

# Bulk Storage and Transportation Specialty Trims for Chemicals



**FISHER™**

**Custom-engineered valves for your tanks when it comes to transporting or storing chemicals.**

## Types of Engineered Valves

- Safety relief valves that protect tanks in overpressure situations
- Emergency Shut Off Valves (ESVs) that prevent large scale loss of product in the event of hose rupture and pipe break at transfer areas
- Internal valves that provide a means of filling and/or withdrawing product from tank, and act as a primary shutoff, back check, and excess flow valve.

Fisher™ engineered valves offer a variety of elastomer and body material options to withstand various chemical applications ensuring product reliability. Below is a partial list of chemicals by type of valves which have been used.

## List of Chemical Compatibility by Elastomer and Body material by Valve



Chemical	Internal Valve (C800)		ESV (N851)		ESV (N863/N864)		Relief Valve (H800)	
	Elastomer	Body Metal	Elastomer	Metal	Elastomer	Body Metal	Elastomer	Metal
Amine	Teflon®	SST					EPDM	SST
Anhydrous Ammonia (NH3)	Teflon®/Neoprene/Nitrile	Ductile Iron/SST	Nitrile		Nitrile		Neoprene/Nitrile	SST
Butadiene	FKM/FFKM	SST	FFKM	Ductile Iron			FKM/FFKM	SST
CO <sub>2</sub>	Nitrile/Teflon®						Nitrile/Neoprene/Viton®	
Chlorosilane	FFKM	Ductile Iron/Carbon Steel/SST					FKM/FFKM	SST
DME	FFKM	Ductile Iron/Carbon Steel					FFKM	SST
DME & Amines	Teflon®/FFKM	SST						SST
Freon 134a	Neoprene/EPDM/ Teflon®	Ductile Iron/Carbon Steel					Neoprene	
Freons R22, R12, R115, R141b	Teflon®	Ductile Iron					Neoprene	SST
Mercaptan	Teflon®/FKM/EPDM/FFKM						FFKM/EPDM	SST
Propylene	FKM/FFKM/Teflon®	Ductile Iron/Carbon Steel/SST	FFKM	Ductile Iron/SST	FKM			Brass/SST
SO <sub>2</sub>	EPDM/FFKM/Teflon®	Ductile Iron/Carbon Steel/SST		SST	FFKM		EPDM/FFKM	SST
Tri Chlorosilane	FFKM	Ductile Iron/SST					FFKM	SST
Vanadium Oxytrichloride							FKM/FFKM	SST
Vinyl Chloride	Teflon®/FKM/FFKM	Ductile Iron/Carbon Steel		SST	FKM			
Triethylene Aluminum (TEAL)							FFKM	SST

Note: Listed Chemicals and material compatibility based on configurations sold in the past. Contact Fisher for chemicals not listed above  
 WARNING: Failure to comply with appropriate material (Body Metal and Elastomer) with respective Chemical could lead to premature unit failure.  
 Chemical chart listed above should be used as guidance only. Fisher does not certify special service valves for any application.



# Bulk Storage Tanks

**Bulk Storage Relief Valves** are mounted on top of tanks (Typically 2 in. NPT connection with a 3 in. outside connection to attach pipe stack) to exhaust excess tank pressure protecting the tank. Available in Brass Head connection (H884) and 316 Stainless Steel Head connection (H8114).

ASME Flow Capacity (SCFM Air) = [Set Pressure (psig) \* 1.2 +14.7] \* ASME Flow Rate Factor (30.90).

Types H884 and H8114 Special Large Stationary Tank Relief Valves						
TYPE	SPRING RANGE, psig/bar	CONTAINER CONNECTION, IN.	ELASTOMER OPTION	BODY MATERIAL	OPERATING TEMPERATURE RANGE	
H884-1	100 to 149/6.9 to 10.3	2 MNPT x 3 MNPT	Nitrile - Standard EPDM (E) Kalrez® (K) Neoprene (N) Viton® (V)	Brass	Nitrile: -20 to 180°F / -29 to 82°C EPDM: -30 to 300°F / -34 to 149°C Kalrez®: -50 to 275°F / -45 to 135°C Viton®: -4 to 450°F / 20 to 232°C	
H884-2	150 to 200/10.3 to 13.8					
H884-3	201 to 275/13.9 to 19.0					
H884-4	276 to 330/19.0 to 22.8					
H884-5	331 to 400/22.8 to 27.6					
H8114-1	100 to 149/6.9 to 10.3			SST		
H8114-2	150 to 200/10.3 to 13.8					
H8114-3	201 to 275/13.9 to 19.0					
H8114-4	276 to 300/19.0 to 22.8					
H8114-5	331 to 400/22.8 to 27.6					

1. Use with a 3.5 in. Hex size installation tool.

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To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)

Ex. H884V-1 for Viton® trim, Brass Head at 100 to 149 psig range

Ex. H8114-5 for Nitrile trim, SST Head at 331 to 400 psig range

Contact Fisher™ for special configurations



**Bulk Storage Internal Valves** are installed on tanks (Typically at bottom) to control the flow of compressed gases and liquids.

Available in various Body sizes, material, and inlet/outlet connections to meet various tank connection sizes and piping orientation.

C800 Series Special Service Internal Valves						
TYPE	CONNECTION INLET X OUTLET	BODY STYLE	BODY MATERIAL	CLOSING FLOW OPTIONS	ELASTOMER AVAILABLE <sup>(2)</sup>	OPERATING TEMPERATURE RANGE
C807-10	1-1/4 in. MNPT x 1-1/4 in. FNPT	Straight Body	Steel	40 GPM (04)	Nitrile Viton® (V) <sup>(1)</sup> Teflon® (T)	Nitrile: -20 to 180°F / -29 to 82°C Neoprene: -50 to 275°F / -45 to 135°C EPDM: -30 to 300°F / -34 to 149°C Viton®: -4 to 450°F / -20 to 232°C Kalrez®: -40 to 620°F / -40 to 326°C Teflon®: -50 to 500°F / -45 to 135°C
C807S-10			SST	50 GPM (05) 80 GPM (08)		
C871-16	2 in. MNPT x 2 in. FNPT	Tee Body	Ductile Iron	105 GPM (10)	Nitrile Neoprene (N) EPDM (E) Viton® (V) <sup>(1)</sup> Kalrez® (K) <sup>(2)</sup> Teflon® (T)	
C877-16		Straight Body	Ductile Iron	150 GPM (15)		
C887-16			Steel	250 GPM (25)		
C897-16			SST			
C871-24			Tee Body	Ductile Iron		
C877-24	3 in. MNPT x 3 in. FNPT	Straight Body	Ductile Iron	265 GPM (26)	Viton® (V) <sup>(1)</sup> Kalrez® (K) <sup>(2)</sup> Teflon® (T)	
C897-24			SST	375 GPM (37) 460 GPM (46)		
C886-24		3 in. CL300 RF Flange x 3 in. FNPT	Straight Body	Steel		

1. Viton® or Fluorocarbon(FKM) equivalent

2. Kalrez® or Perfluoroelastomer (FFKM) equivalent

3. Additional materials can be sourced upon request. Please contact your Fisher LPG Equipment Distributor for more information

To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)

Ex. C877K-24 for 3 in. Straight Body, Ductile Iron with Kalrez® elastomer

Ex. C897-16 for 2 in. Tee Body, SST with nitrile elastomer (No letter required for Nitrile)

Choosing Closing Flow: Use the numbers (in parenthesis beside respective closing flow under Closing Flow Option Column) and add after Type

Ex. C877K-24-46 - 460 GPM Closing Flow

Ex. C807-10-04 - 40 GPM Closing Flow

PED Rated



**H884 Relief Valve**



# Emergency Shut off Valves (ESV) for Railcar and Bulk Plants

**Emergency Shut Off Valves** provide a means of shutting off gas in case of a hose rupture or pipe break at transfer area; preventing large scale loss of product. The valves are manually opened and can be closed manually at the install location or remotely by cable or air (Through Cable and Pneumatic Actuators). A thermal release is built into the unit to allow thermal closure. Available in 1-1/4, 2 and 3 in. FNPT connection sizes. Ductile iron body. Standard elastomer is Nitrile (NBR).

Railcar Emergency Shutoff Valves					
TYPE	ELASTOMER OPTION	BODY SIZE, IN.	FLOW IN GPM/l/min PROPANE		Operating Temperature Range
			1 psid / 69 mbar d	2 psid / 0.14 bar d	
N851-10	Nitrile EPDM (E) Kalrez® (K) Neoprene (N) Viton® (V)	1-1/4 FNPT	110/416	150/568	Nitrile: -20 to 180°F / -29 to 82°C EPDM: -30 to 300°F / -34 to 149°C Kalrez®: -50 to 275°F / -45 to 135°C Neoprene: -50 to 275°F / -45 to 135°C Viton®: -4 to 450°F / -20 to 232°C
N851-16		2 FNPT	190/719	295/1117	
N851-24		3 FNPT	580/2195	850/3127	

To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)  
 Ex. N851K-16 for Kalrez® (K) trim with 2 in. FNPT Body  
 Ex. N851V-24 for Viton® trim with 3 in. FNPT Body  
 Contact your Fisher LPG Equipment Distributor for special configurations not shown on chart above

**Railcar Emergency Shut Off Valves** are attached to the shut off valves on railroad tank cars and designed for railcar protection in the transfer of liquid chemicals to and from the rail car. Type N864 integrates a shutoff valve with an excess flow protection to automatically close if flow exceeds 235 GPM/890 l/min propane at 13 psid/0.90 bard. Type N863 designed for higher flow needs (up to 413 GPM/1563 l/m) to reduce loading/unloading time providing faster railcar turnover. Stainless steel body. Standard elastomer is Nitrile (NBR).

Railcar High Flow Emergency Shut Off Valves					
TYPE	ELASTOMER OPTION	INLET CONNECTION, IN.	OUTLET CONNECTION, IN.	FLOW (GPM)	OPERATING TEMPERATURE RANGE
N863-16	EPDM (E) Kalrez® (K) Neoprene (N) Teflon® (T) Viton® (V)	2 FNPT	2 FNPT	413	EPDM: -30 to 300°F / -34 to 149°C Kalrez®: -50 to 275°F / -45 to 135°C Neoprene: -50 to 275°F / -45 to 135°C Teflon®: -50 to 500°F / -45 to 135°C Viton®: -4 to 450°F / 20 to 232°C
N863-26			3-1/4 Male Acme	413	
N864-16			2 FNPT	235 (Excess Flow)	
N864-26			3-1/4 Male Acme	235 (Excess Flow)	

To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)  
 Ex. N863T-16 for Teflon® (T) trim with 2 in. FNPT outlet connection  
 Ex. N864K-26 for Kalrez® (K) trim with 3-1/4 in. Male Acme outlet connection with 235 GPM (Excess Flow)  
 Contact your Fisher LPG Equipment Distributor for special configurations not shown on chart above



**N863/N864  
Railcar ESV**



**N851 ESV**



# Transport Tanks

**Transport Relief Valves** are flush mounted on top of tanks (preventing shearing in transportation) exhausting excess tank pressure protecting the tank. Available in 2 in. MNPT (H823), 3 in. MNPT (H833), and 3 in. CL300 FL (H833F3-3).

Internal Relief Valves, ASME Rated					
TYPE	SPRING RANGE, psig/bar	CONTAINER CONNECTION, IN.	ELASTOMER OPTION	BODY MATERIAL	OPERATING TEMPERATURE RANGE
H823-1	100 to 149 / 6.9 to 10.3	2 MNPT <sup>(1)</sup>	Nitrile - Standard EPDM (E) <sup>(3)</sup> Kalrez <sup>®</sup> (K) Neoprene (N) Viton <sup>®</sup> (V)	SST	Nitrile: -20 to 180°F / -29 to 82°C EPDM: -30 to 300°F / -34 to 149°C Kalrez <sup>®</sup> : -50 to 275°F / -45 to 135°C Neoprene: -50 to 275°F / -45 to 135°C Viton <sup>®</sup> : -4 to 450°F / -20 to 232°C
H823-2	151 to 250 / 10.4 to 17.2				
H823-3	251 to 400 / 17.3 to 27.6				
H833-1	100 to 149 / 6.9 to 10.3	3 MNPT <sup>(2)</sup>			
H833-2	150 to 200 / 10.3 to 13.8				
H833-3	201 to 275 / 13.9 to 19.0				
H833-4	276 to 330 / 19.0 to 22.8				
H833-5	331 to 400 / 22.8 to 27.6				
H833F3-3	201 to 275 / 13.9 to 19.0	3 CL300 RF Flange			

1. Order Type P304 (1-1/2 in. hex bar) installation wrench  
 2. Order Type P305 (2-1/2 in. hex bar) installation wrench  
 3. 2 in. H823E-\* in EPDM seal trim available up to 250 psi set-point; Types H823E-1 and H823E-2 only. 3 in. H833E-\* available up to 400 psi set-point  
 To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)  
 Ex. H823V-1: 2 in. MNPT with Viton<sup>®</sup> trim, 100 to 150 psig spring range  
 Ex. H833K-2: 3 in. MNPT with Kalrez<sup>®</sup> trim, 150 to 200 psig spring range

ASME and PED Rated



**Transport Internal Valves** are flanged valves installed at the inlets and outlets of tanks (typically at bottom) to control the flow of compressed gases and liquids. Available in various Body sizes, material and inlet/outlet connections to meet various tank connection sizes and piping orientation.

C800 Series Special Service Internal Valves						
TYPE	CONNECTION(INLET X OUTLET)	BODY STYLE	BODY MATERIAL	CLOSING FLOW OPTIONS	ELASTOMER AVAILABLE <sup>(3)</sup>	OPERATING TEMPERATURE RANGE
C891-16	2 in. CL 300 RF	Tee	SST	105 GPM (10) 150 GPM (15) 250 GPM (25)	Nitrile EPDM (E) Kalrez <sup>®</sup> (K) Neoprene (N) Teflon <sup>®</sup> (T) Viton <sup>®</sup> (V) <sup>(1)</sup>	Nitrile: -20 to 180°F / -29 to 82°C EPDM: -30 to 300°F / -34 to 149°C Viton <sup>®</sup> : -4 to 450°F / -20 to 232°C Kalrez <sup>®</sup> : -40 to 620°F / -40 to 326°C Teflon <sup>®</sup> : -50 to 500°F / -45 to 135°C
C891-24	3 in. CL300 RF	Tee		160 GPM (16) 260 GPM (26) 460 GPM (46)		
C883-24	3 in. Mod. CL300 RF Flange x 3 in. CL300 RF Flange	Double Flange	Steel	160 GPM (16) 265 GPM (26) 400 GPM (40)		
C884-24		Single Flange		160 GPM (16) 250 GPM (25) 400 GPM (40)		
C804-24		Single Flange	SST	150 GPM (15) 200 GPM (20) 250 GPM (25) 400 GPM (40) 500 GPM (50)		
C804-32	4 in. Mod. CL300 RF Flange x 4 in. CL300 RF Flange	Single Flange	SST	340 GPM (34) 400 GPM (40) 600 GPM (60) 800 GPM (80) 1000 GPM (100)		
C804A-32 <sup>(3)</sup>						
C804M-32 <sup>(4)</sup>						

1. Viton<sup>®</sup> or Fluorocarbon (FKM) equivalent  
 2. Kalrez<sup>®</sup> or Perfluoroelastomer (FFKM) equivalent  
 3. Air Actuation  
 4. Manual actuation  
 5. Available as Types C804H32 and C804HM32  
 To Order: Place letter (in parenthesis next to elastomer option) of elastomer of choice after model number under type (No letter required for Nitrile)  
 Ex. C891K-24 for 3 in. Tee Body, SST body with Kalrez<sup>®</sup> elastomer  
 Ex. C804HA32 for 4 in. CL300 Single Flange, SST body with Y-Grade NGL elastomer with air actuation option  
 Choosing Closing Flow: Use the numbers (in parenthesis beside respective closing flow under Closing Flow Option Column) and add after Type  
 Ex. C891K-24-25: 250 GPM Closing Flow  
 Ex. C804HA32-100: 1000 GPM Closing Flow  
 Contact Fisher<sup>™</sup> for special configurations

TPED and PED Rated



**H823, H833  
Relief Valve**



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