CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA P-92—2022

STANDARD FOR PORTABLE LIQUID NITROGEN PUMPER SYSTEMS

FIRST EDITION

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1 Introduction

Portable liquid nitrogen pumper systems supply high pressure nitrogen gas to customers. These systems are typically used for purging, inerting, drying, or pressurizing customer systems and oilfield applications. Systems are typically temporary and not meant to serve as permanent systems.

Pumper systems can have maximum discharge pressures up to 15 000 psi (103 400 kPa) and maximum flow rates greater than 500 000 scfh (2620 m^3/hr).[1,2] Operating temperature can range from –320 °F to 650 °F (–196 °C to 343 °C).

2 Scope

This standard contains minimum requirements for siting, selecting equipment for, installing, filling, starting up, operating, maintaining, and removing portable liquid nitrogen pumper systems, referred to as pumper systems in this publication.

Pumper systems can be built as any of the following configurations:

- Truck systems, where the pumper system is mounted on a straight or bobtail truck that fully supports itself with front and rear axles. The truck is driven to the customer site and parked as a complete unit;
- Semi-trailer systems, where the pumper system is mounted on a semi-trailer that supports itself only on the rear axles and the front is supported by a truck. The semi-trailer is driven to the customer site, may be disconnected from the truck, and parked without the truck; and
- Skid-mounted systems, where the pumper system is mounted on a framework that is delivered on a semi-trailer and unloaded for use at the customer site.

The scope is limited to truck and semi-trailer systems and does not include skid-mounted systems.

This standard does not apply to pumper systems that supply gases other than nitrogen.

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Publication terminology

3.1.1 Shall
Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should
Indicates that a procedure is recommended.

3.1.3 May
Indicates that the procedure is optional.

3.1.4 Will
Is used only to indicate the future, not a degree of requirement.

3.1.5 Can
Indicates a possibility or ability.

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[1] psi, bar, and kPa shall indicate gauge pressure unless otherwise noted as (psia; bar, abs; and kPa, abs) for absolute pressure or (psid; bar, dif; and kPa, dif) for differential pressure. All kPa values are rounded off per CGA P-11, *Guideline for Metric Practice in the Compressed Gas Industry* [1].

[2] References are shown by bracketed numbers and are listed in order of appearance in the reference section.