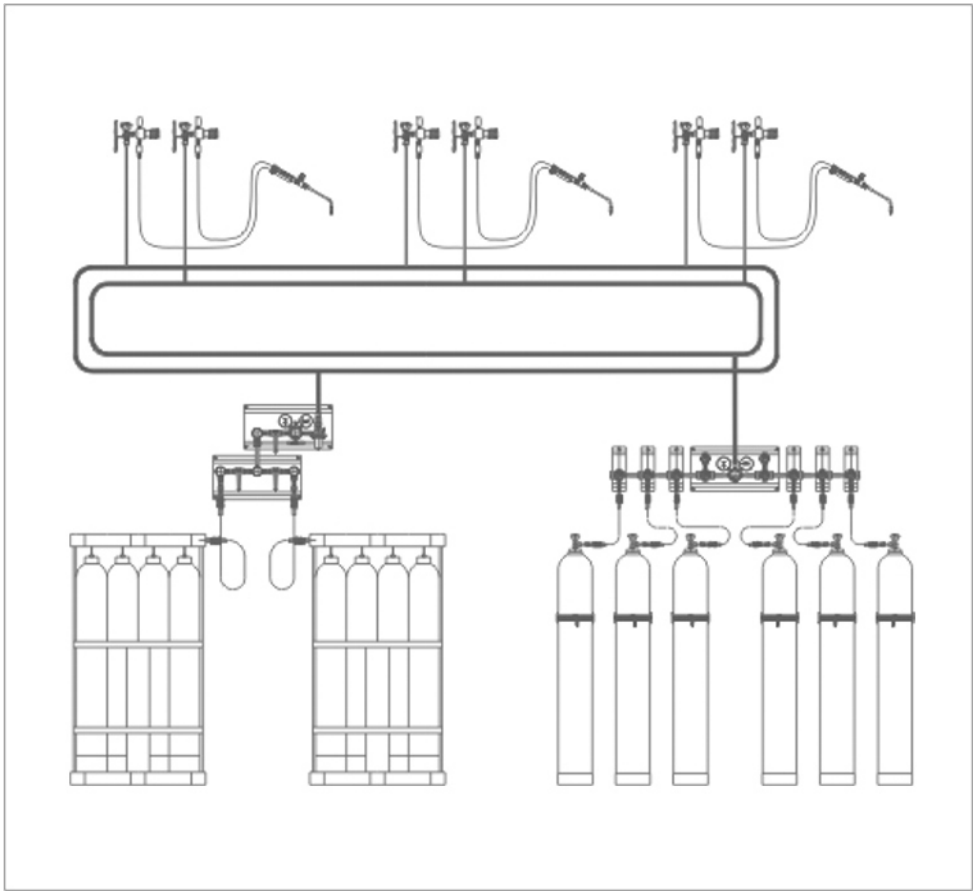
spectro tec

Central Gas Supply for industrial gases



Advantages, regulations and layout

MESSER
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1. General Information

A central gas supply system in a workshop is used to feed several tapping points at individual workplaces via a system of pipework. Therefore the supply from cylinders at the individual workplaces becomes obsolete.
The individual points-of-use are fed with gas from the central storage device via the manifold pipework. Depending on the required gas quantities the central storage devices may be

- gas cylinder batteries
- gas cylinder bundles
- cylinder-bundle batteries
- storage tanks

Central gas supply systems for technical gases from Messer Cutting & Welding's spectrotec product range are manufactured according to

- the relevant rules and regulations
- sound engineering practice

The components are manufactured with the utmost care and are subject to a permanent quality assurance program.
The materials and the production methods used are chosen for the designated applications. The machining of the individual components, the assembly of the components and the packing of the products fulfill the requirements to a state-of-the-art gas supply system.
To optimise the on-site installation procedure the gas supply systems are shipped pre-assembled as far as possible.
Each complete system and its individual components are tested for function and leak-tightness and therefore guarantee the well-known Messer Cutting & Welding quality.

2. Advantages of a central gas supply system

Reduced risk of accidents

- No more gas cylinders in the immediate surrounding of the workplaces
- Several hazards are ruled out, such as:
  - Cylinders falling over, leakages of toxic or flammable gases
  - No more high pressure components at the workplaces

Considerable cost-saving potentials

- Time required for cylinder-changes is reduced to a minimum
- More efficient emptying of the storage devices
- Fewer gas cylinders required - therefore lower cost in gas cylinder rentals

Dimensional advantages

- Less room required for centrally located storage devices
- Only tapping points required at the individual workplaces

Optimised work process

- Continuous gas supply to the individual workplaces
- Easy control over the gas supply via central gas storage contents monitoring

Data sheet DEM Central gas supply edition 0205
Subject to alteration without prior notice

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3. Rules and regulations in Germany

For information on the design of a central gas supply system we recommend:
EIGA document 20/83 “Distribution of oxygen, acetylene and methylacetylene mixtures at users’ works (available from the European Industrial Gases Association - http://www.eiga.org).

German safety regulations (BVS)

The following german technical and safety regulations apply:

- **Technical regulations**
- **Acetylene:**
  TRGs, TRAC; DIN EN ISO 14114; ATEX-guideline; DIN EN 13463-1
- **Compressed gases:**
  TRGs; ATEX-guideline; DIN EN 13463-1
- **Liquefied gases:**
  TRGs; TRF; ATEX-guidelines; DIN EN 13463-1
- **Accident prevention guidelines: BGV 500**

former:

- BGV A1 - General information
- BGV B6 - Gases
- BGV B7 - Oxygen
- BGV D1 - Cutting & Welding
- BGV D2 - Pipework systems
- BGV D34 - Liquefied gases

4. Size of gas container

The size and the type of the required container is primarily defined by the gas consuption at the relevant workplaces. The following table gives an estimate of the available flow rates for gas cylinders and cylinder bundles (of 12 cylinders).
The values are based on permanent withdrawal and one change of cylinder / bundle per week.

Gas consumption per week [m³]	Gas cylinders				Gas cylinder bundles			
	Compressed gases		Acetylene		Compressed gases		Acetylene	
	single	double	single	double	single	double	single	double
10	1x1	2x1	1x1	2x1				
20	1x2	2x1	1x2	2x1				
30	1x3	2x2	1x3	2x2				
40	1x4	2x3	1x4	2x3				
50	1x5	2x4	1x5	2x4			1x1	2x1
60	1x6	2x5	1x6	2x5	1x1	2x1	1x2	2x2
80					1x1	2x1		
100					1x2	2x2		
200								

For infrequent withdrawal with high peak loads the performance factor of the pressure regulator must be taken into consideration (also see brochure “Performance diagram”).

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5. Withdrawal rates from gas cylinders

Acetylene

- From one 40-l cylinder up to approx. 1 m^3/h can be withdrawn temporarily.
- The permanent withdrawal rate should not exceed 0.3 to 0.6 m^3/h.

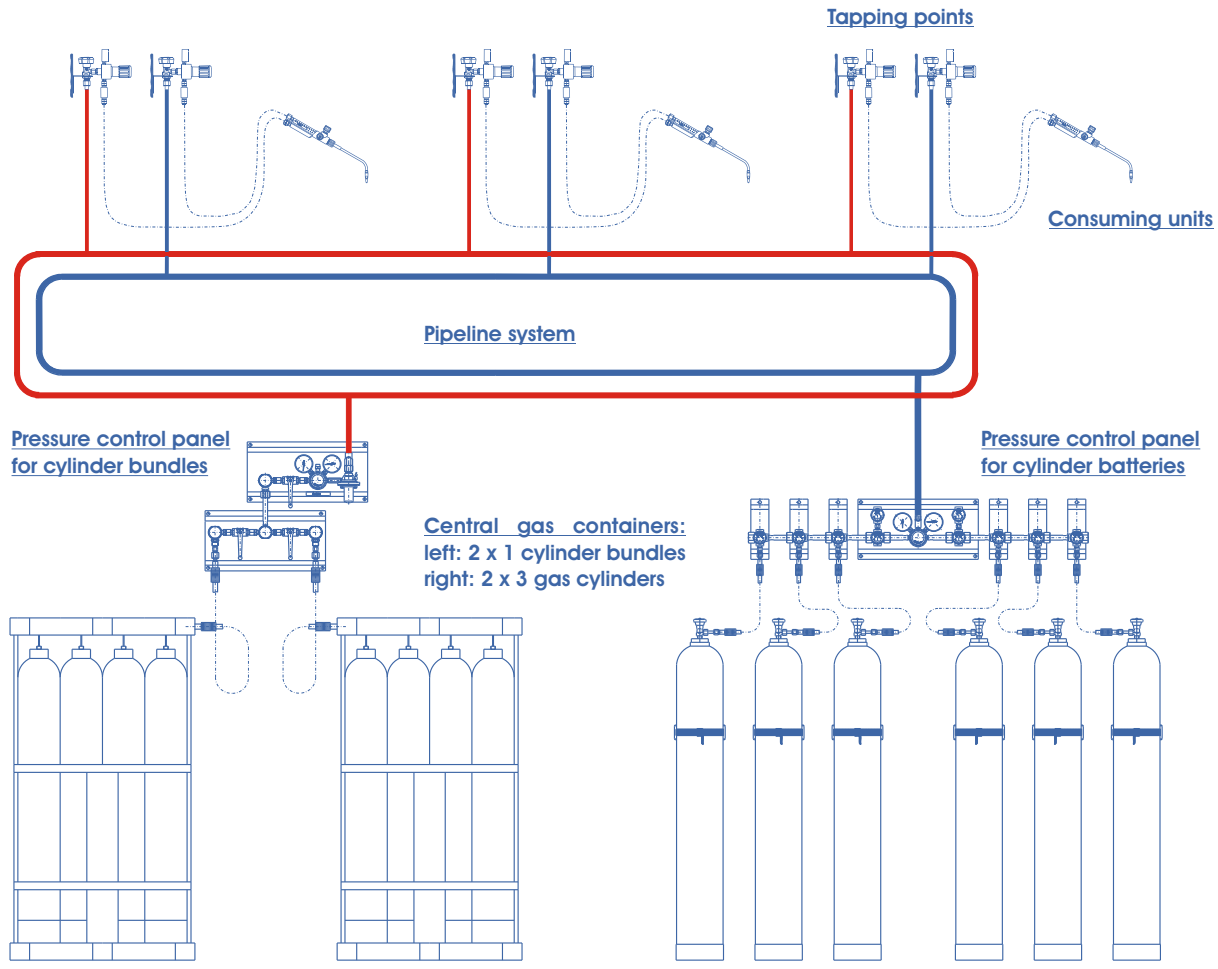
Liquefied gas (Propane)

- The evaporation rate of the liquefied gas container depends on several factors, but mainly on the temperature and the duration of the consumption peaks.
- For intermittant consumption one can assume an evaporation rate of approx. 1.5 kg/h for a 11 kg cylinder and 4 kg/h for a 33 kg cylinder.

Liquefied gas (CO_2)

- No more than 10 % per hour of the respective cylinder contents should be withdrawn from the gas cylinder in gaseous state.

6. Schematic example for a central gas supply system



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