



Gas Jet Compressor Systems for Gas Fields

Gas jet compressor systems for the exploitation of gas fields

GEA designs, manufactures and delivers gas jet compressor systems for on- and offshore applications consisting of jet pumps (ejector or eductor) and silencers to reduce the sound pressure level.

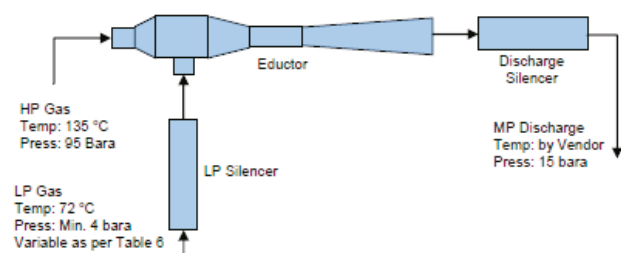
Why an ejector system is needed

- Natural gas is available with up to 600 bar pressure at a newly drilled well.
- The natural gas can be conveyed directly through pipelines for further processing or to place of use.
- Available gas pressure reduces with time, so mechanical compressors are required.
- Mechanical compressors are working within their flow/pressure diagram; as the suction pressure becomes lower, the suction flow lowers.
- To improve/increase the flow of the compressor, an ejector can be installed to boost the suction gas to a higher pressure level.
- Result is extending the economic life of the gas field

Example: Gas jet compressor system with jet pumps 8" / 16" / 16" (motive/suction/discharge) with a total length of about 4.5 m and silencers to reduce the sound pressure level.

The unit compresses a low-pressure natural gas (about 8 barg) by using a high-pressure natural gas (>90 barg) to an intermediate gas pressure (about 12 barg) and is designed to support the installed mechanical main compressor stage.

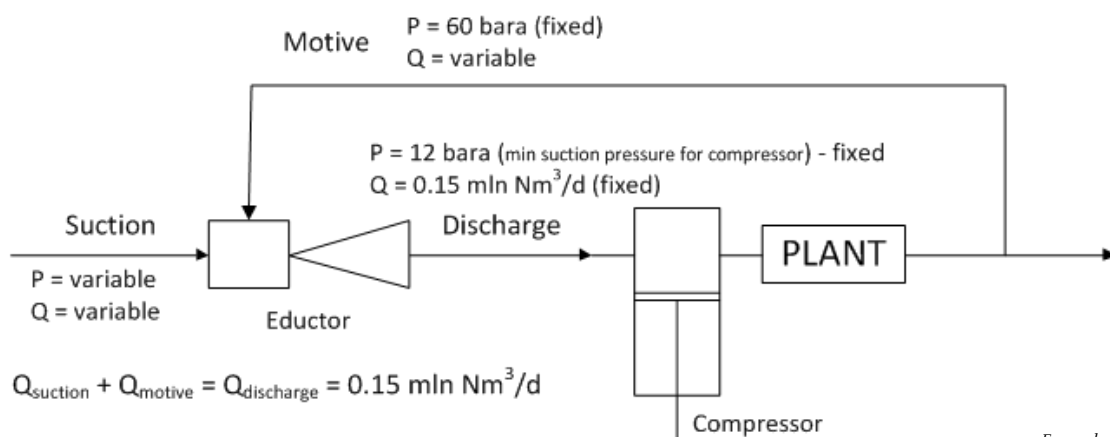
The ejector-body is designed for 137 barg – the motive side for 213 barg. Material of construction is corrosion-resistant and corrosion-tested Duplex-stainless steel, which is coated with sprayed Aluminum.



Ejector arrangement for operating conditions



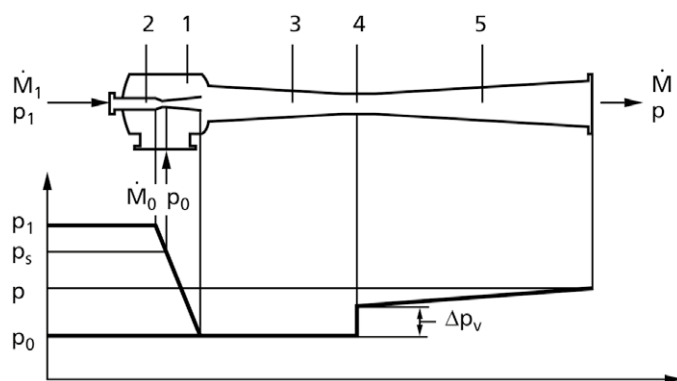
Ejector / jet pump and silencers



Example for design data

Advantages of jet vacuum pumps

- Low maintenance costs
- Long equipment life
- Reliable operation
- Low operating costs if operated correctly
- Manufacture possible in different materials
- No moving parts
- Almost any vacuum duty can be accommodated including large suction flows

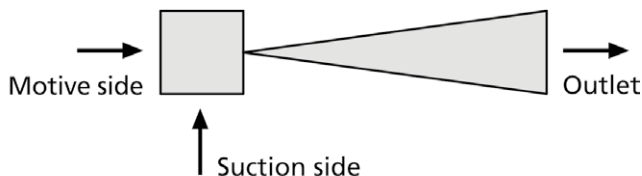


Working principle of a steam jet pump and the pressure differences over the flow path

1	head	
2	motive nozzle	
3	inlet cone	} mixing nozzle
4	throat	
5	diffuser	
p_1	motive steam pressure	
p_0	suction pressure	
p	counter pressure	
p_s	pressure at sound velocity	
Δp_v	compression thrust	
$\dot{M}_1$	motive steam flow	
$\dot{M}_0$	suction flow	
$\dot{M}$	mixing vapor flow	

Questionnaire

for gas jet compressors



1. MOTIVE SIDE

Motive medium Molecular weight kg/kmol
Motive pressure bar abs. Specific heat capacity kJ/kg K
Temperature °C

2. SUCTION SIDE

Suction medium Temperature °C
Suction flow kg/h Molecular weight kg/kmol
Suction pressure bar abs. Specific heat capacity kJ/kg K

3. OUTLET

Required discharge pressure bar abs. Mixed flow kg/h

4. FURTHER DATA

MATERIAL OF CONSTRUCTION:

CONNECTIONS:

Flanges ☐
Thread ☐
Others ☐

FLANGES ACCORDING TO:

EN1092-1 ☐
ASME lbs ☐
Others ☐

DESIGN CODE (if required):

AD - 2000 ☐
ASME ☐
Others ☐

APPLICATION:

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.....
.....

DESIGN:

Temperature °C Pressure bar g

FURTHER NOTES:

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Additional details, if required,
are to be stated separately.

Your inquiry no.

Offer submitted until

Requested date of delivery

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