

New Solution for Using Long-term Respiratory Protective Device in Vehicles

by

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Safety Award 2008 for the Mining Industry Category Health Protection

Regular Use of Respiratory Protective Device by Mine Rescue Teams



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Application in vehicles:

- Advance and release inspections after underground detonations and gas eruptions
- Underground or surface use of scoop trams, loaders, forklift trucks etc. in toxic atmosphere or for fire fighting

Problems when using closed circuit breathing apparatus:

- Due to the size and intended backpack use the mission is not feasible.
- When placing the device on the passenger's seat, driving is still problematic because of the attachment of the hose guide.



Breathing apparatus: Draeger BG 174

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Same problems when using a new type of closed circuit breathing apparatus (Draeger BG 4) in vehicles:

So far closed circuit breathing apparatus are made for backpack use; characteristic features are short hoses, heavy weight of about 13 kilogramme, special size of the device and additional stress by breathing resistance and increased inhaled air temperature.

Disadvantages of customary open circuit compressed air breathing apparatus in vehicles:

- **Short-term period of use and**
- **Intended backpack use.**

Breathing apparatus: Draeger BG 4

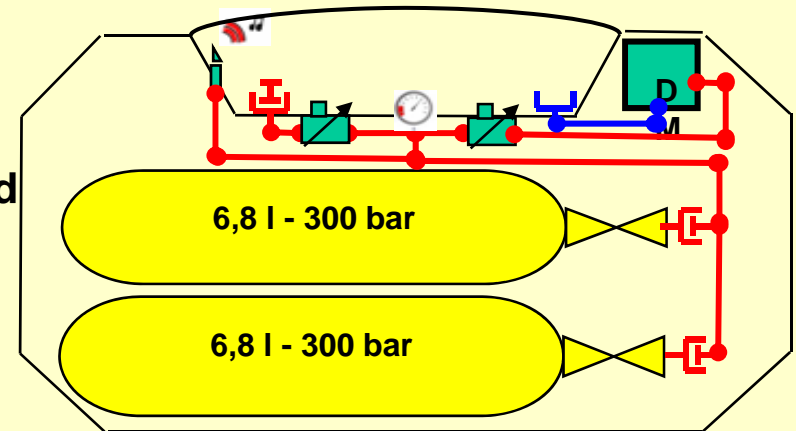


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Solution:

Compressed air line breathing apparatus supplied from an aluminium case; inside two breathable gas cylinders for 90 minutes period of use.

Length of the connecting tube is variable and depends on the mission.



Manufactured by Bartels+Rieger Company, Cologne, Germany.

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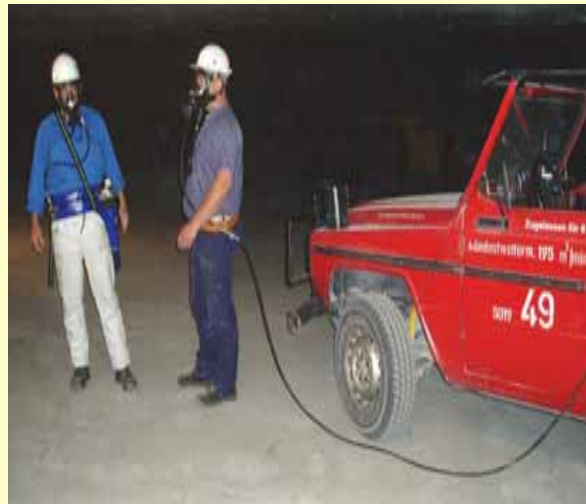


Conditions:

The case is safely fixed within the car or the vehicle.

The user gets fresh air via the medium pressure connecting tube to the full face mask.

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In case of a system failure an emergency air supply for 15 minutes – worn at the belt - will be activated automatically.

Demands on the new solution:

- **Suited for the use in cars, vehicles and other mobile machines**
- **Lower stress level than a customary closed circuit breathing apparatus**
- **Long-term period of use**
- **High mobility of the user**
- **Small size and low weight of the device**
- **Adaptationable to existing protective device**
- **Profitable economical aspects (low running and maintenance costs)**

Remark:

Because of the need of sufficient breathing air for the way back a user in an underground mine should always take two of these cases – additionally one in case of an emergency or a failure!

Many thanks for your patience.

Now you'll see a short video how to use the new solution after a CO₂-gas-outburst in an underground salt mine.

Then I'm expecting your questions!