



GROUP

Coking & CatCracking Conference

19 - 21 October Düsseldorf

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History

1999-2011

Phase 1: 1999-2003

BENELUX

- Focus on core Safety Management Services in TA's & projects:

Safety Personnel

- Fire & Safety Guards to Project Coordinators
- Gas analysts
- Safety Supervisors
- Planning

Safety Equipment

- Rental
- Shop
- On-site logistics
- Maintenance

Phase 2: 2004-2006

WEST-EUROPE

- Launch of new complementary activities initially as in-house suppliers:

Logistics

- Materials Management
- Warehouse & transport
- Maintenance
- Vendor Management

Monitoring

- Confined space monitoring
- Gas detection

Staffing

- Temporary staffing services

Phase 3: 2007-2009

WEST-EUROPE

- Project-based expansion into new geographies **UK, Spain**

- Development new technology activities:

Z-Tracker

Z-Matic

...

Phase 4: 2010...

INTERNATIONAL

- Roll-out new technology solutions

- Start up distribution network / partnership for technology systems

UK

USA

Canada

Middle-East

Iberia

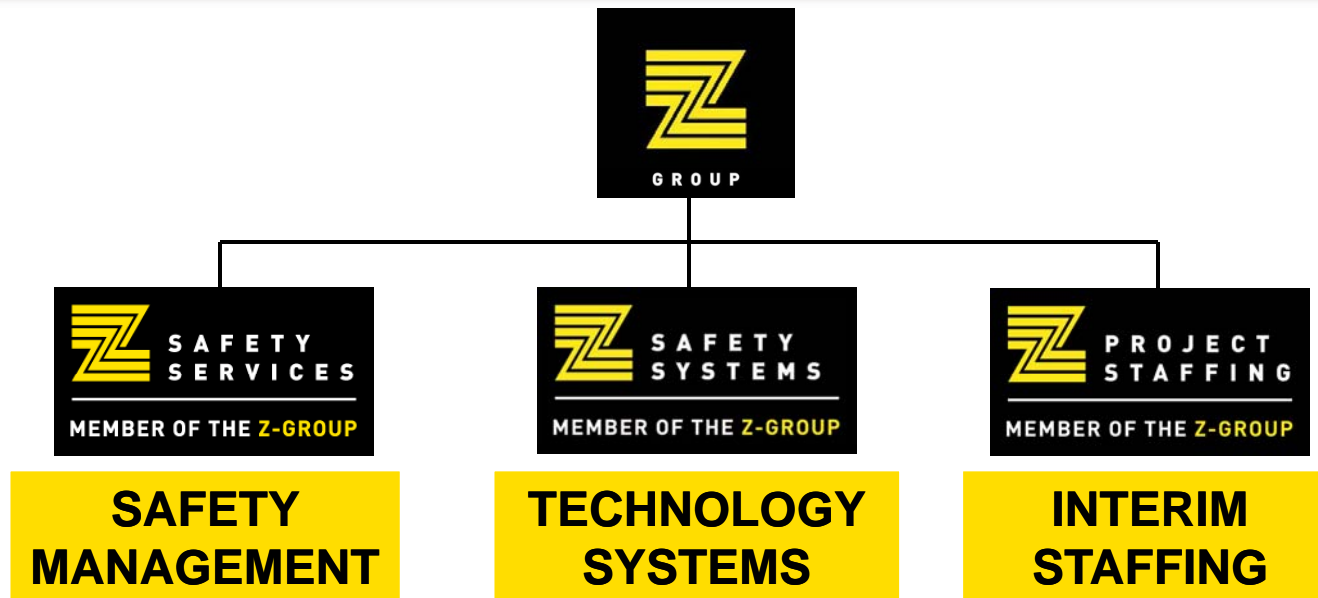
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Z-Group

3 Business Units

ONE TOTAL SAFETY SERVICE PROVIDER

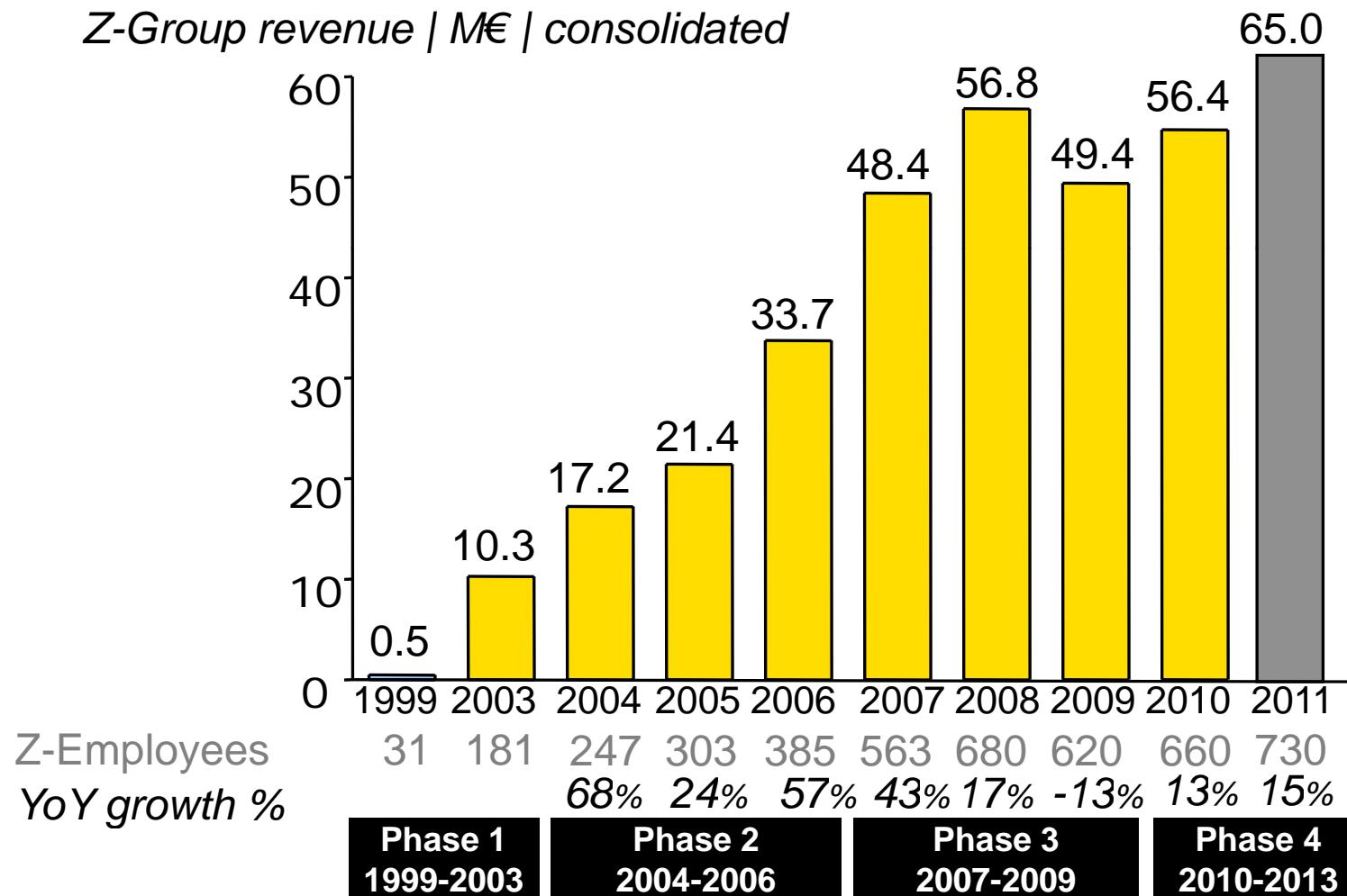




Figures

Turnover | Personnel

Z-Group revenue | M€ | consolidated





West-European presence

4 countries | 12 offices



- Belgium
 - Dilsen-Stokkem (HQ)
 - Antwerp
 - Z-Project Staffing (5)
- The Netherlands
 - Rotterdam
- Germany
 - Gelsenkirchen
 - Leuna
- France
 - Martigues
 - Le Havre



West-European references

Z-Safety Services | Z-Safety Systems



Bayer



EVONIK
INDUSTRIES

ExxonMobil

INEOS



LANXESS
Energizing Chemistry



suez

سابك
sabic





CatCracking Conference

17th - 21th October Düsseldorf

Safety supervision in confined spaces: ...a challenge?

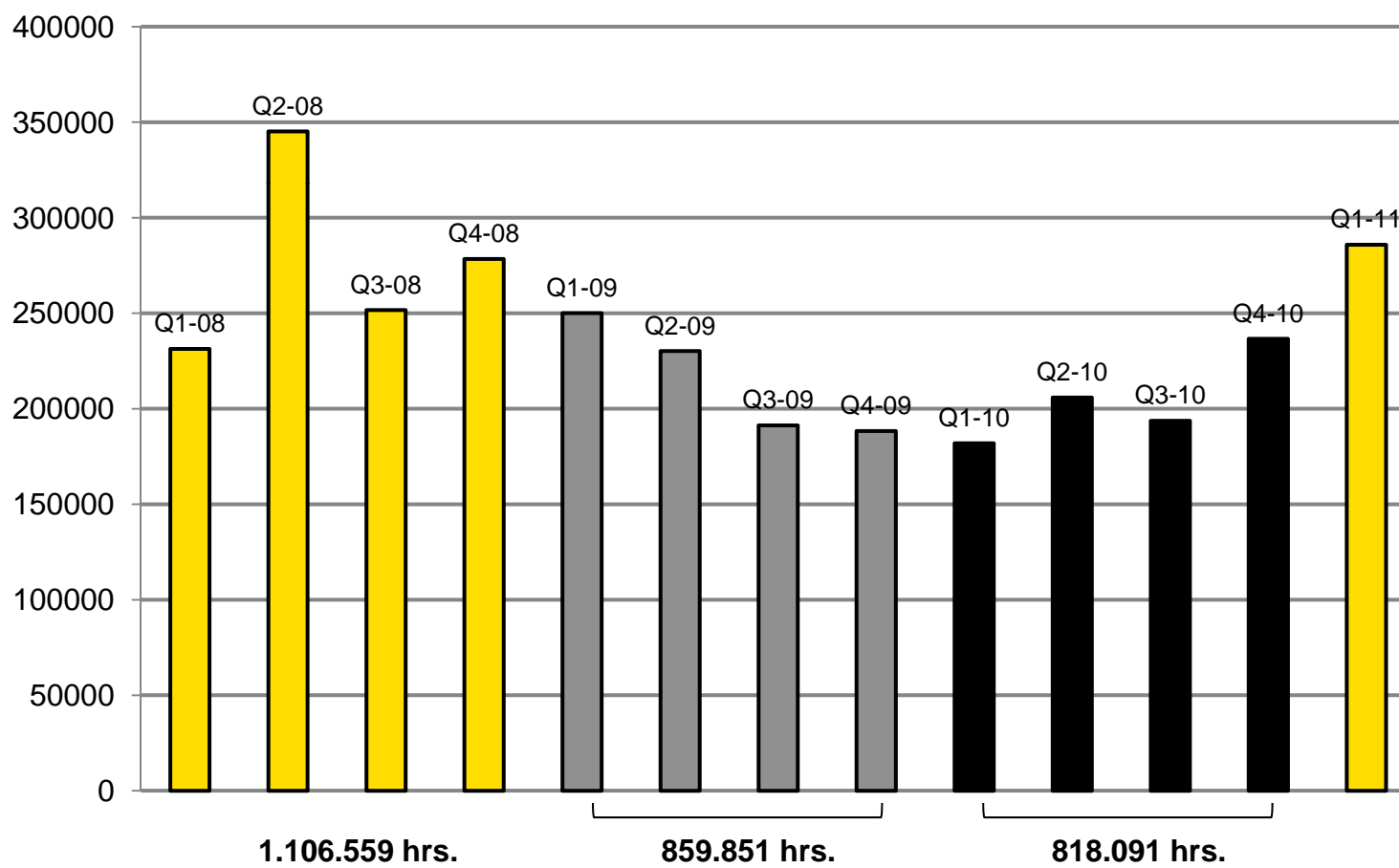
- TA & project trends
- New solutions in technology
- Added value in safety output & cost effectiveness



Trends in safety supervision

In daily maintenance, turnarounds & projects

↑ workload & ↓ working time

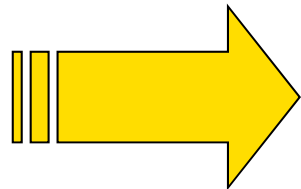




Trends in safety supervision

In daily maintenance, turnarounds & projects

- ↑ workload & ↓ working time
- ↑ job requirements concerning safety
- ↓ job appreciation & valuation
- Experience (>11 years) & lessons learned



...TECHNOLOGY as support

Z-Monitoring

Man versus technology

**OLD
SITUATION**

SAFETY GUARDS



**SUPERVISION
+ TECHNOLOGY**



**NEW
SITUATION**

**RIGHT “BALANCE” BETWEEN MAN & TECHNOLOGY
HIGHER SAFETY LEVEL - MORE CONTROL**

Improved safety supervision through technology

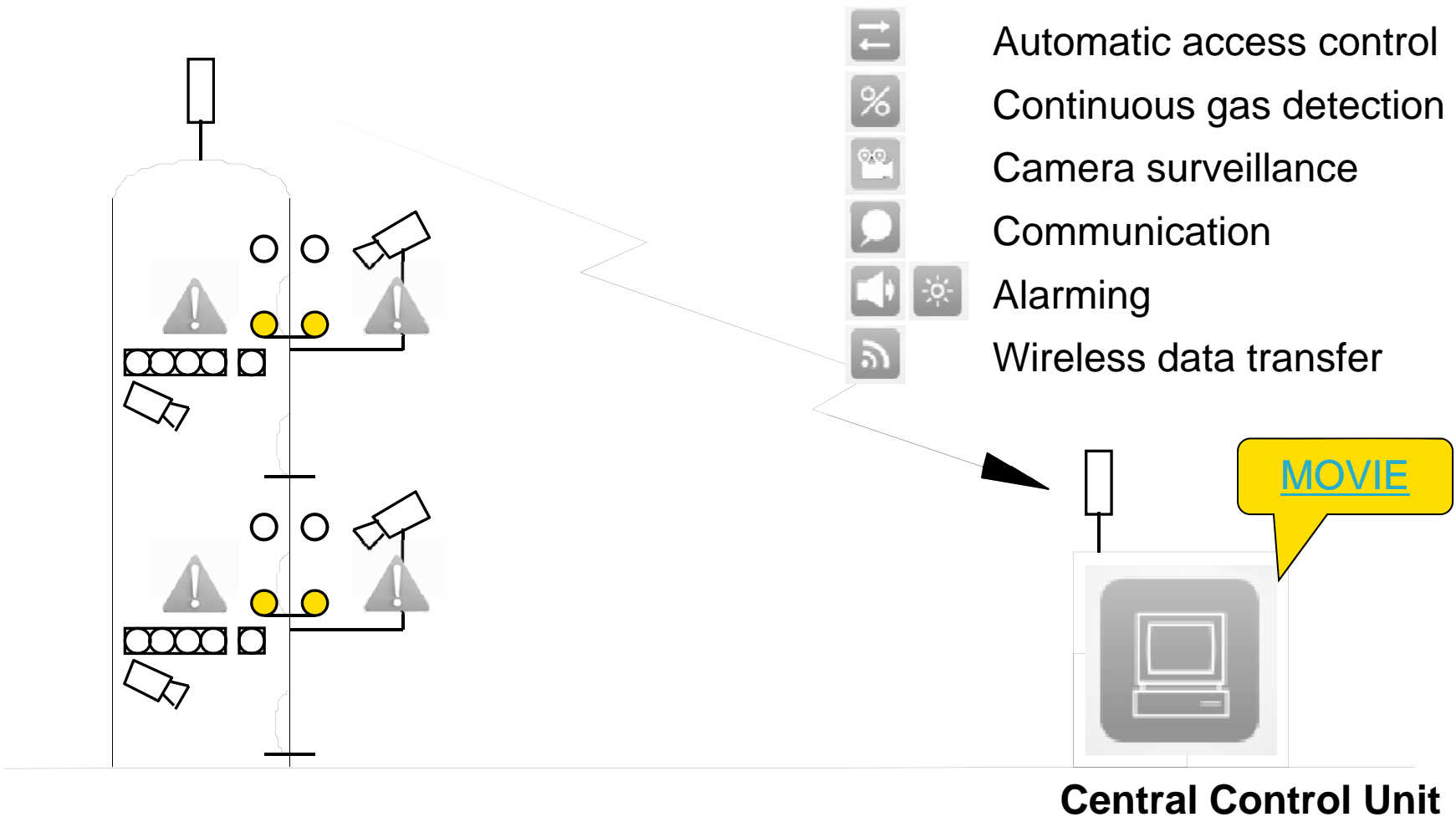
Actual situation

Safety guards



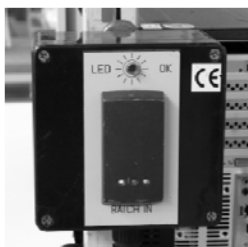
Z-Monitoring

Man versus technology



Standard configuration

Safety equipment



PER WORK SPOT

2x access control

4 + 1 gas detection

2x camera monitoring

2x antennas

**2x communication
& alarming**

**1x Central Control
Unit**

Standard

1x outside manhole
1x inside manhole

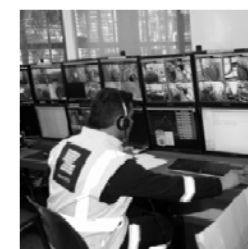
O₂, LEL, H₂S, CO
+ 1 optional (PID, ...)

1x outside manhole
1x on the work spot

Dependent on the
location/plant

2 intercom boxes
2 alarms + flashlights

Configuration & setting
per 12 work spots



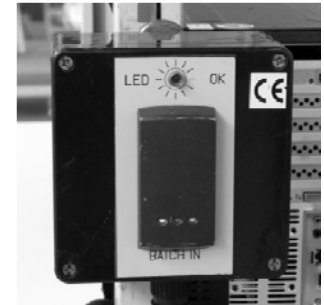
BALANCE BETWEEN MAN & TECHNOLOGY

Technical features

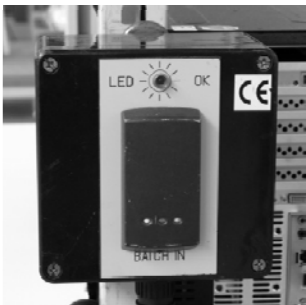
Access control



- 1 badge reader INSIDE the manhole
- 1 badge reader OUTSIDE the manhole



- Personalized active RFID tokens
- Max reader/tag distance:
 - *standard: 1m*
 - *long range: up to 5m (upon request)*
- Data transmission between badge readers on different levels is ensured by RS485/ETH network
- Possibility to create different zones, access levels and user profiles up to 10.000 users
- Roll call and head count information within a mouse click in case of emergency

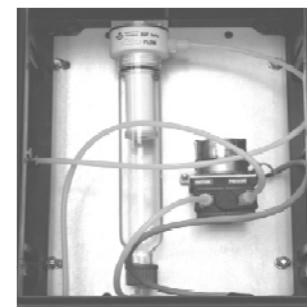


Technical features

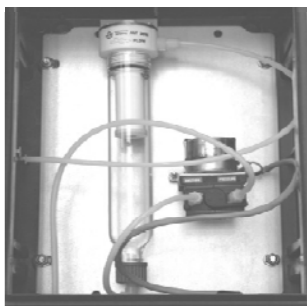
Gas detection



- **STANDARD** configuration: O₂ - LEL - H₂S - CO (up to 40 different gasses possible – upon request)
- 1 **OPTIONAL** sensor possible: PID - dust - temperature - humidity
- Gas detection through a sampling system, minimizing the disturbance of sensors in the confined space



- Continuous flow control in the sampling system (2 l/min)
- Continuous monitoring of sensor condition through “heartbeat”
- Full event logging (calibration-bump test-gas out-breaks-temperature...)
- Sampled gas is conditioned and filtered (dust & watering filter)
- Stand-alone alarming (no operator action or communication with CCR needed to alarm)
- CE and UL approved



Technical features

Camera monitoring



- 1 camera INSIDE the manhole on the work spot
- 1 camera OUTSIDE the manhole to control the entrance and the environment of the access to the manhole



- Dual lens HiRes cameras (up to 3 MP)
- Day & night vision by IR backlight
- Full event and data logging in camera
- PoE (Power over Ethernet) – no extra power cables needed
- Storage interval fully configurable to customer wish



Technical features

Antennas



- Wireless data transmission PTO (point-to-point) or PTMP (point-to-multi-point)
- Fully secured and 128 bit encrypted data transmission



- In accordance with RFI standards & therefore immune for in plant data/control system
 - Uses 5,4 ~ 5,8 GHz band (16 channels)
 - Max distance:
 - line of sight: up to 10 km
 - no line of sight: site visit /plan
- Required to determine the number of APs (Access Points)



Technical features

Communication & alarming



- Communication system integrated in the cameras: activation by push-to-talk button
- 2 intercom boxes: 1 INSIDE / 1 OUTSIDE the manhole
- 2 alarms with flashlights (visual & acoustic): 1 INSIDE / 1 OUTSIDE the manhole



- Full duplex communication
- Activation locally & automatically by the gas detection system or remotely by the operator
- First alarm level = flash light
Second alarm level = siren



Technical features

Central Control Unit



- Visualization software platform to centralize, analyse and report all incoming data
- Continuous supervision of the work spots/ confined spaces by trained professionals



- Tick boxes to check/indicate the work permits, required PPE and atmosphere
- Clear visualization of alarm conditions and status (green/orange/red + sound)
- Visual & acoustic pop-ups in case of incoming call
- Continuous check of network condition and status
- Logging of operator by check-in each change (alternately active in control room and in the field – rotation every 2 hours)



Standard configuration

Safety supervision



	Monitoring Operators Safety & Rescue Supervisors	Monitoring Operators Safety & Rescue Supervisors
Number of work spots	<u>INSIDE</u> in the CCU	<u>OUTSIDE</u> in the field
1 – 12	1	1
12-24	2	2
24-36	3	3
36-48	4	4
48-60	5	5



“RIGHT” BALANCE BETWEEN MAN & TECHNOLOGY



Z-Monitoring

Added value



↑ SAFETY ↑ EFFICIENCY

Continuous gas detection

- Measurement directly on the work spot/in the confined space
- Reliable reporting & trending of all gas measurements

Automatic access control

- Complete & detailed data of all entrances of the confined spaces
- Support towards on-site rescue team
- Reliable registration of all entrances



Z-Monitoring

Added value



↑ SAFETY ↑ EFFICIENCY

Camera monitoring

- Faster response time
- Direct communication in case of emergency
- Support of the on-site rescue team with direct images from the confined spaces
- Reliable live-stream reporting



Communication & alarming

- Intercom, visual & acoustic alarm on the work spot

Central Control Unit (CCR)

- Central follow-up & control room

Q&A



**ONE
TOTAL
INDUSTRIAL
SERVICE
PROVIDER**



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