

# Butterfly Valves: Double-flanged, Lug- and Wafer-type, and Butt-welding Ends

API STANDARD 609  
NINTH EDITION, APRIL 2021

API MONOGRAM PROGRAM EFFECTIVE DATE: OCTOBER 2021



American  
Petroleum  
Institute

This is a preview. [Click here to purchase the full publication.](#)

## Special Notes

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed. The use of API publications is voluntary. In some cases, third parties or authorities having jurisdiction may choose to incorporate API standards by reference and may mandate compliance.

Neither API nor any of API's employees, subcontractors, consultants, committees, or other assignees make any warranty or representation, either express or implied, with respect to the accuracy, completeness, or usefulness of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication. Neither API nor any of API's employees, subcontractors, consultants, or other assignees represent that use of this publication would not infringe upon privately owned rights.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to ensure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

API publications are published to facilitate the broad availability of proven, sound engineering and operating practices. These publications are not intended to obviate the need for applying sound engineering judgment regarding when and where these publications should be used. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

Users of this standard should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein.

All rights reserved. No part of this work may be reproduced, translated, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher. Contact the Publisher, API Publishing Services, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001-5571.

Copyright © 2021 American Petroleum Institute

## Foreword

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

The verbal forms used to express the provisions in this document are as follows.

Shall: As used in a standard, “shall” denotes a minimum requirement to conform to the standard.

Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required to conform to the standard.

May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

Can: As used in a standard, “can” denotes a statement of possibility or capability.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this publication or comments and questions concerning the procedures under which this publication was developed should be directed in writing to the Director of Standards, American Petroleum Institute, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

For API Monogram Program licensees and APIQR Program registrants, this standard shall become effective on the program date printed on the cover but may be used voluntarily from the date of publication.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Status of the publication can be ascertained from the API Standards Department, telephone (202) 682-8000. A catalog of API publications and materials is published annually by API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001.

Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, [standards@api.org](mailto:standards@api.org).



## Contents

|  | Page |
|--|------|
| 1 Scope.....   | 1    |
| 2 Normative References .....   | 1    |
| 3 Terms and Definitions .....  | 2    |
| 4 Pressure-temperature Ratings.....  | 3    |
| 4.1 Valve Rating.....  | 3    |
| 4.2 Shell Rating .....   | 3    |
| 4.3 Seat Rating .....  | 3    |
| 4.4 Differential Pressure Rating .....   | 4    |
| 5 Design.....  | 4    |
| 5.1 General .....  | 4    |
| 5.2 Body.....  | 5    |
| 5.3 Face-to-face Dimensions .....  | 5    |
| 5.4 Valve Body Flange Facings .....  | 8    |
| 5.5 Disc Clearance .....   | 8    |
| 5.6 Shaft and Shaft Seals .....  | 8    |
| 5.7 Piping Connection External Bolt Holes .....                                    | 9    |
| 5.8 Valve Body Seat Retainer—Category B Valves Only .....                          | 9    |
| 5.9 Operating Mechanisms.....  | 11   |
| 5.10 Antistatic Design (Electrical Continuity Between Disc, Shaft, and Body) ..... | 11   |
| 5.11 Packing Gland Bolting—Category B Valves Only .....                            | 12   |
| 6 Materials .....  | 12   |
| 6.1 Body.....  | 12   |
| 6.2 Pressure Boundary Elements .....   | 12   |
| 6.3 Process Wetted Parts .....   | 12   |
| 6.4 Packing or Shaft Seal Materials.....   | 12   |
| 6.5 Gland Bolting .....  | 12   |
| 6.6 Operating Mechanisms—Category B Valves Only .....                              | 12   |
| 7 Testing, Inspection, and Examination .....                                       | 12   |
| 7.1 Inspection and Examination.....  | 12   |
| 7.2 Pressure Tests .....   | 13   |
| 7.3 Electrical Continuity Test.....  | 13   |
| 7.4 Repair of Defects .....  | 13   |
| 8 Markings .....   | 13   |
| 9 Packaging and Shipping .....   | 14   |
| 9.1 Coatings.....  | 14   |
| 9.2 Shaft Packing.....   | 14   |
| 9.3 Packaging .....  | 14   |
| 9.4 Spare Parts.....   | 14   |
| 10 Purchase Order Information .....  | 14   |
| Annex A .....  | 15   |