CGA

Compressed Gas Association

The Standard For Safety Since 1913

# CGA P-61—2023

## ERGONOMIC GUIDELINE FOR THE COMPRESSED AND CRYOGENIC GAS INDUSTRY

THIRD EDITION

**PLEASE NOTE:**

The information contained in this document was obtained from sources believed to be reliable and is based on technical information and experience currently available from members of the Compressed Gas Association, Inc. and others. However, the Association or its members, jointly or severally, make no guarantee of the results and assume no liability or responsibility in connection with the information or suggestions herein contained. Moreover, it should not be assumed that every acceptable commodity grade, test or safety procedure or method, precaution, equipment or device is contained within, or that abnormal or unusual circumstances may not warrant or suggest further requirements or additional procedure.

This document is subject to periodic review, and users are cautioned to obtain the latest edition. The Association invites comments and suggestions for consideration. In connection with such review, any such comments or suggestions will be fully reviewed by the Association after giving the party, upon request, a reasonable opportunity to be heard. Proposed changes may be submitted via the Internet at our website, www.cganet.com.

This document should not be confused with federal, state, provincial, or municipal specifications or regulations; insurance requirements; or national safety codes. While the Association recommends reference to or use of this document by government agencies and others, this document is purely voluntary and not binding unless adopted by reference in regulations.

A listing of all publications, audiovisual programs, safety and technical bulletins, and safety posters is available via the Internet at our website at www.cganet.com. For more information contact CGA at Phone: 703-788-2700, ext. 799. E-mail: customerservice@cganet.com.

Work Item 21-066
Safety and Health Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices A, B, C, D, and E (Informative) are for information only.

THIRD EDITION: 2023
SECOND EDITION: 2016
FIRST EDITION: 2009

**Contents** **Page**



**Tables**



**Appendices**

# 1 Introduction

Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of the working population.

Ergonomics attempts to develop equipment, tools, work practices, and machine technology that will improve overall employee health, comfort, and performance, as well as provide a safer working environment. Ergonomics places the emphasis on the human subject and how systems, processes, and everyday job tasks should be performed in an environment more adaptive to the worker, rather than the worker trying to adapt to the environment.

One type of injury that can be avoided by eliminating risk factors in the work environment is a work-related musculoskeletal disorder (MSD) or cumulative trauma disorder (CTD). MSDs refer to disorders of the soft tissues and are associated with repeated exertions or movements of the body, awkward postures, and extreme force.

MSD risk factors can be found in activities both on and off the job and can lead to muscle fatigue. Fatigue commonly leads to discomfort and to a reduction in endurance, strength, and muscle control.

The differentiating factor between a MSD and another type of injury is the acuteness of the injury. Acute trauma refers to injuries that occur immediately, such as cuts, bruises, and falls. Some cumulative trauma injuries appear to be sudden but can be the result of chronic exposure to MSD risk factors over time.

This publication heavily references the National Institute for Occupational Safety and Health's (NIOSH) publication, *Elements of Ergonomics Programs: A Primer Based on Workplace Evaluations of Musculoskeletal Disorders* [1].[1]

# 2 Scope

This guideline describes the recommended generic parts of an ergonomic program for the compressed and cryogenic gas industry. It addresses recommendations for ergonomic practices related to the products, equipment, and activities of the compressed and cryogenic gas producers, manufacturers, distributors, and users.

# 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.

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