



UL 51

STANDARD FOR SAFETY

Power-Operated Pumps and Bypass Valves for
Anhydrous Ammonia, LP-Gas, and Propylene



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UL Standard for Safety for Power-Operated Pumps and Bypass Valves for Anhydrous Ammonia, LP-Gas, and Propylene, UL 51

Tenth Edition, Dated May 31, 2013

Summary of Topics

This New Edition of UL 51 is issued to include a revised title and bypass valves and propylene.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated October 12, 2012 and February 15, 2013.

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May 31, 2013

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UL 51



ANSI/UL 51-2013

**Standard for Power-Operated Pumps and Bypass Valves for Anhydrous
Ammonia, LP-Gas, and Propylene**

The first edition was titled Power-Operated Pumps for LP-Gas. The second, third, and fourth editions were titled Pumps for Anhydrous Ammonia and LP-Gas. The fifth, sixth, seventh, eighth, and ninth editions were titled Power-Operated Pumps for Anhydrous Ammonia and LP-Gas.

First Edition – March, 1956
Second Edition – September, 1959
Third Edition – November, 1969
Fourth Edition – September, 1972
Fifth Edition – September, 1974
Sixth Edition – March, 1980
Seventh Edition – October, 1992
Eighth Edition – November, 1995
Ninth Edition – November, 2002

Tenth Edition

May 31, 2013

This ANSI/UL Standard for Safety consists of the tenth edition.

The most recent designation of ANSI/UL 51 as an American National Standard (ANSI) occurred on May 31, 2013. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover power-operated pumps and bypass valves for use in liquid transfer operations in non-refrigerated systems in installations for:

- a) Anhydrous ammonia systems installed in accordance with the Safety Requirements for the Storage and Handling of Anhydrous Ammonia, CGA/GAS G-2.1 (ANSI K61.1);
- b) Liquefied petroleum gas (LP-Gas) systems installed in accordance with the Liquefied Petroleum Gas Code, NFPA No. 58; and
- c) Propylene systems.

1.2 These requirements do not cover:

- a) Pumps or compressors intended for handling anhydrous ammonia or LP-Gas or propylene in the gaseous phase and
- b) Pumps, compressors or bypass valves for anhydrous ammonia, LP-Gas, or propylene for use in chemical, petro-chemical, petroleum, or utility power plants; nor pipeline or marine terminals; nor related storage facilities at such plants or terminals.

1.3 Equipment covered by these requirements is for use with LP-Gas, propylene, or anhydrous ammonia as covered by the Standards and Codes in 1.1 and shall have a minimum service pressure rating in accordance with Table 1.1.

Exception: A pump without an integral bypass valve with a higher differential pressure obtained in the Differential Pressure Test, Section 17, is permitted to have a lower minimum service pressure rating if it is marked in accordance with 25.2.

Table 1.1
Minimum service pressure for rating pumps and bypass valves

Maximum differential pressure produced when subjected to the Differential Pressure Test, Section 17 psig (kPa)	Anhydrous ammonia and LP-Gas equipment minimum service pressure rating psig (kPa)	Propylene equipment minimum service pressure rating psig (kPa)
≤ 100 (689) Propylene equipment only	Not applicable	350 (2415)
≤ 125 (862)	350 (2415)	375 (2585)
>125 (863) ≤ 150 (1034)	375 (2586)	400 (2758)
>150 (1034) ≤ 200 (1379)	400 (2758)	425 (2930)
≥ 200 (1379)	200 + differential pressure produced (1379 + differential pressure produced)	225 + differential pressure produced (1551 + differential pressure produced)