

BULLETIN #310



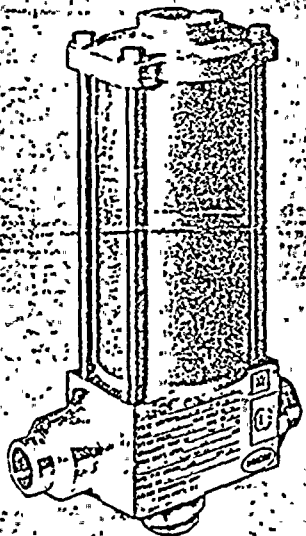
Technical Data

3-WAY SOLENOID VALVE SERIES

V57300

N NUCLEAR
SERVICE

ASME Boiler Code
Section III, Class 1, 2 or 3
1500 Lb. Class Rating



Description

3-Way Shutoff • Direct Acting • Solenoid Operated • Normally closed, normally open and Selector ¼" to 1" Line Size
Direct acting design for flow control or as pilot actuator. Suitable for both hydraulic and pneumatic media.

Features and Operations

The V53700 Series of valves offers a family of 3-way solenoid operated units specifically designed to meet the design, quality and stress limits imposed by the ASME Boiler Code - Section III requirements. The design offers excellent tight sealing characteristics for both liquid and gas service.

A completely welded construction is provided throughout the pressure envelope. Seat/seal designs have been field proven for years on many critical plant applications.

Seismic tests and stress analysis reports in accordance with code requirements available when application required.

The valve is specifically designed for solenoid operation. Upon energization of the coil the plunger moves directly to open the lower seal and close the upper seat with either soft or hard seats. Spring return is provided for the normally closed mode after de-energization.

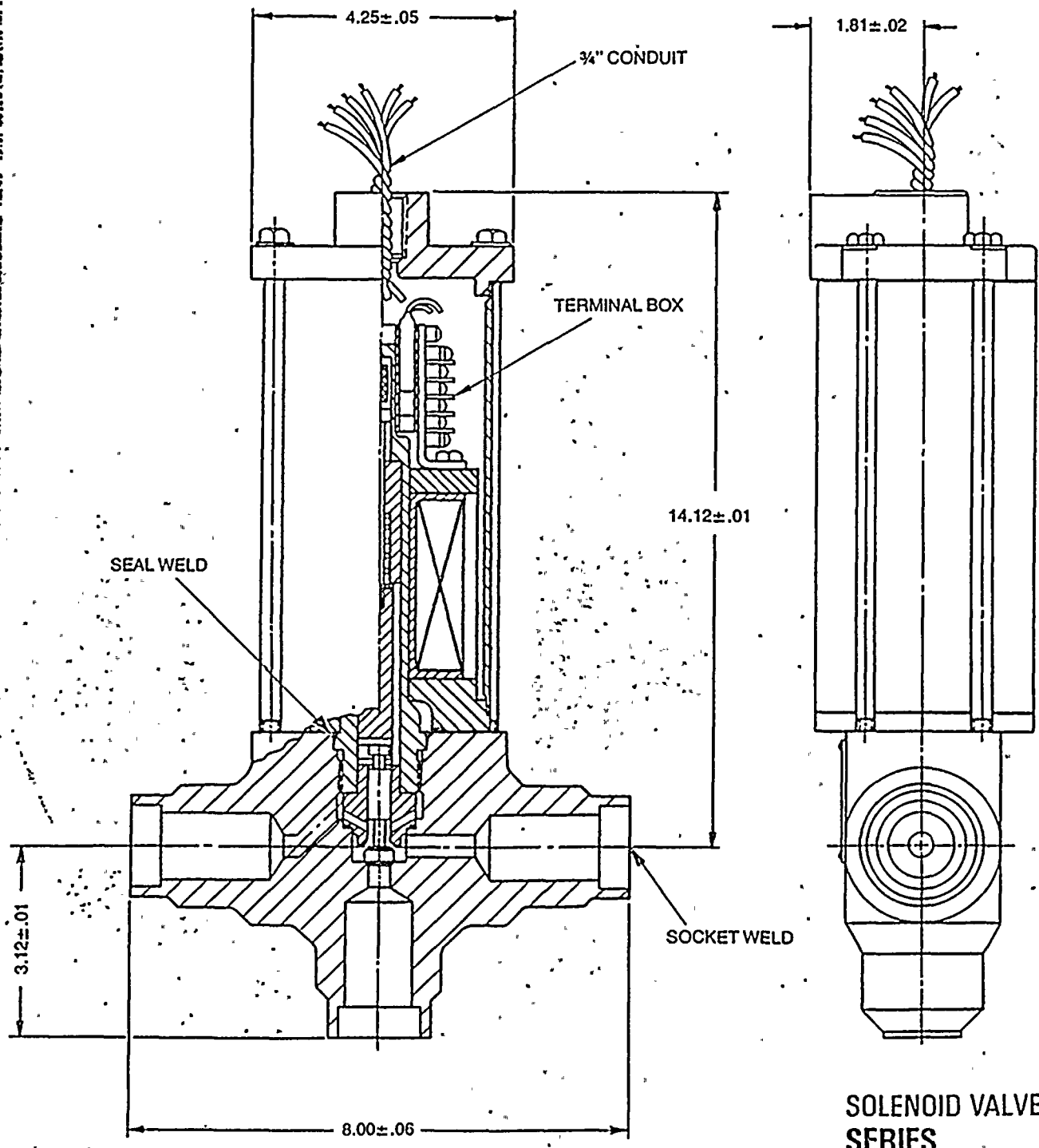
Position indication is a standard option and, for fail last position requirements, a latch version is available.

Solenoids are fabricated of high temperature magnet wire with insulation materials meeting an integrated gamma dosage of 2 X 10⁸ RADS.

Solenoid enclosure contains integral terminal box and meets NEMA 4 ratings.

Specifications and Ratings

ASME BOILER CODE:	Section III, Class 1, 2 and 3 1500 Lb. Rating
OPERATION PRESSURE:	0 - 250 PSI
MEDIA:	Water, Steam and Inert Gases
LINE SIZE:	¼" to 1"
Cv:	Up to 1.1
TEMPERATURE:	Fluid to 600°F. Ambient to 250°F.
ELECTRICAL:	
Solenoid:	125 VDC 60 Watts
Position switching:	10 Watts



SOLENOID VALVE
 SERIES
V57300



VALCOR ENGINEERING CORP.
 365 CARNEGIE AVENUE, KENILWORTH, NEW JERSEY

M.P. Lilly

P.O. NO.	<u>36725-1500-08</u>
VDR PRINT NO.	<u>14R2</u>
VDR DATA REQMT. NO.	<u>14</u>
ITEM NOS.	<u>N/A</u>
RETENTION PERIOD	<u>6 YEARS</u>

CATALYTIC, INC.

NO EXCEPTION TAKEN.
CONTRACTOR CAN PROCEED
WITH FABRICATION OR
CONSTRUCTION.

CONTRACTOR CAN PROCEED
BASED ON MAKING REVISIONS
NOTED AND RESUBMIT.

REVISE AS NOTED AND RE-
SUBMIT. HOLD FABRICATION

ANY ACTION SHOWN ABOVE IS
SUBJECT TO THE TERMS OF THE
CONTRACT AND DOES NOT RE-
LIEVE CONTRACTOR FROM HIS
OBLIGATIONS UNDER THE
CONTRACT, INCLUDING DESIGN
AND DETAILING.

FOR SOLONID 14V63
EQUIP. NO. SJ-8619A 1B
BY D. Stevens 4/9/80
SPEC. NO. 36725-1500-20
PROJECT NO. 36725

QUALITY ASSURANCE REVIEWED

9 APR 1980

SIGNED:

M. Stevens

12



REVISIONS				
ECO	LTR	DESCRIPTION	DATE	APPROVED
14225	—	INITIAL RELEASE	2/13/80	MAS

VALCOR ENGINEERING CORP. CERTIFIES
 THIS DESIGN COMPLIES TO THE
 REQUIREMENTS OF NUCLEAR SERVICE,
 D.C. THE REQUIREMENTS OF
 NUCLEAR SERVICE, D.C.

Askins
 QUALITY ASSURANCE DATE: 3/28/80

MAR 26 1980

14R1

REV.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
SHEET	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	5

REV. STATUS	REV.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OF SHEETS	SHEET.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES
 DECIMALS FRACTIONS ANGLES

DRAWN S.A. DATE 2.13.80
 CHECKED
 ENGINEER *M. J. Dizon* 2/13/80
 OC *Askins* 2/14/80
 PRODUCTION

VALCOR ENGINEERING CORPORATION
 KENILWORTH, NEW JERSEY

TITLE
 STRESS ANALYSIS REPORT ON
 "VALVE SOLENOID 1 INCH, 3 WAY,
 NUCLEAR SERVICE, D.C."
 P/N V573-5242-1

SIZE A CODE IDENT. NO. 96487 DOCUMENT NO. MR573-5242-1-1
 SCALE SHEET 1 of 43

INTRODUCTION

THE VALCOR SOLENOID VALVE (REFERENCE 1) IS STRESS ANALYZED TO SHOW ITS STRUCTURAL ADEQUACY UNDER THE LOADING DESCRIBED IN CATALYTIC, INC. SPEC. NO. 36720-1300-21 (REFERENCE 2). THE VALVE IS CLASSIFIED AS "ACTIVE" AND "SEISMIC CATEGORY 1 EQUIPMENT" AND IS REQUIRED TO OPERATE BEFORE, DURING, AND AFTER AN ACCIDENT/SEISMIC EVENT TO FULFILL SYSTEM SAFETY FUNCTIONS.

THE VALVE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE RULES OF ASME CODE SECTION III (REFERENCE 3) AND IS TO BE STAMPED AS A CLASS 2 VALVE.

METHOD OF ANALYSIS

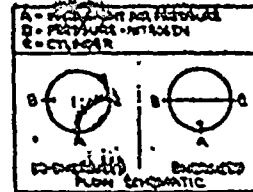
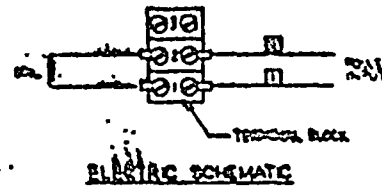
AS PER RULES OF THE ASME CODE, SECTION III (REFERENCE 3), THE DESIGN OF CLASS 2 VALVES IS TO CONFORM TO THE APPLICABLE REQUIREMENTS OF ANSI-B16.34 (REFERENCE 5). THIS DOCUMENT PROVIDES RULES FOR CALCULATING THE MINIMUM WALL THICKNESS OF VALVE BODIES BUT CONTAINS NO SPECIAL RULES FOR COMPUTING THE WALL THICKNESS OF SOLENOID BONNETS. THEREFORE, IF THE WALL THICKNESS OF THE BONNETS WERE BASED ON THE SAME RULES AS THE BODY, ITS THICKNESS WOULD BECOME PROHIBITIVE. IN ORDER TO RESOLVE THIS PROBLEM, A REFERENCE WAS MADE TO THE ASME CODE COMMITTEE. THE

CODE IDENT. NO. 96487	SIZE A	MR573-5242-1-1
SCALE /	VALCOR ENG. CORP.	SHEET 2



DESIGN/PERFORMANCE

1. FLUID: INERT GAS
2. PRESSURES:
 - PRIMARY DESIGN PRESSURE: 175 PSIG
 - OPERATING PRESSURE: 80 PSIG
3. TEMPERATURES:
 - DESIGN: 150°F
 - OPERATING: 150°F
4. FLOW: C. 50 GPM
5. LEAKAGE:
 - INTERNAL: 10% OF DESIGN PRESSURE
 - EXTERNAL: 10% OF DESIGN PRESSURE
6. SOLENOID OPERATOR:
 - VOLTAGE: 115VDC (120V/60 HZ)
 - CURRENT: 1.5 AMP (MAX)
 - DUTY: 100% (CONTINUOUS)
 - ENCLOSURE: NEMA 4
7. WEIGHT: 25 LBS (MAX)
8. INSTALLATION:
 - NOT TO BE USED IN HAZARDOUS AREAS
 - INSTALLATION SHALL BE SUCH THAT MAX. BODY TEMPERATURE WITHIN 1" OF WELD SHALL NOT EXCEED 400°F
9. PARTITION DIMENSIONS:
 - MINIMUM DIMENSIONS: 2" X 10" X 10"
10. COORDINATION:
 - AS PER IEC 60074-1, CLASS B
11. CUSTOMER DOCUMENTS:
 - ROCKWELL CAT. NO. 1100-21
 - CATALYTIC INC. SPEC. 1100-21
 - SAFARI NUCLEAR POWER PLANT
 - CATALYTIC INC. ORDER # 1100-21
 - VALCOR 1/2" NPT
 - TRA. NUMBER: 1100-21
12. TEST CASE:
 - AS TO OPPOSITE STATE WITHIN 0.2 SECONDS
13. AMBIENT ACCOUNT CONDITIONS:
 - 100°F
 - 60 PSIG
 - 100% R.H.

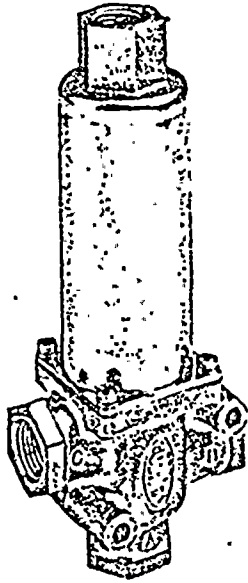


NUCLEAR HARDWARE

VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F		VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F	
VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F		VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F	
VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F		VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F	
VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F		VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F	
VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F		VALVE OPERATING PRESSURE 80 PSIG		VALVE OPERATING TEMPERATURE 150°F	

VALCOR ENGINEERING CORP 1100-21	
VALVE, SOLENOID 1 NUCLEAR SERVICE	
150 LB 50740	
D 86487	V573-524241

MP573-5242-
SH58



Features and Options Series 528 and Series 578

1. Absolute zero leakage to the environment. Valcor's "through the wall" magnetic principle of operation eliminates all potential leak points such as packings, bellows and diaphragms.
2. Valve ratings: 150 lb. through 2,500 lb. class.
3. High cycle life. Over 100,000 operations in most applications.
4. Nuclear Classes 1, 2 and 3.
5. Available Fail Safe close, Fail Safe open or Fail In Last position.
6. Body material; Standard: Bar Stock or forged Stainless Steel. Optional: Carbon Steel.
7. Soft seat and/or metal to metal seat supplied to suit the application.
8. Position indication available for remote readout.
9. Line connection; Standard: Socket Weld. Optional: Butt Weld.
10. Moisture-proof solenoid operator. Class H insulation or better.
11. All electrical components totally enclosed. Meets minimum of NEMA 4 or better.
12. Solenoid and switch assemblies readily accessible for removal or maintenance.
13. Stress and seismic analysis available.
14. Radiation resistance; Standard: 1×10^9 rads. Optional: Up to 4×10^9 rads.
15. Extensive customer evaluation test results available upon request.
16. Twenty-seven years as a leading Solenoid Valve manufacturer.
17. Qualified to IEEE Std. 323-1974 requirements for active valves.

WARRANTY:

Valcor warrants its products against defects in material and workmanship. Valcor's liability and customer's exclusive remedy under this warranty extend for a period of one year from the date of Valcor's shipment and is expressly limited to repair, or replacement, at Valcor's option, upon proof satisfactory to Valcor and upon customer's returning and prepaying all charges on such products to the factory.

Unauthorized or improper installation, use, repair or adjustment shall terminate this warranty and shall relieve Valcor of any responsibility thereunder.

This warranty is made expressly in lieu of all other warranties, expressed, implied or statutory, with respect to quality, merchantability or fitness for a particular purpose.

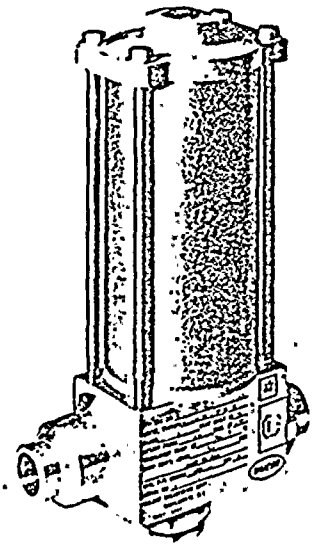
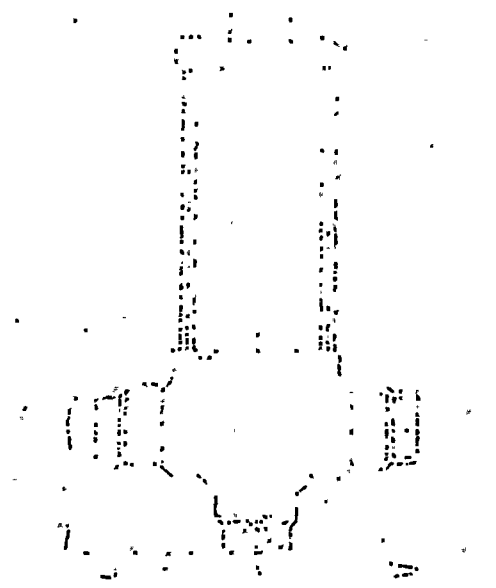
VALCOR ENGINEERING CORPORATION
365 Carnegie Ave., Kenilworth, N.J. 07033 (201) 245-1665

PRINTED IN U.S.A. 9-78-2M

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Series 573
3-Way Solenoid Valves



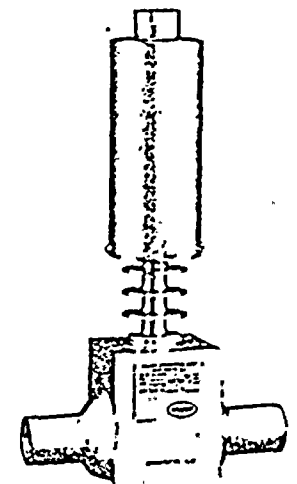
The 573 Series is a family of valves which offer a wide range of applications. They are available in 3/8, 1/2, 3/4, 1 and 1 1/2 inch pipe sizes. They are available in direct acting and pilot operated designs. They are available in normally closed and normally open configurations. They are available in 120VAC and 240VAC configurations. They are available in 120VDC and 240VDC configurations. They are available in 120VAC and 240VAC configurations. They are available in 120VAC and 240VAC configurations.

These valves are available in both light and heavy duty designs. They are available in 120VAC and 240VAC configurations. They are available in 120VDC and 240VDC configurations. They are available in 120VAC and 240VAC configurations. They are available in 120VAC and 240VAC configurations.

3 Way Valve Selection Chart

SERIES NO.	PIPE SIZE	TYPE	CV*	SINGLE SOLENOID	DUAL SOLENOID	POSITION INDICATION	INSTALLATION DIMENSIONS*		
							A	B	C
573DL	3/8	Direct Act	1.1		X		6 1/2	2 1/2	9.0
573D	3/8	Direct Act	3	X			6 1/2	2 1/2	12
573DS	3/8	Direct Act	3	X		X	6 1/2	2 1/2	15
573D	1/2	Direct Act	4	X			6 1/2	2 1/2	12
573DS	1/2	Direct Act	4	X		X	6 1/2	2 1/2	15
573D	3/4	Direct Act	5	X			6 1/2	3	12
573DS	3/4	Direct Act	5	X		X	6 1/2	3	15
573D	1	Direct Act	5	X			8	3	12
573DS	1	Direct Act	5	X		X	8	3	15

Series 573
3-Way Solenoid Valves



2-Way Solenoid
Normally Closed or Normally Open
Pressure ranges 0 to 1000 psig
Temp. 70°F to 150°F

The 573 Series is a family of valves which offer a wide range of applications. They are available in 3/8, 1/2, 3/4, 1 and 1 1/2 inch pipe sizes. They are available in direct acting and pilot operated designs. They are available in normally closed and normally open configurations. They are available in 120VAC and 240VAC configurations. They are available in 120VDC and 240VDC configurations. They are available in 120VAC and 240VAC configurations. They are available in 120VAC and 240VAC configurations.

11-11-55

