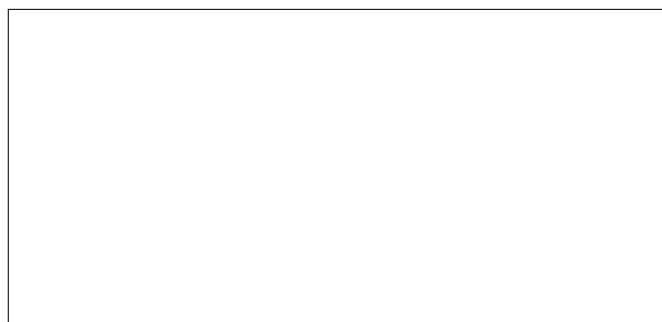


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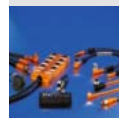
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