



## Ball Valve Torque Sizing Program

Seat Insert		Stem Material Class Designation			Notes
2	P304	1	F304L or F316L	1	Hi Temp Service >247°C needs to be Material tested
3	M316/316L	2	F304 or F316	1	
4	M316L	3	A304 or A316	1	
5	T304	4	F316 or F3	1	

Line No.	Ball Type Floating (FB) or TM-DBB or TM-DB	Tag No.	Valve Size		Rated Rating Class	Shutoff Pressure  PSIG	Shut Off Class	Dry Service  No or Yes	Acting Style	ISO 5210 Flange	Stem Dia	Stem Material	Torque for Actuator Selection, See The Downstream Pressures used for ESDV and SDV Service are shown below at the bottom of the page. This would allow 90% of rated requirements. The last 10% are special conditions which you can input into the table below.					Shut Off Class	Other Requirements				
			Body	Trim									In psig						Hi Temp Input °C	MOP			
													RTD	ETD	ETC	RTC	ETC						
1	TM-DBB	SDV-100	20	x	20	300	500	3	No	ANSI	F10	30	10,713	7,800	4,200	4,300	4,400	2,700	3,100	1	ANSI		
2	TM-DB	SDV-100	12	x	12	300	500	3	Yes	ANSI	F10	30	2,654	2,540	1,810	1,300	2,470	1,540	1,700	1	ANSI		
3	TM-DBB	SDV-101	12	x	12	300	500	3	No	ANSI	F10	30	3,804	3,217	1,200	1,440	1,470	1,010	1,700	1	ANSI		
4	TM-DB	SDV-101	16	x	16	300	1320	3	No	ANSI	F10	30	25,200	9,410	3,000	3,100	3,210	1,000	1,400	1	ANSI		
5	TM-DBB	SDV-120	12	x	12	300	500	3	Yes	ANSI	F10	30	3,194	3,044	2,290	2,200	2,770	1,010	1,000	1	ANSI		
6	TM-DB	SDV-120	24	x	24	150	200	3	No	ANSI	F10	30	10,014	6,800	2,270	2,100	3,270	1,000	1,270	1	ANSI		
7	TM-DBB	SDV-120	16	x	16	300	1320	3	No	ANSI	F10	30	25,200	9,410	4,600	4,300	4,000	3,000	3,300	1	ANSI		
8	TM-DB	SDV-120	16	x	16	300	400	3	No	ANSI	F10	30	3,000	3,000	600	600	2,200	600	600	1	ANSI		
9	TM-DBB	SDV-124	16	x	16	300	400	3	No	ANSI	F10	30	3,000	3,000	670	600	1,000	700	1,000	1	ANSI		
10	TM-DB	SDV-124	8	x	8	1000	1000	3	Yes	ANSI	F10	30	3,304	3,304	600	600	1,100	300	600	1	ANSI		
11	TM-DBB	SDV-125	8	x	8	300	600	3	No	ANSI	F10	16	14,321	2,800	1,370	1,400	1,710	1,000	1,000	1	ANSI		
12	TM-DB	SDV-125	8	x	8	600	1320	3	No	ANSI	F10	16	8,300	2,200	1,000	600	1,700	600	600	1	ANSI		
13	TM-DBB	SDV-126	2	x	2	150	200	3	No	ANSI	F10	22	110	50	20	20	20	20	20	1	ANSI		
14	TM-DB	SDV-126	4	x	4	300	600	3	No	ANSI	F10	20	600	200	100	600	10	100	10	100	1	ANSI	
15	TM-DBB	SDV-127	16	x	16	300	1000	3	No	ANSI	F10	16	17,370	3,400	1,000	1,100	1,000	1,000	4,000	1	ANSI		
16	TM-DB	SDV-127	24	x	24	300	1320	3	No	ANSI	F10	140	113,000	20,000	14,000	14,000	11,000	1,000	11,000	1	ANSI		

### Notes :

- 1 If no Maximum Operating Pressure (MOP) is used, the MOP will be assumed to be 90% of shutoff pressure.
- 2 Downstream pressures used for normal On/Off Service and ESDV/SDV Service to calculate torque values are as follows :

Downstream Pressure for	ESDV / SDV	On / off
RTD	40% of MOP	50% of MOP
ETD	40% of MOP	70% of MOP
ETC	70% of MOP	100% of MOP
RTC	50% of MOP	70% of MOP
ETC	20% of MOP	70% of MOP

### Notes on differential pressures :

RTD and ETD torques are sized using Shut-off Pressure. The other 4 torque values are sized based on a MOP of 90% of shut-off pressure assumed here. To achieve efficient actuator selection, input the actual MOP provided in the datasheet. Similarly, if lower differential pressures are available for the remaining 3 torque figures, input them.

Many manufacturers used the same running torque regardless of differential pressure values, and that could cause the actuator to be undersized. The higher the differential pressure, the higher the resultant torque will be.

# Breakaway Torque Calculation For Ball Valve

**Béla G. Lipták**



## **Breakaway Torque Calculation For Ball Valve:**

**Pipeline Valve Technology** Karan Sotoodeh,2022-12-21 The e book version of the book Pipeline Valve Technology complements the other versions of the book The e book version provides the user with additional questions and answers at the end of each chapter to gauge and enhance the user s understanding The book covers the life cycle of pipeline valves the largest and most essential valves in offshore pipeline engineering Discussing the design process testing production transportation installation and maintenance the book also covers the risk analysis required to assess the reliability of these valves Pipeline valves require particular attention to ensure they are safely designed installed and maintained due to the high stakes Failure would result in environmental pollution the destruction of expensive assets and potential loss of life Proper installation and upkeep require specialist processes throughout the life cycle of the valve This book is a key guide to these processes Beginning by looking at the design of pipeline valves this book details how conserving weight and space is prioritized how materials are chosen how thickness is calculated and how leakage is minimized It then discusses production and specific welding techniques to bond dissimilar materials alongside casting and machining Building on other discussions in the text with case studies and questions and answers for self study this book is the ideal guide to pipeline valves This book will be of interest to professionals in the industries of offshore oil and gas material engineering coatings mechanical engineering and piping It will also be relevant to students studying coating and welding or mechanical piping or petroleum engineering

**Safety Instrumented Systems** Paul Gruhn,Simon Lucchini,2018-07-24 Safety Instrumented Systems A Life Cycle Approach Understanding the safety life cycle as outlined in ISA IEC 61511 isn t enough to implement a safety system You also need to know how to design install commission and operate one and to have access to real world examples says author Simon Lucchini Authors Lucchini and Paul Gruhn have compiled almost 80 years of real life experience and lessons learned into this easy to read reference that contains real world examples of designing installing commissioning programming managing and maintaining safety instrumented systems This is a practical how to text designed to guide functional safety engineers and others in process industry safety to the right decisions about safety systems at the right time

*Power and the Engineer* ,1979 Control Engineering ,1975 Instrumentation and automatic control systems Process Control Béla G. Lipták,2013-10-02 Instrument Engineers Handbook Third Edition Process Control provides information pertinent to control hardware including transmitters controllers control valves displays and computer systems This book presents the control theory and shows how the unit processes of distillation and chemical reaction should be controlled Organized into eight chapters this edition begins with an overview of the method needed for the state of the art practice of process control This text then examines the relative merits of digital and analog displays and computers Other chapters consider the basic industrial annunciators and other alarm systems which consist of multiple individual alarm points that are connected to a trouble contact a logic module and a visual indicator This book discusses as well the data loggers available for

process control applications The final chapter deals with the various pump control systems the features and designs of variable speed drives and the metering pumps This book is a valuable resource for engineers

**Instrument Engineers' Handbook, (Volume 2) Third Edition** Bela G. Liptak, 1995-05-15 This third edition of the Instrument Engineers Handbook most complete and respected work on process instrumentation and control helps you

S.A.E. Transactions Society of Automotive Engineers, 1974 Beginning in 1985 one section is devoted to a special topic

Quarter-Turn Valves American Water Works Association, 2024 The purpose of this manual is to present a recommended method for calculating operating torque head loss and cavitation for quarter turn valves typically used in water works service The text provides guidance on generally available methods for using quarter turn valves as well as their cavitation flow and torque characteristics Information in this manual is useful for technicians and engineers who want a basic understanding of the calculations associated with the use and specification of quarter turn valves Prior editions limited this manual to butterfly valves This fourth edition has been expanded to include information on other quarter turn valves including ball rotary cone and eccentric plug valves

**M49 Quarter-turn Valves** Bayard E. Bosserman (II), John R. Holstrom, 2017 This manual presents a recommended method for calculating operating torque head loss and cavitation for quarter turn valves typically used in water works service M49 also provides guidance on generally available methods for using quarter turn valves as well as their cavitation flow and torque characteristics This third edition has broadened the application of the methods discussed to include other quarter turn valves such as ball plug and rotary cone valves Additionally new information on Equivalent Resistant System Model has also been included Information in this manual is useful for technicians and engineers who want a basic understanding of the calculations associated with the use and specification of quarter turn valves

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**Butterfly Valves** AWWA Staff, 2000-06

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In a time characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its ability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Breakaway Torque Calculation For Ball Valve**," a mesmerizing literary creation penned by a celebrated wordsmith, readers attempt an enlightening odyssey, unraveling the intricate significance of language and its enduring effect on our lives. In this appraisal, we shall explore the book's central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

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