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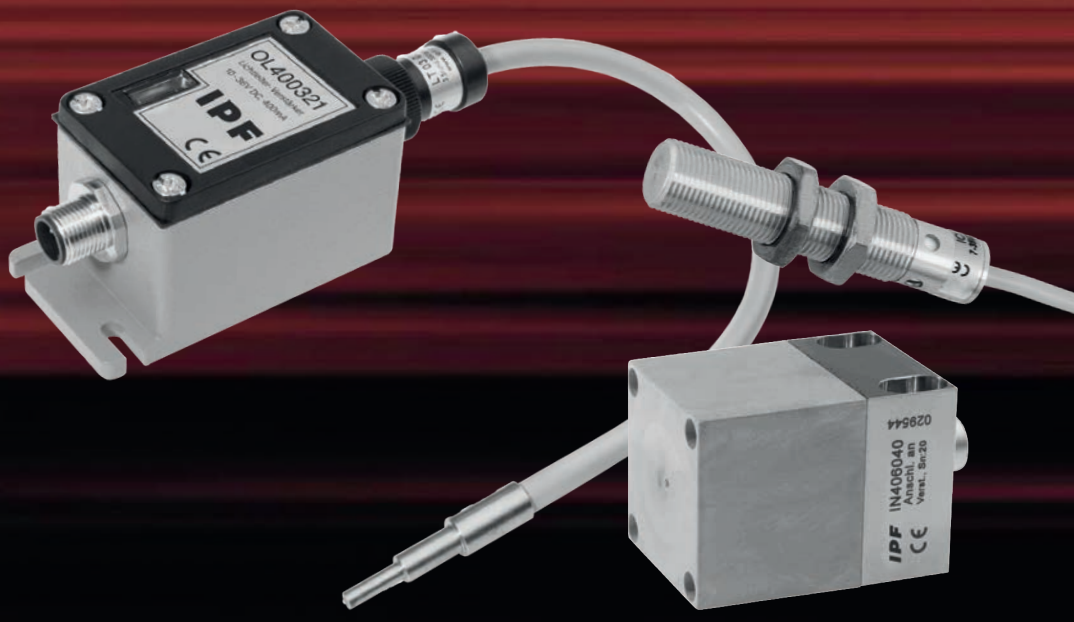
SENSORS
WITH ENLARGED TEMPERATURE RANGE

Perfect for extremes



IPF ELECTRONIC

High-End in High-Tech.

SCAN QR CODE
AND READ FLYER DIGITALLY

EXCEEDING LIMITS

HARSH ENVIRONMENTS REQUIRE SPECIAL SOLUTIONS

The operating temperature range of classic sensors reaches its upper limit at around +80°C. With conventional optical devices, the maximum permissible ambient temperatures are even much lower than this. If it becomes warmer or really hot, limits must be exceeded as far as the temperature stability of the sensors is concerned.
These are good reasons to take a closer look at the wide range of sensors with enlarged temperature range from ipf electronic.

FIBER OPTIC, INDUCTIVE, MAGNETIC?

WE ARE SURE TO HAVE A SOLUTION FOR YOU!

Sensors with an enlarged temperature range are suitable for applications where high temperatures occur in the material that is being processed, or if high levels of radiated heat are present in the immediate vicinity of the sensor, e.g. next to furnaces, welding systems, rolling mills, electroplating systems, injection molding tools in the plastic industry, etc.

Our extensive range of devices for applications such as these and many other usage areas is impressive. See for yourself. Regardless of whether it is fiber optic sensors, inductive sensors or magnetic proximity switches, you will surely find the right solution with ipf electronic.

And if not, just ask us!

FIBER OPTIC UP TO +300°C

INDUCTIVE UP TO +230°C

MAGNETIC / CYLINDER SENSORS UP TO +130°C

VARIETY OF FRONT-ENDS

FIBER OPTIC CABLE

from -40°C to +180°C

SPECIAL VERSIONS

Fiber optics with stainless steel sheath and special adhesive from -40°C to +300°C

FIBER OPTIC SENSORS

WITH ENLARGED TEMPERATURE RANGE UP TO +300°C

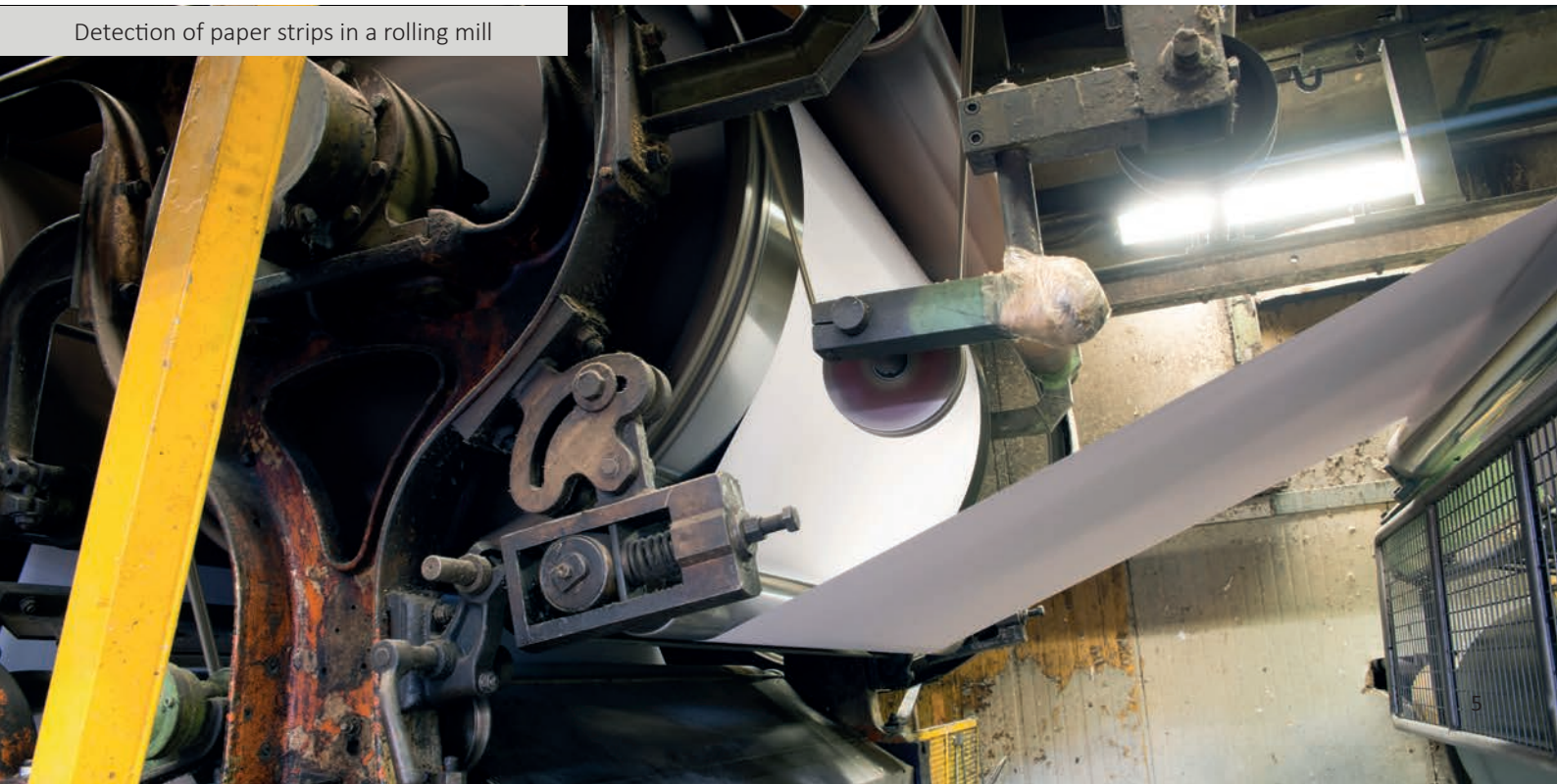
ADVANTAGES AND HIGHLIGHTS

- Temperature resistant up to +300°C
- Wide range of end pieces (e.g. angular)
- Robust, vibration resistant and shock resistant, highly flexible
- Resistant to magnetic and high-frequency fields
- Versatile use as diffuse reflection sensor and light barrier
- Flexible use with fiber optics sheathing made of silicone or stainless steel
- Long range of up to 6 meters (high performance light barrier)

APPLICATION EXAMPLES

- Detection of non-metallic and metallic objects in harsh environments
- Contactless detection, counting, controlling and positioning, even in confined spaces
- Scanning of small parts in processing stations, feed systems and automatic systems
- Use in extreme environments, e.g. welding systems

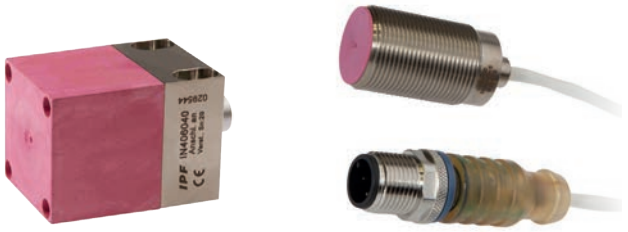
Detection of paper strips in a rolling mill



SENSORS UP TO 230°C

/ WITH AMPLIFIER INTEGRATED IN THE M12 CONNECTOR

/ FOR CONNECTING TO AN EXTERNAL AMPLIFIER
with M12 or lemo connector



CONNECTION AMPLIFIERS

/ FOR TOP HAT RAIL MOUNTING
with alarm output, alignment aid and time functions

/ AS CONNECTION CABLE
with amplifier integrated in the M12 connector

/ IN DESIGN M12
with integrated line monitoring

/ IN ROBUST METAL HOUSING
with alarm output, alignment aid and time functions

INDUCTIVE SENSORS

WITH ENLARGED TEMPERATURE RANGE UP TO +230°C

ADVANTAGES AND HIGHLIGHTS

- Operating temperature range up to +230°C
- Pluggable sensor connection for problem-free replacement
- Variable cable lengths (also during installation)
- Amplifier available for installation in the field or in the switching cabinet
- Connection amplifiers with alarm output, alignment aid and time functions available
- Amplifier with two-part design integrated in M12 connector
- Silicone-free version available
- High density versions in the event of condensation loads

APPLICATION EXAMPLES

- Infeed control for drying systems on painting lines
- Position recognition of parts in baking furnaces
- Rack detection in powder coating facilities
- Tool sensing in hot presses
- Recognition of chainconveyors in continuous furnaces

Drying furnace rack detection: aluminum wheel painting

SENSORS UP TO +100°C

/ PRESSURE PROOF
up to 500bar

SENSORS UP TO +120°C

/ ATMOSPHERIC-CHANGE RESISTANT
with protection class IP69k

SENSORS UP TO +140°C

/ DESIGN M8
with M12-connector

/ SHORT DESIGN M30
with metal-reinforced connection cable

/ SPECIAL HOUSING
for tool sensing

SENSORS UP TO +150°C

/ RECTANGULAR DESIGN
with M12-connector

SENSORS UP TO +180°C

/ DESIGN M18 OR M30
with lemo connector

INDUCTIVE SENSORS

WITH ENLARGED TEMPERATURE RANGE BETWEEN +100°C AND +180°C

ADVANTAGES AND HIGHLIGHTS

- Operating temperature range up to +180°C
- Wide range of compact devices
- Single piece systems with fully-integrated electronics
- Atmospheric-change resistant devices with degree of protection IP69k for ambient temperatures up to +120°C
- High-pressure resistant design (up to +100°C) for continuous pressure up to 500bar
- Short designs for confined spaces
- Versions with M12-connectors for temperature ranges up to +150°C

APPLICATION EXAMPLES

- Sensing in wax coating systems
- Position recognition of parts in baking furnaces
- Closing control of injection molding tools
- Tool sensing in hot presses
- Flap sensing on continuous furnaces
- Sensing of switch positions in hot component conveyor systems
- Positioning of hot parts during handling and transport
- Sensing in the food and chemical industry
- Position recognition in hydraulic cylinders

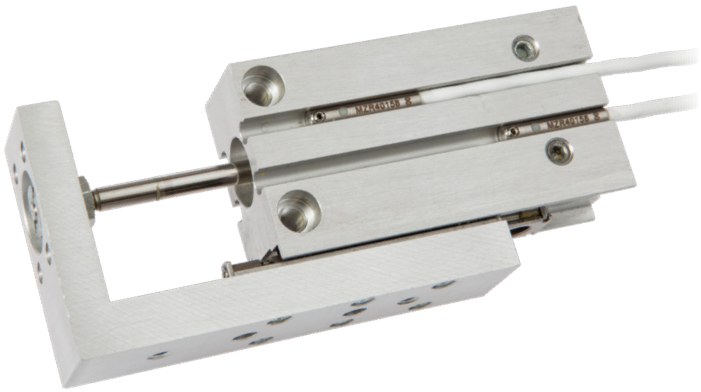
Position recognition in lifting beam furnaces

SENSORS IN PNEUMATIC CYLINDERS

DOVETAIL
insertible from above

T-GROOVE
in all-metal design

C-GROOVE
with a diameter of 3.6mm or 4mm



CYLINDER SENSORS

WITH ENLARGED TEMPERATURE RANGE UP TO +130°C

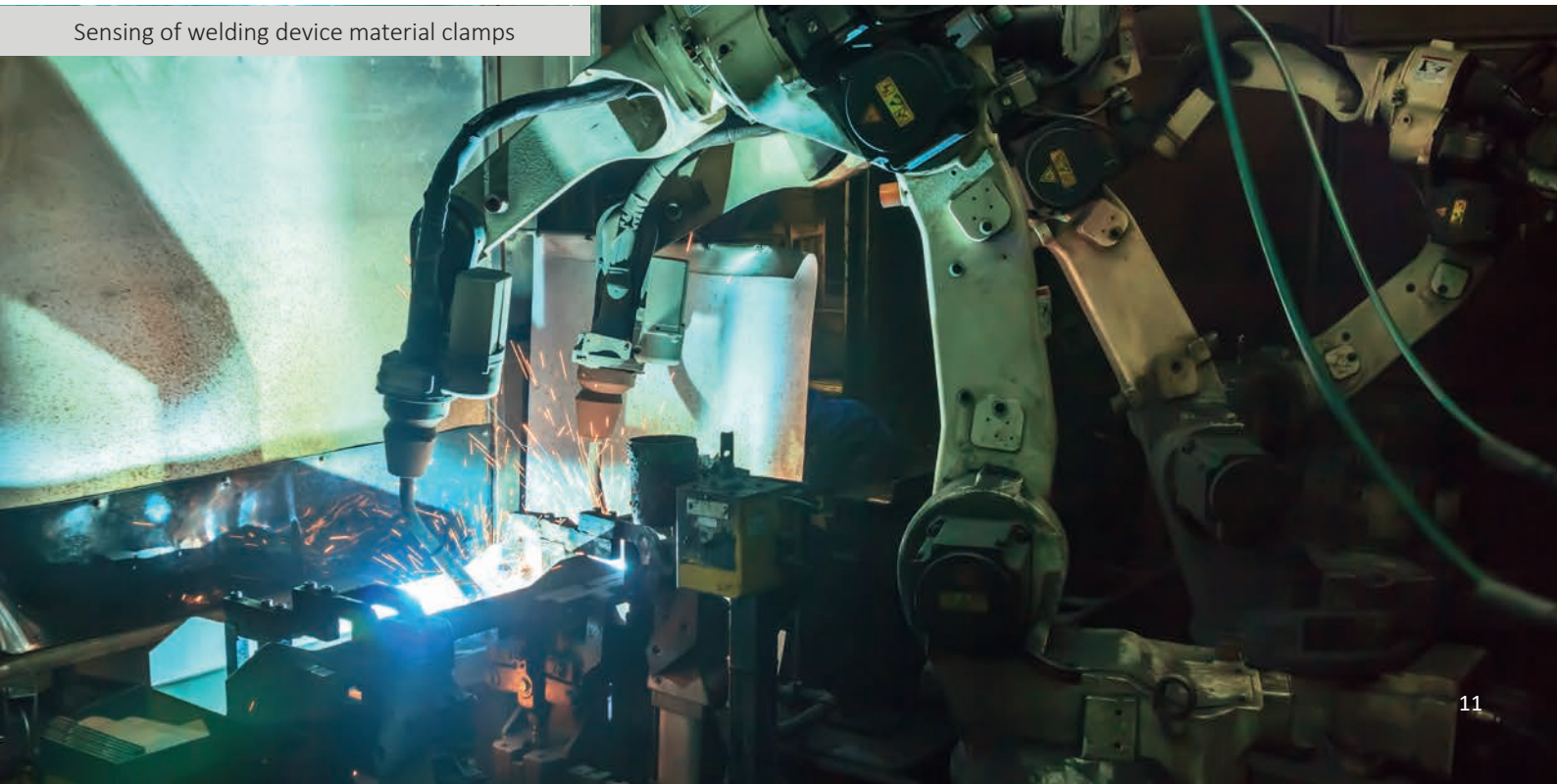
ADVANTAGES AND HIGHLIGHTS

- High thermal resistance up to +130°C
- Versatile, for cylinders from all leading manufacturers
- Simple mounting, simple connection
- Precise through high switching accuracy with small hysteresis
- Metal housing
- Fully electronic and therefore fault-free
- Wear-free and therefore extremely long lasting
- Impact and vibration resistant
- Very short travel paths
- Integrated amplifier

APPLICATION EXAMPLES

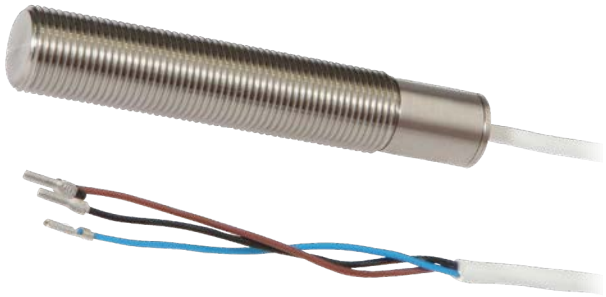
- Position recording of slide valves in injection molding
- Sensing of pneumatic clamping cylinders in welding systems
- End positioning sensing on pneumatic cylinders for gripper systems, lifting stations and handling systems

Sensing of welding device material clamps



MAGNETIC FIELD SENSORS

DESIGN M12
in a robust stainless-steel all metal housing



MAGNETS
for proximity switches

MAGNETIC PROXIMITY SWITCHES

WITH ENLARGED TEMPERATURE RANGE UP TO +130°C

ADVANTAGES AND HIGHLIGHTS

- Operating temperature range up to max. +130°C
- High degree of soiling compensation
- Extremely small version available
- High switching frequency and high switching distance
- Integrated amplifier
- Metallic sensor surface (all-steel)
- Absolutely leak-proof in the vicinity of the active surface

APPLICATION EXAMPLES

- Integration in machines and conveyor systems
- Position recognition from outside through stainless steel tubes, non-ferrous metal, aluminum, plastic and wooden walls
- Speed sensing with rotating shafts
- Position sensing on chain guides
- Sensing of door positions

Position sensing on product carriers

IMPRESSIVE IN PRACTICE

"FIRE TEST" UP TO +230°C PASSED: EXTREME DEMANDS MADE OF INDUCTIVE SENSORS

Cathodic dip coating is an electro-chemical process for painting bodywork or other metal parts. The physical principle is based on the fact that materials with opposite charges attract. This is realized by an electric current flow from an external electrode (anode) through a conductive paint to the component that needs painting (cathode). The paint particles attracted by the component form a homogeneous film over the entire surface, whereby the paint not only adheres to the metal extremely well because of the electrical attraction, but can penetrate into cavities, corners and edges during immersion.

In a baking furnace within a cathodic dip coating of an automobile supplier, a total of 34 inductive sensors with an enlarged temperature range up to +230°C detect metallic objects and therefore determine the position of a lifting frame on which the coated components are located, among other things.
For technical reasons, no rinsing and drip-off station can be integrated in the system between dip painting and the drying furnace. The coated components therefore move directly into the baking furnace via an overhead track. Here, the moisture on the parts vaporizes abruptly, collects as condensation on the hood of the furnace and then drips onto the furnace floor.

The inductive sensors from ipf electronic therefore have to withstand the high temperatures of just over +200°C in the drying furnace, and also have to be completely leak-proof so that it cannot be penetrated by condensation. Since paint is much more penetrating than water, special demands of the impermeability of the sensors are required. Furthermore, the devices must not contain silicone, since the vapor that it releases is deposited on the components and can cause defects in the paint surface during baking. The sensors must also remain impermeable during a temperature change, e.g. if the furnace is opened for an inspection and its interior temperature drops to room or building temperature.
By customer request the sensors are pluggable so they can be replaced quickly in the event of mechanical damage. The cable length of the two-part sensor solution consisting of the sensor head and evaluation unit, which are on the outside of the baking furnace, is also variable. As a result, the cable can also be flexibly adapted during installation on-site and therefore shortened or lengthened respectively.
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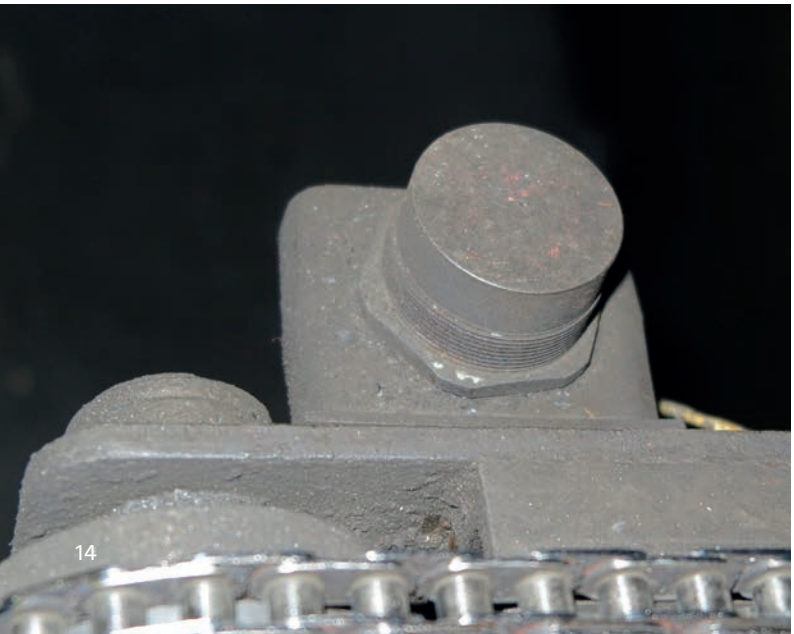

EFFICIENT ADVICE ON ALL MATTERS

PERSONAL SERVICE AND PROBLEM-SOLVING ON SITE

Every call is important! When you contact our technical hotline, you speak to experienced employees who will answer your questions competently and conscientiously. Our goal is to provide you with comprehensive and individual advice around the clock. Our expert team of in-house trained personnel are here to support you.
You can also contact your personal applications consultant in our Sales department. At ipf electronic, we work together very closely so that we are able to react quickly, competently and reliably to your specific query.

In almost all industrial applications, problems are becoming ever more complex and varied. Solutions to these problems often require external expertise. You will find this expertise together with a high level of specialist and problem-solving competence at ipf electronic. We are happy to discuss tasks which may seem small with you. For us, this is a matter of course!

ipf electronic is a renowned supplier of industrial sensor technology and a reliable partner. No customer query is ignored and no on-site customer appointment is missed. Our extremely broad range of products will convince you.

Diversity, expertise, consultation and flexibility:
This is ipf electronic's recipe for success.

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