

A vertical thermal image of a weld seam, showing a bright yellow and orange center transitioning to red and blue at the edges. A red oval highlights a specific section of the weld.

ThermoProfil Scanner

inline weld seam monitoring

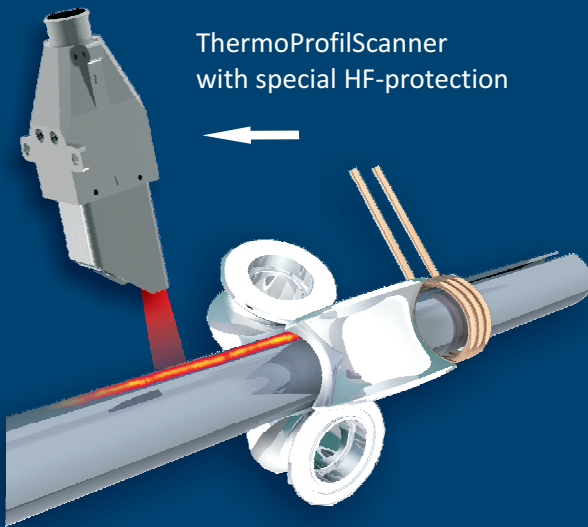
- approved method of nondestructive testing
- passive thermography of the cooling seam
- robust special camera for the long-term work in welding

HKS-Prozesstechnik GmbH
Heinrich-Damerow-Str. 2
D-06120 Halle / Saale
Tel. +49 (0)345 68309-0
Fax +49 (0)345 68309-49
info@hks-prozesstechnik.de
www.hks-prozesstechnik.de



AN ESAB® BRAND

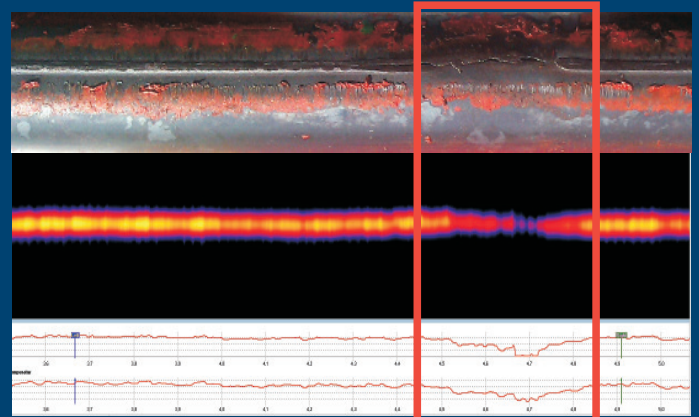
Application in ERW-welding



ThermoProfilScanner
with special HF-protection

heat measurement in HF-welding

- adjustment of reproduceable production quality
- automatic marking of faulty parts
- visualisation of the production
- setup time reducing
- long-time documentation and traceability of the welding parameters



ThermoProfilScanner detect „cold seam“ in ERW-welding

- cold welds
- roll pressure
- edge damage
- edge offset
- power drops



- ➔ 100% monitoring of the running production
- ➔ scrap reducing via real-time monitoring
- ➔ 100% delivery quality for your customers

measuring cabinet
for data evaluation



visualisation of the
production in a
„tube monitor“

Zeit	Rohr	Aufz.	Pos.	Bewertung
13:59:01	6	62	149.7 m	
13:53:06	5	61	143.7 m	
13:47:12	4	60	137.7 m	
13:45:42	3	59	131.7 m	
13:39:47	2	58	130.1 m	
13:33:54	1	57	124.1 m	
13:28:00	4137	56	118.1 m	
13:27:17	4136	55	112.0 m	
13:26:17	4135	54	111.8 m	
13:20:23	4134	53	110.3 m	
13:14:29	4133	52	104.3 m	
13:08:35	4132	51	98.2 m	
13:02:42	4131	50	92.2 m	
12:56:47	4130	49	86.2 m	
12:50:54	4129	48	80.2 m	
12:44:59	4128	47	74.1 m	
12:39:05	4127	46	68.1 m	
12:33:11	4126	45	62.1 m	
12:27:18	4125	44	56.1 m	
12:21:23	4124	43	50.0 m	

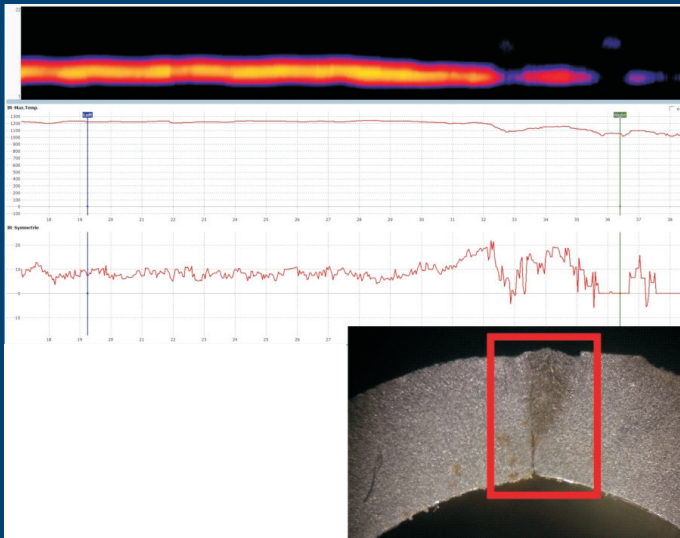
one tube ↑

■ yellow - marginal
■ red - imperfection

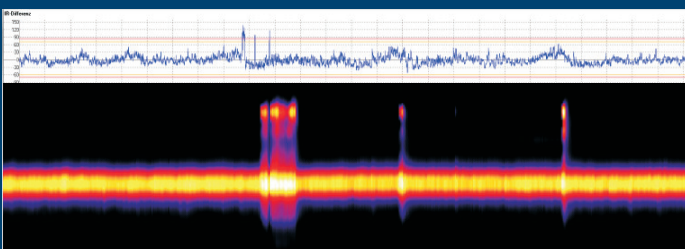


application in ERW-welding

Application in laser welding



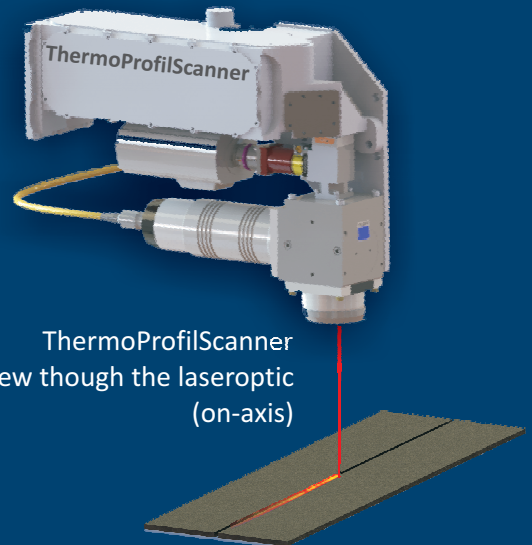
asymmetric penetration – verified in the thermal field in laser welding



plasma disturbance in CO₂-Laser process - verified in the thermal field



application at CO₂ - Laser welding (off-axis)

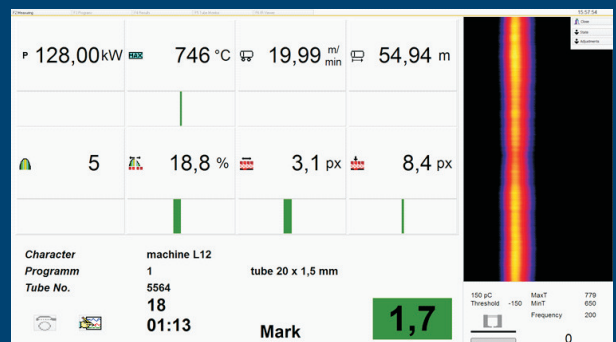


ThermoProfilScanner
view through the laseroptic
(on-axis)

heat measurement in LASER-welding

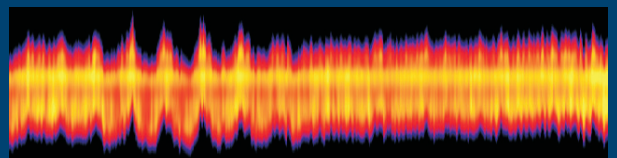
- misalignment
- asymmetrical penetration
- depth of penetration
- edge offset
- pores
- plasma disturbance

surely found

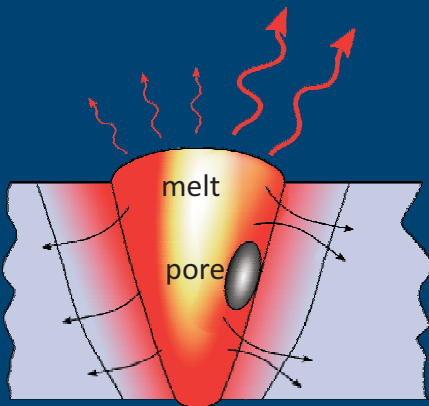


working screer - Laser welding with
automatical quality evaluation

inrruption of the froming gas flow in
CO₂-Laser welding, verified in the thermal field

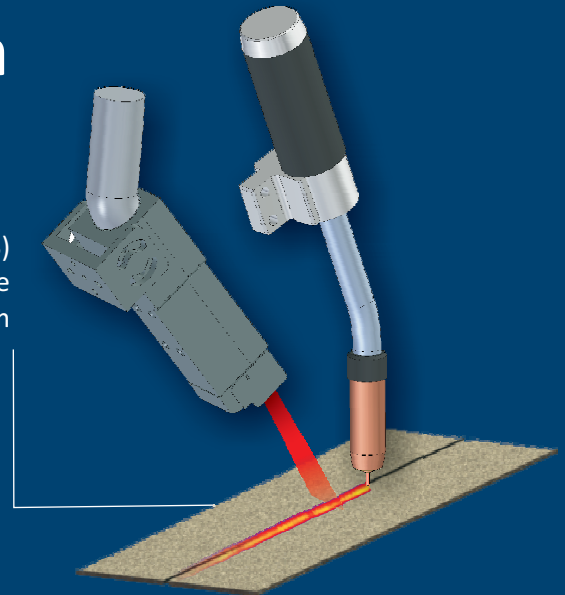


The look into the weld seam



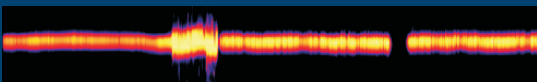
The ThermoProfilScanner (TPS) measures the heat zone of the cooling seam

a pore prevents the heat conduction and changes the heat radiation



welding irregularity

abnormal thermal profile



- registration of the themoprofile while the movement of the weld across the seam
- representation of the passing through heat zone
- calculation of the heat distribution in real-time regarding the temperature, width, symmetry and position
- comparison with reference seams
- reporting , marking and sorting of N.I.O. parts

- ➔ worldwide applied since 2007
- ➔ **wall thicknesses:** 0,05 to 25 mm at steel, copper, titan a others
- ➔ **application:** tube manufacturing, automotive, medical technique, energy industry, aerospace,...

suitable for the long-term work directly at the welding torch

- no cleaning of protective glass
- self-cleaning spatter shield
- resistant against smoke, steam and shocks

Applications in arc welding



MAG - welding



PTA- plasma-transfer-arc



TIG-welding with cold-wire