

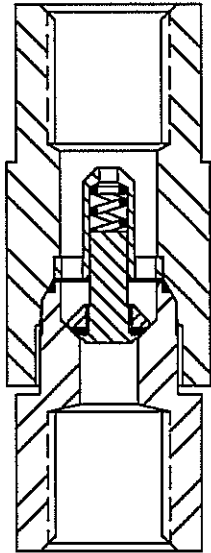
2013

FLUID MECHANICS VALVE COMPANY

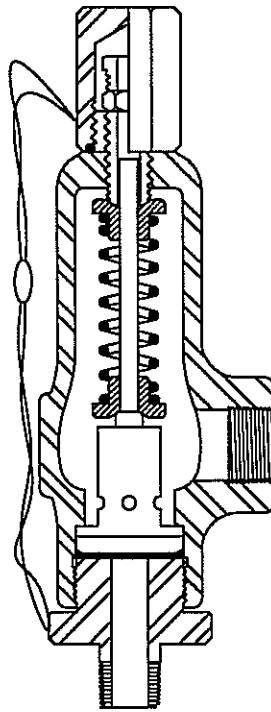
SAFETY-RELIEF VALVES

INLINE-RELIEF VALVES

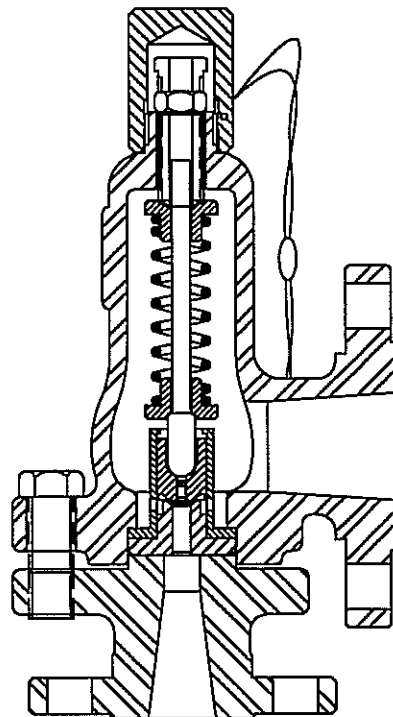
INLINE CHECK VALVES



SERIES
2000-2100-2200-2300



SERIES
1500



SERIES
1600



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TOLL FREE: (800)529-8575

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SMALL BUSINESS.....WOMAN OWNED

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*ASME UV CODED PER SEC. VIII DIV. I

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*ASME UV CODED PER SEC. VIII DIV. I

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**ASME UV CODED PER SEC. VIII DIV. I (LIQUID SERVICE)

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SAFETY-RELIEF VALVE

MODEL 1500

FLUID MECHANICS SAFETY RELIEF VALVES ARE DESIGNED TO GIVE BUBBLE TIGHT SHUT-OFF OF CLEAN DRY GASES WITH CONSISTENT PERFORMANCE AT PRESSURES UP TO 35,000 PSIG.

CONSULT FACTORY FOR CRYOGENIC TRIM

INNER VALVE UNIT

THE INNER VALVE UNIT IS EASILY REPLACED. BY REPLACING THIS UNIT, THE NOZZLE, SEATS, DISC AND ALL GUIDE AREAS ARE REPLACED.

GUIDE

THE GUIDE AREA ON THE SLEEVE AND ON THE DISC ASSEMBLY ARE BEAD BLASTED TO PREVENT GALLING.

PLASTIC SEAT

THE SOFT SEATED VALVES CONTAIN A SPECIAL CAPTURED PLASTIC SEAT. THIS SEAT IS SPECIALLY MACHINED WITH THE METAL BACK-UP SECTIONS TO ASSURE PERFECT HEIGHT AND WIDTH FOR BUBBLE TIGHT SHUT-OFF AND TO PREVENT SEAT BLOWOUT UNDER SONIC VELOCITIES.

NOZZLE SEAT

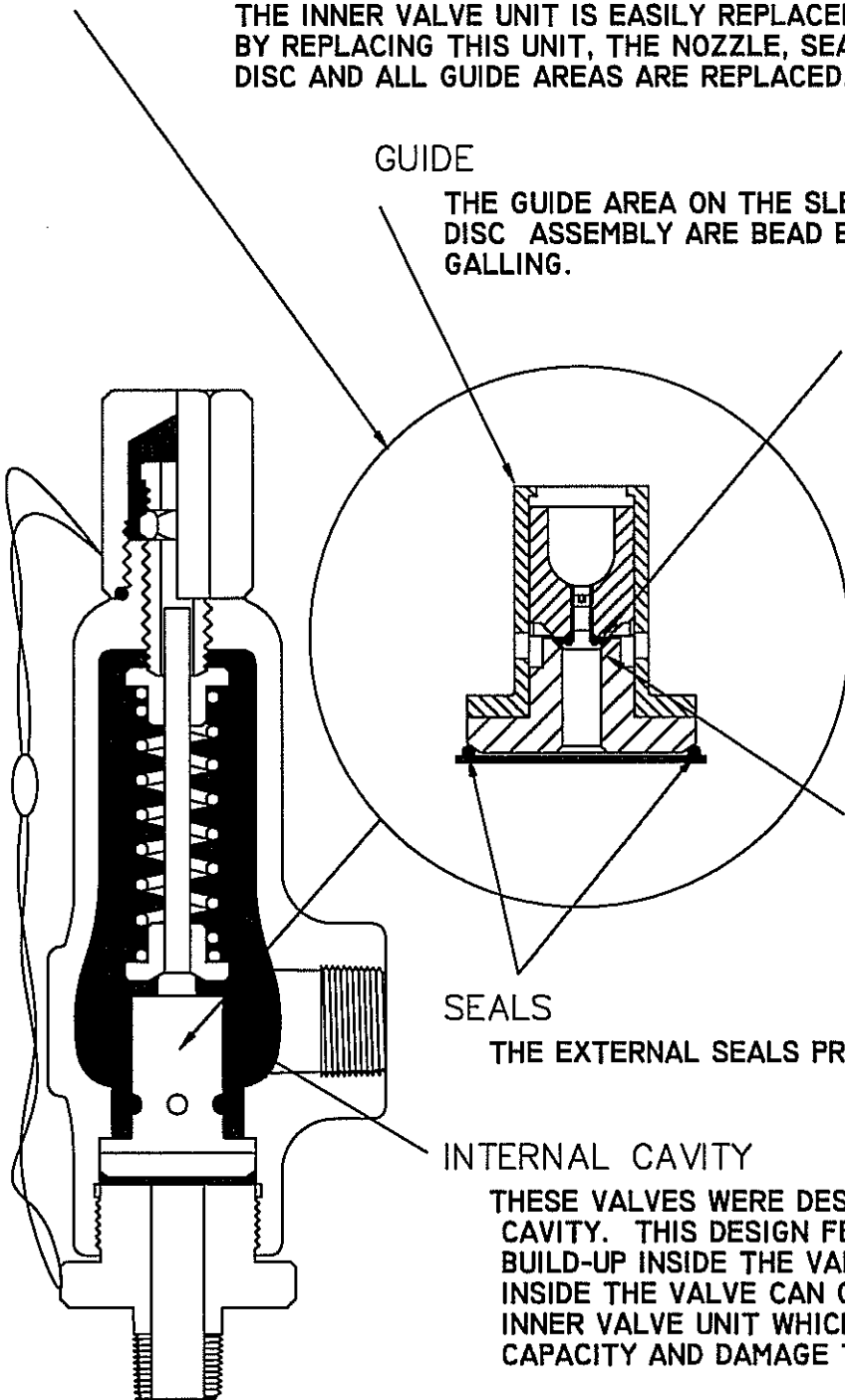
THE NOZZLE SEAT IS POLISHED TO OPTIMAL FLATNESS.

SEALS

THE EXTERNAL SEALS PREVENT ANY EXTERNAL LEAKAGE.

INTERNAL CAVITY

THESE VALVES WERE DESIGNED WITH A LARGE INTERNAL CAVITY. THIS DESIGN FEATURE PREVENTS PRESSURE BUILD-UP INSIDE THE VALVE. PRESSURE BUILD-UP INSIDE THE VALVE CAN CAUSE CHATTERING OF THE INNER VALVE UNIT WHICH RESULTS IN REDUCED CAPACITY AND DAMAGE TO SEALING SURFACES.





SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1511,1513,1519)

***ASME
UV CODED
NATIONAL BOARDED**

***ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEATS ONLY)**

**AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES**

****THESE DIMENSIONS ARE GOOD FOR
1" FNPT & MS33649-16 ALSO.**

THREAD CONNECTIONS

*ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2,3/4,1" FNPT	1/2,3/4,1" FNPT
	1/4,3/8,1/2,3/4,1" MNPT	MS33649-4,6,8,12,16
	MS33649-4,6,8,10,12,16	
	MS33656-8,10,12,16	
	1/4,3/8,9/16,3/4,1" AUTOCLAVE	
.250 *	1/4,9/16,HP AMINCO GRAYLOC	GRAYLOC
	1/2,3/4,1" FNPT	3/4,1" FNPT
	1/2,3/4,1" MNPT	MS33649-12,16
	MS33649-8,10,12,16 GRAYLOC	GRAYLOC
	MS33656-8,10,12,16	MS16142-12,-16
.375 *	9/16,3/4,1" AUTOCLAVE	3/4,1" FLPT
	3/4, 1" FNPT	1" FNPT
	3/4, 1" MNPT	MS33649-16
	MS33649-12,16 GRAYLOC	MS16142-16, 1" FLPT
	MS33656-12, 3/4,1" AUTOCLAVE	GRAYLOC

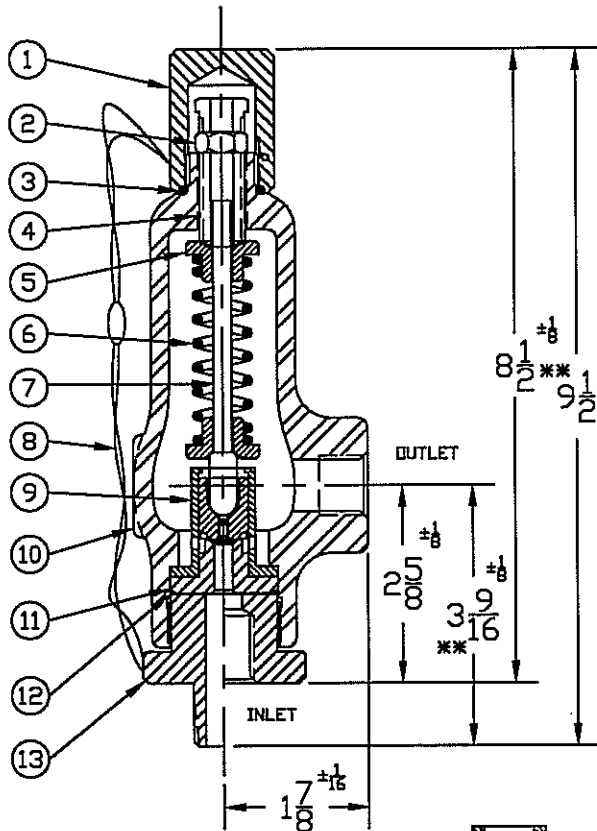
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
* 1511	.250	PLASTIC ONLY	40 - 14,000
* 1513	.375	PLASTIC ONLY	40 - 6,000
1519	.187	PLASTIC ONLY	40 - 15,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 15,000	VESPEL †



DISC ASSEMBLY

DISC ASSEMBLY

SLEEVE

SLEEVE

NOZZLE

INNER VALVE UNIT
UP TO 9,999 PSIG

INNER VALVE UNIT
BODY/NOZZLE COMB.
12,000 TO 15,000 PSIG

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 7#

***IVU FOR .250 & .375
C/S OR 316 S/S CLASS HAS
303 S/S SLEEVE
316 S/S NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
9	INNER VALVE UNIT***	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	GASKET	TEFLON	TEFLON
13	BODY	ASME SA351,TYPE CF8M	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE MODEL 1500

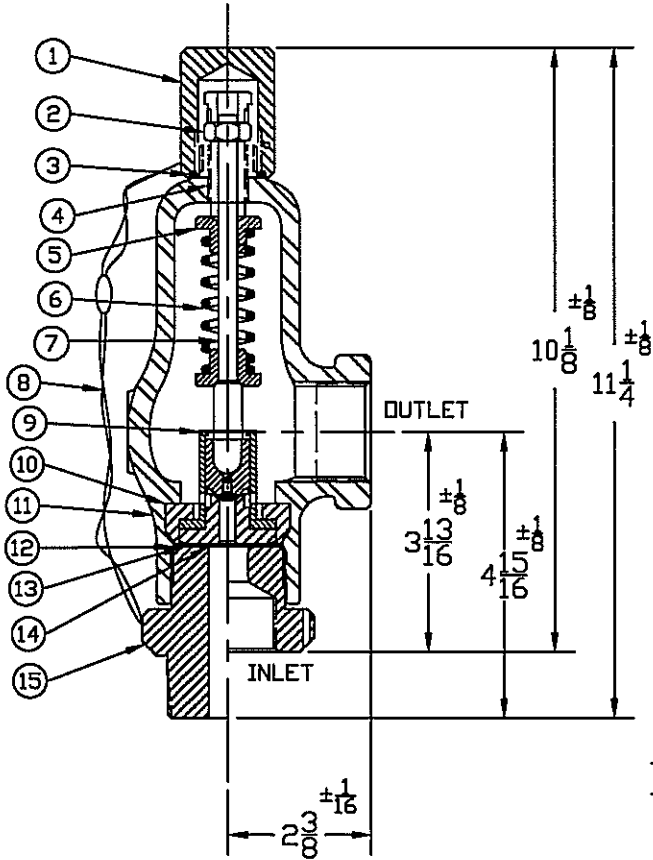
(SERIES 1521,1523,1524,1525 & 1529)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEATS ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES

THREAD CONNECTIONS



*ORIFICE SIZE	INLET	OUTLET
.187 & .250*	1/2, 3/4, 1, 1 1/4, 1 1/2 MNPT	3/4, 1, 1 1/4, 1 1/2 FNPT
	1/2, 3/4, 1, 1 1/4, 1 1/2 FNPT	MS33649-12,16,20,24
	MS33649-8,10,12,16,20,24	GRAYLOC
	MS33656-8,10,12,16,24	
	9/16,3/4,1' AUTOCLAVE	
.375*	3/4, 1, 1 1/4, 1 1/2 MNPT	1, 1 1/4, 1 1/2 FNPT
	3/4, 1, 1 1/4, 1 1/2 FNPT	MS33649-16,20,24
	MS33649-12,16,20,24	GRAYLOC
	MS33656-12,16,24	
	3/4,1' AUTOCLAVE	
.500* & .625*	1, 1 1/4, 1 1/2 MNPT	1 1/2 FNPT
	1, 1 1/4, 1 1/2 FNPT	MS33649-24
	MS33649-16,20,24	GRAYLOC
	MS33656-16,24	
	1' AUTOCLAVE	

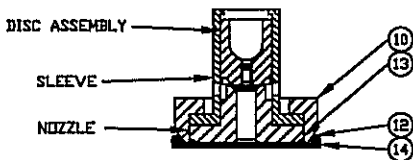
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
*1521	.250	PLASTIC ONLY	40 - *14,000/15,500
*1523	.375	PLASTIC ONLY	40 - *6,000/8,000
*1524	.500	PLASTIC ONLY	40 - 2,750
*1525	.625	PLASTIC ONLY	40 - 1,500
1529	.187	PLASTIC ONLY	14,000 - 33,000

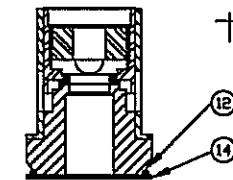
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 33,000	VESPEL †



INNER VALVE UNIT
WITH RETAINER RING
(.25, .187, .250, & .375)



INNER VALVE UNIT
(.500 & .625)

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 12#

† USE RETAINER & RETAINER
SEAL FOR THESE INNER
VALVE UNITS ONLY.

***IVU FOR .250 & .375
C/S OR 316 S/S CLASS HAS
303 S/S SLEEVE
316 S/S NOZZLE

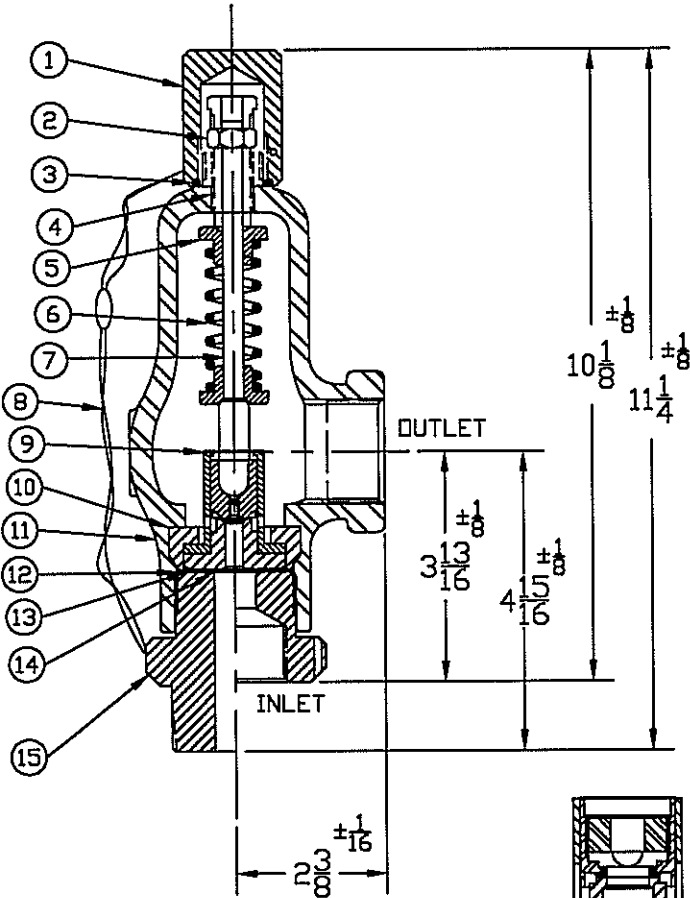
ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/77	ASTM A313,TYPE 17/77
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT***	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE MODEL 1500

(SERIES 1524,1525)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.500 & .625	1, 1¼, 1½ MNPT	1, 1½ FNPT
	1, 1¼, 1½ FNPT	MS33649-16,24
	MS33649-16,20,24 GRAYLOC	GRAYLOC
	MS33656-16,24	
	1' AUTOCLAVE	

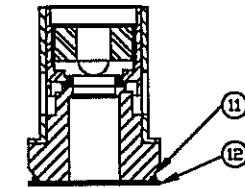
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1524	.500	METAL ONLY	40 - 1,000
1525	.625	METAL ONLY	40 - 1,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

WEIGHT IS APPROX. 12#

***IVU FOR .250 & .375
C/S OR 316 S/S CLASS IS
303 S/S SLEEVE
316 S/S NOZZLE

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.



INNER VALVE UNIT
(.500 & .625)

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT***	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WC8
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	GASKET	TEFLON	TEFLON
13	BODY	ASTM A479,TYPE 316	ASME SA29,TYPE 1018

†



SAFETY-RELIEF VALVE

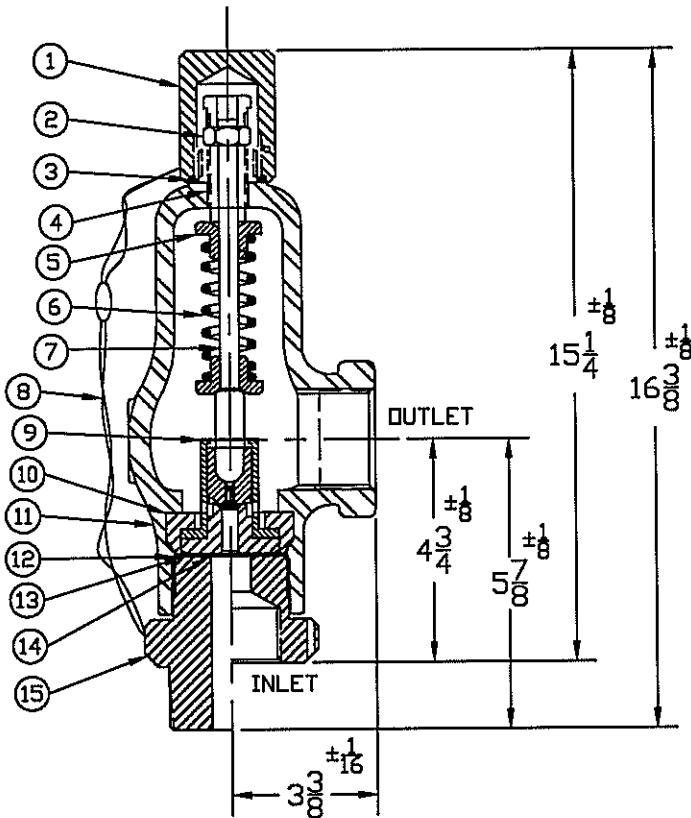
MODEL 1500

(SERIES 1534, 1535, 1536 & 1537)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE. (PLASTIC SEATS ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES



THREAD CONNECTIONS		
* ORIFICE SIZE	INLET	OUTLET
.500 * & .625 *	1, 1 1/4, 1 1/2, 2 MNPT OR FNPT	1 1/2, 2, 2 1/2 FNPT
	MS33649-16,20,24,28,32	MS33649-24,32
.800 * & 1.000 *	MS33656-16,20,24,32	GR
	1 1/4, 1 1/2, 2 MNPT OR FNPT	2, 2 1/2 FNPT
	MS33649-20,24,28,32	MS33649-24,32
	MS33656-24,32	GRAYLOC

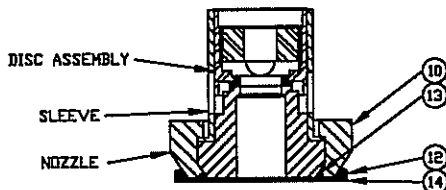
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
* 1534	.500	PLASTIC ONLY	40 - *7,500/8,000
* 1535	.625	PLASTIC ONLY	40 - 6,000
* 1536	.800	PLASTIC ONLY	40 - 3,300
* 1537	1.000	PLASTIC ONLY	40 - 2,130

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

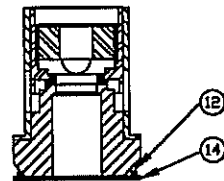
SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 7,500	VESPEL †



INNER VALVE UNIT
WITH RETAINER RING
(.500 & .625)

WEIGHT IS APPROX. 30#



INNER VALVE UNIT
(.800 & 1.000)

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER
SEAL FOR THESE INNER
VALVE UNITS ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL'S/S WIRE	LEAD SEAL'S/S WIRE	LEAD SEAL'S/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASTM B584,ALLOY B75	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018

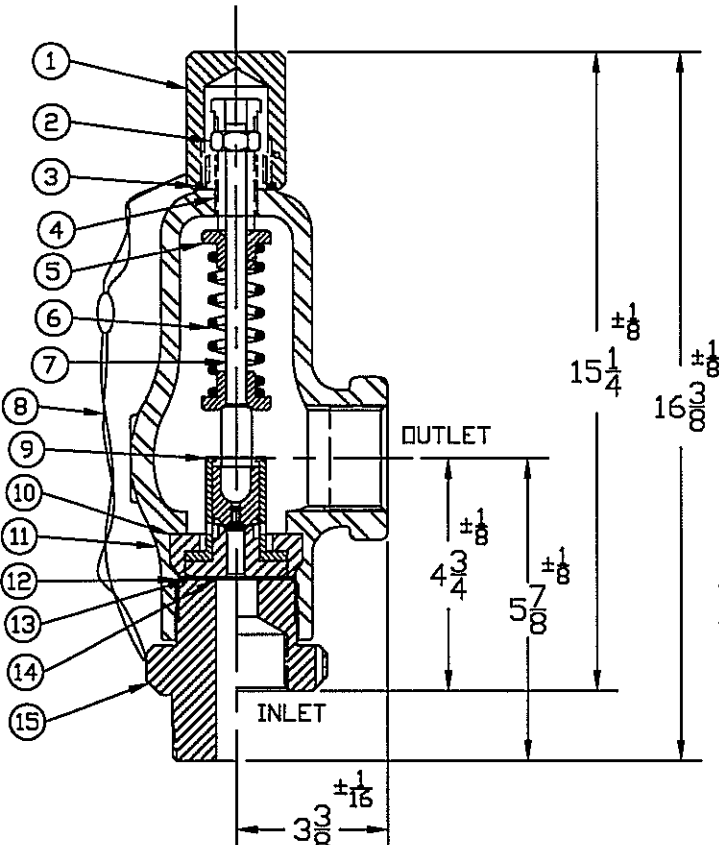


SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1534,1535,1536 & 1537)

FOR GAS & AIR SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.500 & .625	1, 1½, 1¾, 2 MNPT OR FNPT	1½, 2, 2½ FNPT
	MS33649-16,20,24,28,32	MS33649-24,32
.800 & 1.000	MS33656-16,20,24,32 GR	GRAYLOC
	1¾, 1½, 2 MNPT OR FNPT	2, 2½ FNPT
	MS33649-20,24,28,32	MS33649-24,32
	MS33656-24,32 GRAYLOC	GRAYLOC

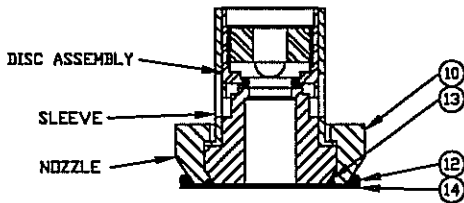
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1534	.500	METAL ONLY	40 - 1,000
1535	.625	METAL ONLY	40 - 1,000
1536	.800	METAL ONLY	40 - 1,000
1537	1.000	METAL ONLY	40 - 1,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

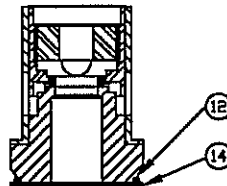
WEIGHT IS APPROX. 30#

‡ OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER SEAL FOR THESE INNER VALVE UNITS ONLY.



INNER VALVE UNIT WITH RETAINER RING (.500 & .625)



INNER VALVE UNIT (.800 & 1.000)

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
‡	6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316	ASTM A479,TYPE 316
†	10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASTM B584,ALLOY 875	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
†	13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1546, 1547 & 1548)

***ASME
UV CODED**

NATIONAL BOARDED

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE. (PLASTIC SEATS ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES

THREAD CONNECTIONS

*ORIFICE SIZE	INLET	OUTLET
.800, *	2, 2½, 3" FNPT	2½, 3" FNPT
1.000 *	2, 2½, 3" MNPT	
& 1.281 *	MS33656-24,32	

SEE PAGE 23 & 24 FOR CAPACITY CHART

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

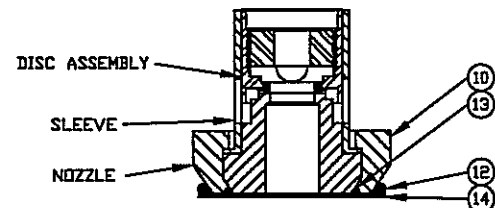
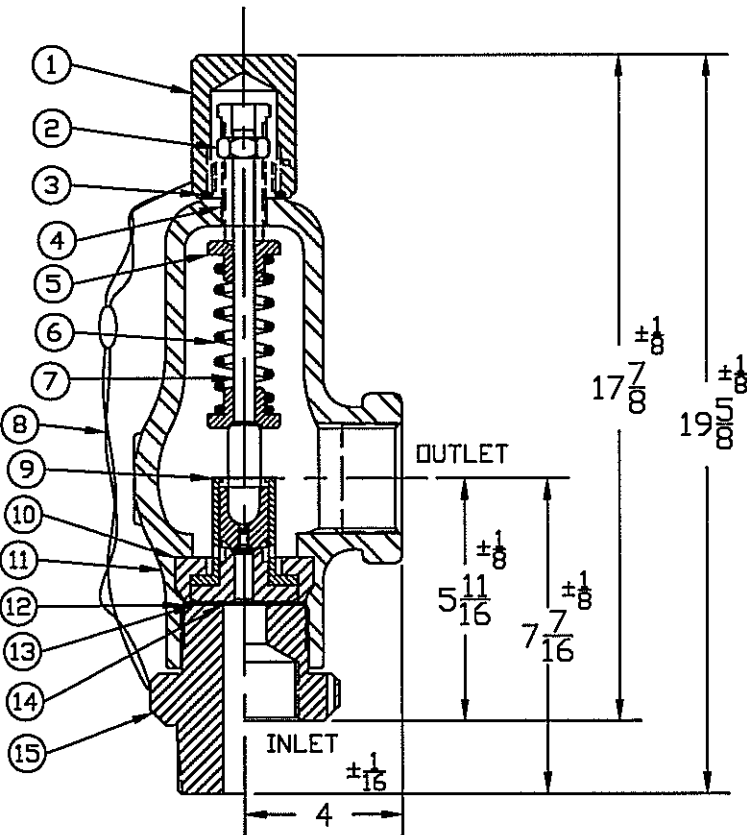
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
*1546	.800	PLASTIC ONLY	40 - 3,800
*1547	1.000	PLASTIC ONLY	40 - 3,000
*1548	1.281	PLASTIC ONLY	40 - 1,100

SUGGESTED SEAT MATERIAL

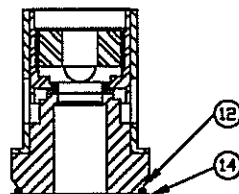
SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 3,800	KEL-F †

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER
SEAL FOR THESE INNER
VALVE UNITS ONLY.



INNER VALVE UNIT
WITH RETAINER RING
(.800 & 1.000)



INNER VALVE UNIT
(1.281)

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

WEIGHT IS APPROX. 45#

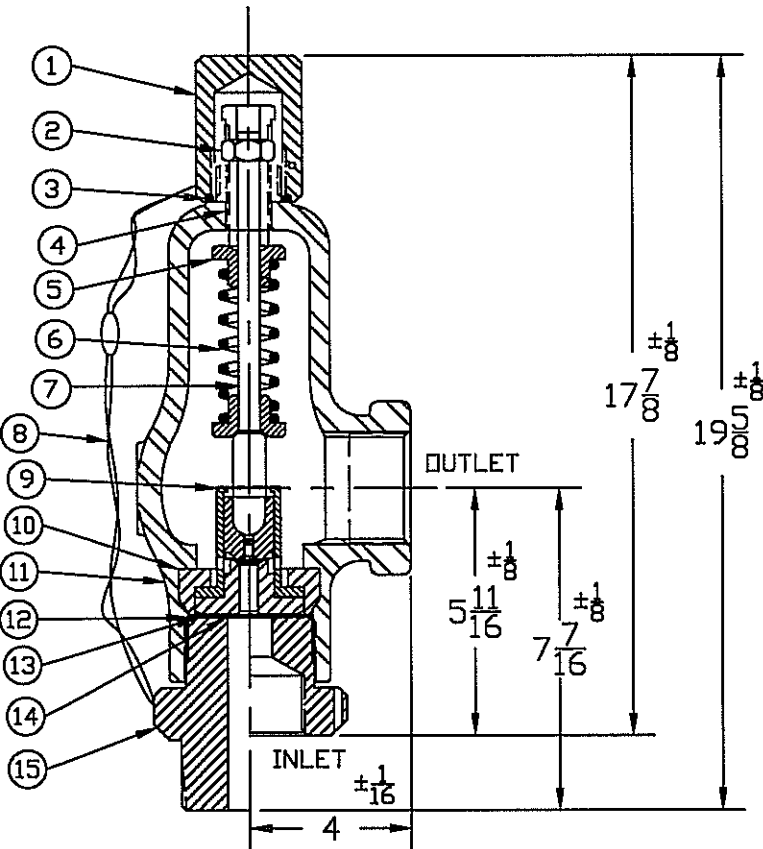
ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
‡ 6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316
† 10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
‡ 12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
‡ 13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE MODEL 1500

(SERIES 1546, 1547 & 1548)

FOR AIR & GAS SERVICE.
AT 10% OVERPRESSURE
METAL SEATS ONLY

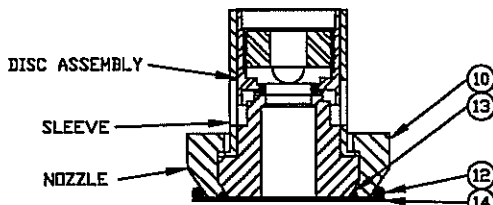


THREAD CONNECTIONS

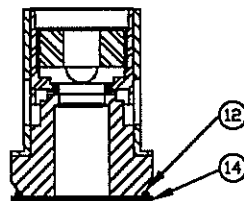
ORIFICE SIZE	INLET	OUTLET
.800, 1.000 & 1.281	2, 2½, 3" FNPT	2½, 3" FNPT
	2, 2½, 3" MNPT	
	MS33656-24,32	

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1546	.800	METAL ONLY	40 - 1,000
1547	1.000	METAL ONLY	40 - 1,000
1548	1.281	METAL ONLY	40 - 1,000



INNER VALVE UNIT WITH RETAINER RING (.800 & 1.000)



INNER VALVE UNIT (1.281)

WEIGHT IS APPROX. 45#

† OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER SEAL FOR THESE INNER VALVE UNITS ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASTM B584,ALLOY 875	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE

MODEL 1600

***ASME
UV CODED
NATIONAL BOARDED**

***ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEATS ONLY)**

**FLUID MECHANICS SAFETY RELIEF VALVES ARE DESIGNED TO
GIVE BUBBLE TIGHT SHUT-OFF OF CLEAN DRY GASES WITH
CONSISTENT PERFORMANCE AT PRESSURES UP TO 6,000 PSIG.**

CONSULT FACTORY FOR CRYOGENIC TRIM

INNER VALVE UNIT

**THE INNER VALVE UNIT IS EASILY REPLACED.
BY REPLACING THIS UNIT, THE NOZZLE, SEATS,
DISC AND ALL GUIDE AREAS ARE REPLACED.**

GUIDE

**THE GUIDE AREA ON THE SLEEVE AND ON THE
DISC ASSEMBLY ARE BEAD BLASTED TO PREVENT
GALLING.**

PLASTIC SEAT

**THE SOFT SEATED VALVES
CONTAIN A SPECIAL CAPTURED
PLASTIC SEAT. THIS SEAT
IS SPECIALLY MACHINED WITH
THE METAL BACK-UP SECTIONS
TO ASSURE PERFECT HEIGHT AND
WIDTH FOR BUBBLE TIGHT
SHUT-OFF AND TO PREVENT
SEAT BLOWOUT UNDER SONIC
VELOCITIES.**

NOZZLE SEAT

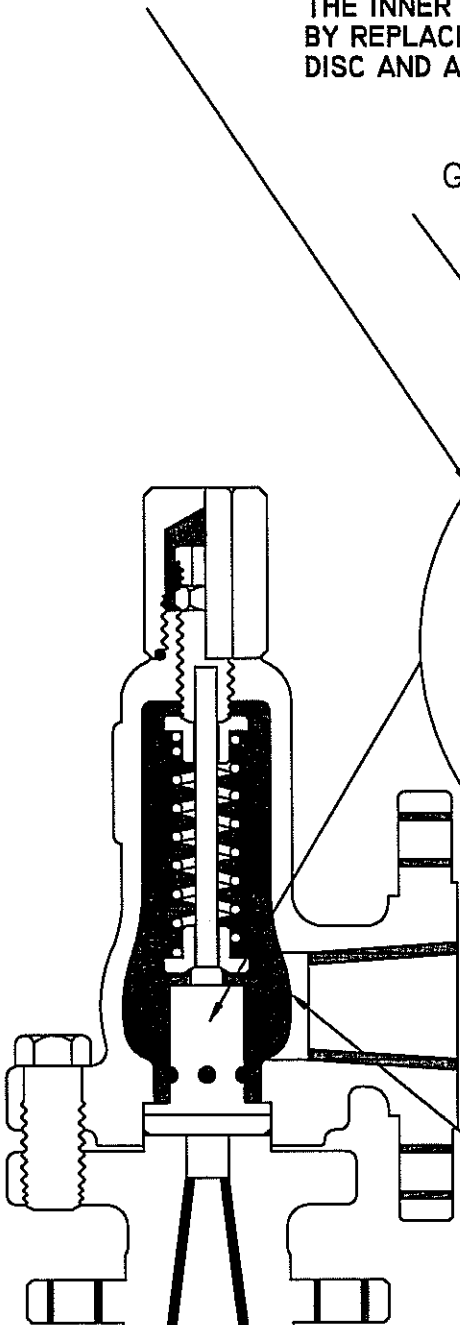
**THE NOZZLE SEAT IS POLISHED
TO OPTIMAL FLATNESS.**

SEALS

THE EXTERNAL SEALS PREVENT ANY EXTERNAL LEAKAGE.

INTERNAL CAVITY

**THESE VALVES WERE DESIGNED WITH A LARGE INTERNAL
CAVITY. THIS DESIGN FEATURE PREVENTS PRESSURE
BUILD-UP INSIDE THE VALVE. PRESSURE BUILD-UP
INSIDE THE VALVE CAN CAUSE CHATTERING OF THE
INNER VALVE UNIT WHICH RESULTS IN REDUCED
CAPACITY AND DAMAGE TO SEALING SURFACES.**





SAFETY-RELIEF VALVE

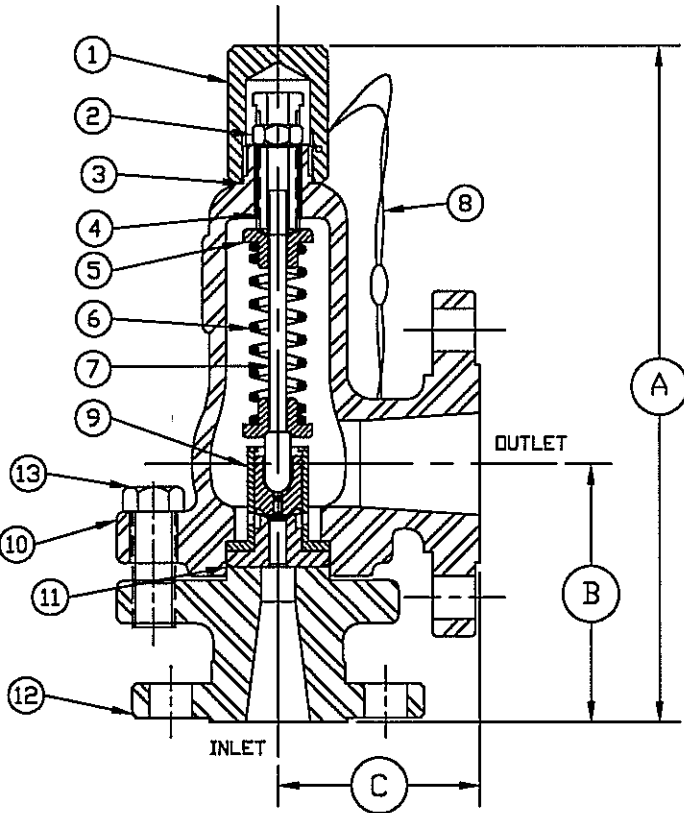
MODEL 1600

(SERIES 1611 & 1613)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEAT ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES



R.F. FLANGE DIMENSIONS

*ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/16
.250* & .375*	1-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1-300 x 1½-150	9-5/8	3-5/8	2-15/16
	1-600 x 1½-150	9-7/8	3-7/8	2-15/16
	1-900 x 1½-300	10-13/16	4-7/8	3-5/8
	1-1500 x 1½-300	10-13/16	4-7/8	3-5/8
	1-2500 x 1½-300	11-1/16	5-1/8	3-5/8
	1½-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1½-150 x 2-150	9-5/8	3-5/8	3-5/8
	1-150 x 2-150	9-5/8	3-5/8	3-5/8
1-1500 x 1½-1500				

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

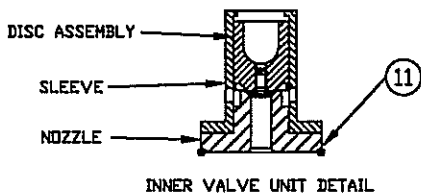
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
*1611	.250	PLASTIC ONLY	40 - 6,000
*1613	.375	PLASTIC ONLY	40 - 4,000

SEE PAGE 23 & 24 FOR CAPACITY CHART

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 6,000	VESPEL †



† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 20#
DEPENDING ON FLANGE SIZE

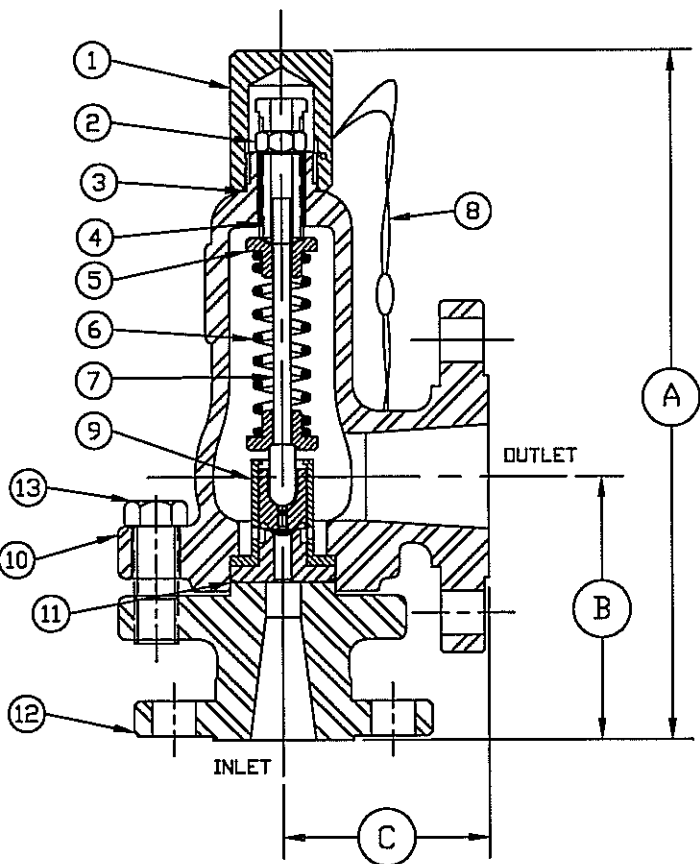
***IVU FOR .250 & .375
C/S OR 316 S/S CLASS IS
303 S/S SLEEVE
316 S/S NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT***	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
13	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7



SAFETY-RELIEF VALVE MODEL 1600 (SERIES 1613)

FOR AIR & GAS SERVICE.
AT 10% OVERPRESSURE
METAL SEATS ONLY



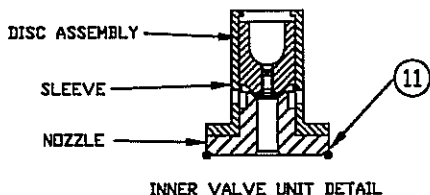
R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/16
.375	1-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1-300 x 1½-150	9-5/8	3-5/8	2-15/16
	1-600 x 1½-150	9-7/8	3-7/8	2-15/16
	1-900 x 1½-300	10-13/16	4-7/8	3-5/8
	1-1500 x 1½-300	10-13/16	4-7/8	3-5/8
	1-2500 x 1½-300	11-1/16	5-1/8	3-5/8
	1½-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1½-150 x 2-150	9-5/8	3-5/8	3-5/8
	1-150 x 2-150	9-5/8	3-5/8	3-5/8
1-1500 x 1½-1500				

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1613	.375	METAL ONLY	40 - 1,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.



† OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 20# DEPENDING ON FLANGE SIZE

***IVU FOR .250 & .375 C/S OR 316 S/S CLASS IS 303 S/S ; 316 S/S

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT***	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
13	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7



SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1611 & 1613)

.250 ORIFICE / AREA: 0.049 SQ. IN.
 .375 ORIFICE / AREA: 0.110 SQ. IN.

VALVE TYPE	VALVE SIZE	FLANGE CONNECTIONS A.N.S.I. STANDARD		INLET PRESSURE AND TEMPERATURE LIMITS	
		INLET	OUTLET	100°F	450°F
1611 & 1613	1 X 1½ 1 X 2 1½ X 1½ 1½ X 2	150 R.F. or R.J.	150 R.F.	275#	165#
1611 & 1613	1 X 1½	300 R.F. or R.J.	150 R.F.	720#	650#
1611 & 1613	1 X 1½	600 R.F. or R.J.	150 R.F.	1440#	1305#
1611 & 1613	1 X 1½	900 R.F. or R.J.	300 R.F.	2160#	1955#
1611 & 1613	1 X 1½	1500 R.F. or R.J.	300 R.F.	3600#	3255#
1611	1 X 1½	2500 R.F. or R.J.	300 R.F.	6000#	5430#



SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1621,1623,1624 & 1625)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEAT ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES

R.F. FLANGE DIMENSIONS

*ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/8
.250, *	1-150	2-150 OR 2½-150	11-1/16	4-7/8	6
	1-300		11-1/16	4-7/8	6
	1-600		11-1/16	4-7/8	6
.375, *	1½-150	2½-150	11-1/16	4-7/8	6
	1½-300		11-1/16	4-7/8	6
	1½-600		11-1/16	4-7/8	6
.500, *	1½-900	2-300 OR 2½-300	11-1/16	4-7/8	6
	1½-1500		11-1/16	4-7/8	6
	1½-2500		11-3/4	5-1/2	6
.625 *	2-150	2-150 OR 2½-150	11-1/16	4-7/8	6
	2-300		11-1/16	4-7/8	6
	2-600		11-1/16	4-7/8	6

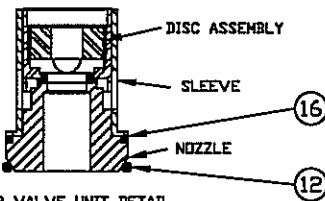
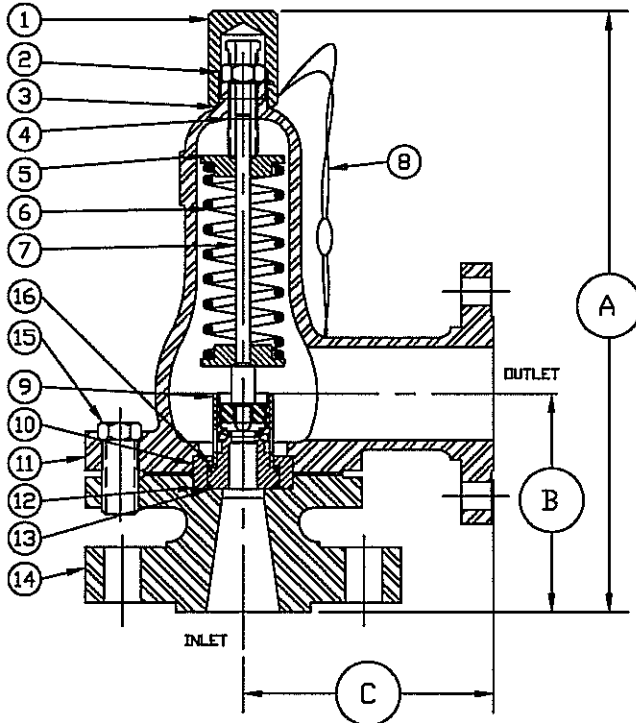
FOR R.T.J. DIMENSIONS, CONSULT FACTORY
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
*1621	.250	PLASTIC ONLY	40 - 10,000
*1623	.375	PLASTIC ONLY	40 - *6,000/8,000
*1624	.500	PLASTIC ONLY	40 - 2,600
*1625	.625	PLASTIC ONLY	40 - 1,450

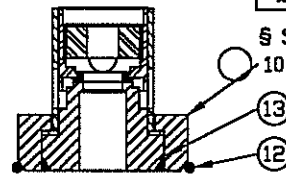
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 6,000	VESPEL †



INNER VALVE UNIT DETAIL
.500 & .625



INNER VALVE UNIT DETAIL
.250 & .375 †

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 35#
DEPENDING ON FLANGE SIZE

***.250 & .375 ORIFICE HAS
303 S/S SLEEVE,
316 S/S/ NOZZLE

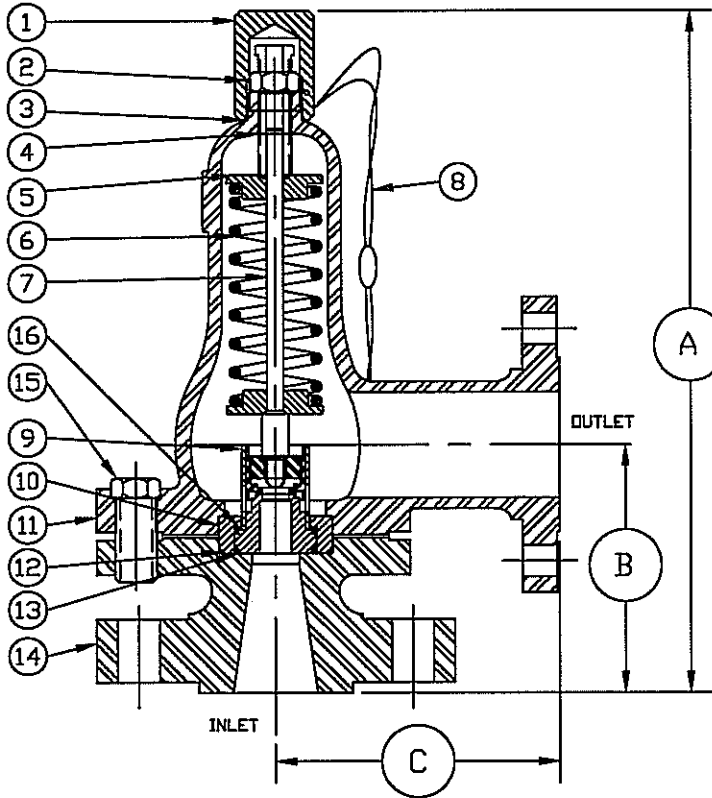
ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT***	303 S/S 316 S/S	303 S/S 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE MODEL 1600

(SERIES 1623, 1624 & 1625)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



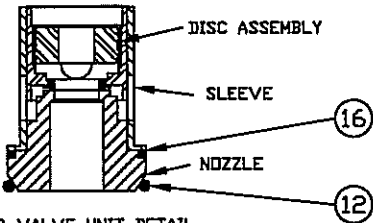
R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.375 & .500	1-150	2-150 OR 2½-150	11-1/16	4-7/8	6
	1-300		11-1/16	4-7/8	6
	1-600		11-1/16	4-7/8	6
	1½-150		11-1/16	4-7/8	6
	1½-300		11-1/16	4-7/8	6
	1½-600		11-1/16	4-7/8	6
	1½-900	2-300	11-1/16	4-7/8	6
	1½-1500	OR	11-1/16	4-7/8	6
	1½-2500	2½-300	11-3/4	5-1/2	6
	2-150	2-150	11-1/16	4-7/8	6
	2-300	OR	11-1/16	4-7/8	6
	2-600	2½-150	11-1/16	4-7/8	6

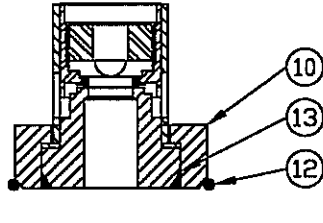
FOR R.T.J. DIMENSIONS, CONSULT FACTORY

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1623	.375	METAL ONLY	40 - 1,000
1624	.500	METAL ONLY	40 - 1,000
1625	.625	METAL ONLY	40 - 1,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.



INNER VALVE UNIT DETAIL
.500 & .625



INNER VALVE UNIT DETAIL
.250 & .375

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 35#
DEPENDING ON FANGE SIZE

***.250 & .375 ORIFICE HAS
303 S/S SLEEVE,
316 S/S NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT***	303 S/S , 316 S/S	303 S/S , 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1621, 1623, 1624 & 1625)

.250 ORIFICE / AREA: 0.049 SQ. IN.

.375 ORIFICE / AREA: 0.110 SQ. IN.

.500 ORIFICE / AREA: 0.196 SQ. IN.

.625 ORIFICE / AREA: 0.307 SQ. IN.

VALVE TYPE	VALVE SIZE	FLANGE CONNECTIONS A.N.S.I. STANDARD		INLET PRESSURE AND TEMPERATURE LIMITS	
		INLET	OUTLET	100°F	450°F
1621, 1623 1624 & 1625	1 X 2	150 R.F. or R.J.	150 R.F.	275#	165#
	1½ X 2	300 R.F. or R.J.	150 R.F.	720#	650#
	1 X 2½ 1½ X 2½	600 R.F. or R.J.	150 R.F.	1440#	1305#
1621, 1623 & 1624	1½ X 2 1½ X 2½	900 R.F. or R.J.	300 R.F.	2160#	1955#
1621 & 1623		1500 R.F. or R.J.	300 R.F.	3600#	3255#
		2500 R.F. or R.J.	300 R.F.	6000#	5430#



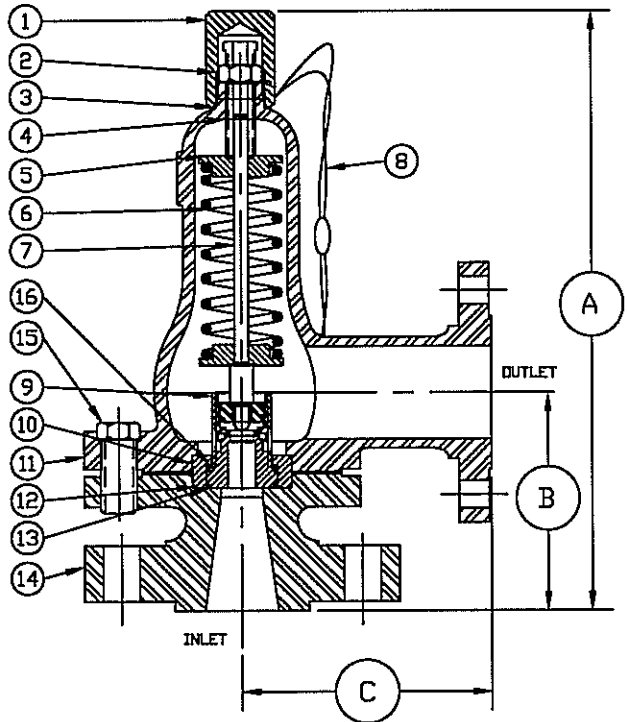
SAFETY-RELIEF VALVE MODEL 1600

(SERIES 1634,1635,1636 & 1637)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEAT ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES



R.F. FLANGE DIMENSIONS

*ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/8
.500,*	1½-150	2½-150,	16-5/8	6-1/8	6-3/4
	1½-300		16-5/8	6-1/8	6-3/4
	1½-600		16-5/8	6-1/8	6-3/4
.625,*	1½-900	2½-300,	16-5/8	6-1/8	6-3/4
	1½-1500		16-5/8	6-1/8	6-3/4
.800,*	2-150	3-150,	16-5/8	6-1/8	6-3/4
	2-300		16-5/8	6-1/8	6-3/4
	2-600	OR	16-5/8	6-1/8	6-3/4
			16-5/8	6-1/8	6-3/4
1.000*	2-1500	3-300	16-5/8	6-1/8	6-3/4
	2-2500		17-3/16	6-11/16	6-3/4
	3-150		16-5/8	6-1/8	6-3/4

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

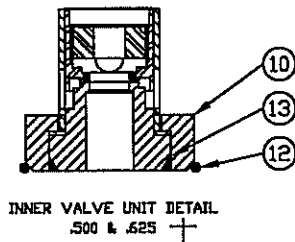
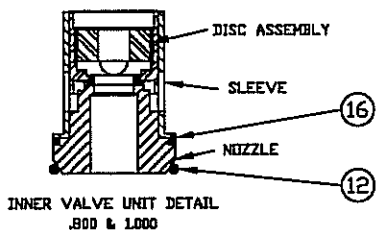
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. S	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
* 1634	.500	PLASTIC ONLY	40 - #7,500/8,000
* 1635	.625	PLASTIC ONLY	40 - 6,000
* 1636	.800	PLASTIC ONLY	40 - 3,300
* 1637	1.000	PLASTIC ONLY	40 - 2,130

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON ¶
3,000 - 5,000	KEL-F ¶
5,000 - 6,000	VESPEL ¶



¶ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 60#
DEPENDING ON FLANGE SIZE

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BDDY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

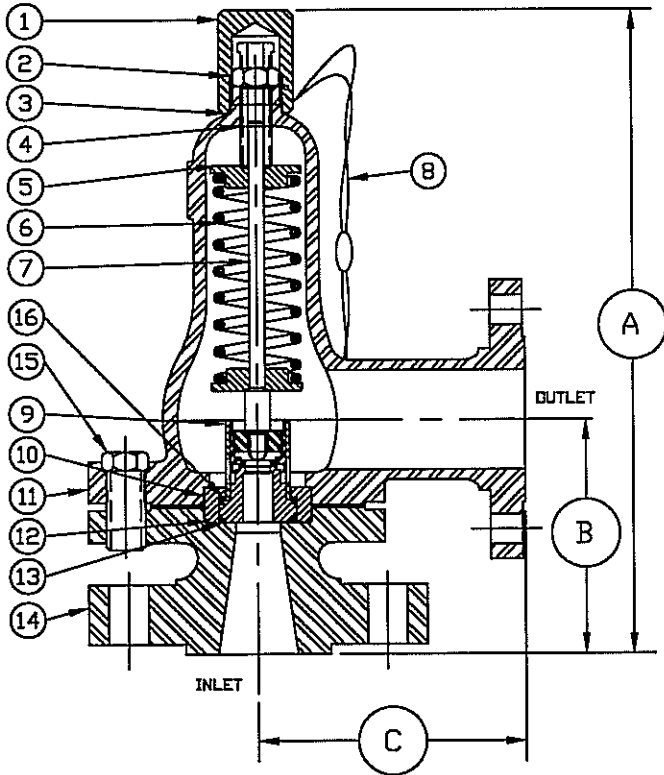


SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1634,1635,1636 & 1637)

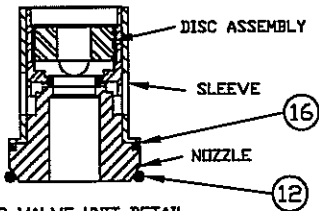
FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



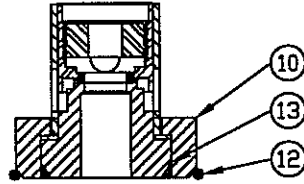
R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.500,	1½-150	2½-150,	16-5/8	6-1/8	6-3/4
	1½-300		16-5/8	6-1/8	6-3/4
	1½-600		16-5/8	6-1/8	6-3/4
.625,	1½-900	2½-300,	16-5/8	6-1/8	6-3/4
	1½-1500		16-5/8	6-1/8	6-3/4
.800,	2-150	3-150,	16-5/8	6-1/8	6-3/4
	2-300		16-5/8	6-1/8	6-3/4
& 1.000	2-600	OR 3-300	16-5/8	6-1/8	6-3/4
	2-900		16-5/8	6-1/8	6-3/4
	2-1500		16-5/8	6-1/8	6-3/4
	2-2500		17-3/16	6-11/16	6-3/4
	3-150		16-5/8	6-1/8	6-3/4

FOR R.T.J. DIMENSIONS, CONSULT FACTORY



INNER VALVE UNIT DETAIL
.800 & 1.000



INNER VALVE UNIT DETAIL
.500 & .625

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1634	.500	METAL ONLY	40 - 1,000
1635	.625	METAL ONLY	40 - 1,000
1636	.800	METAL ONLY	40 - 1,000
1637	1.000	METAL ONLY	40 - 1,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 60#
DEPENDING ON FLANGE SIZE

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S + 316 S/S	303 S/S + 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1634, 1635, 1636 & 1637)

.500 ORIFICE / AREA: 0.196 SQ. IN.
 .625 ORIFICE / AREA: 0.307 SQ. IN.
 .800 ORIFICE / AREA: 0.503 SQ. IN.
 1.000 ORIFICE / AREA: 0.785 SQ. IN.

VALVE TYPE	VALVE SIZE	FLANGE CONNECTIONS A.N.S.I. STANDARD		INLET PRESSURE AND TEMPERATURE LIMITS	
		INLET	OUTLET	100°F	450°F
1634, 1635 1636 & 1637	1½ X 2½ 1½ X 3 2 X 2½ 2 X 3 3 X 3	150 R.F. or R.J.	150 R.F.	275#	165#
		300 R.F. or R.J.	150 R.F.	720#	650#
		600 R.F. or R.J.	150 R.F.	1440#	1305#
		900 R.F. or R.J.	300 R.F.	2160#	1955#
		1500 R.F. or R.J.	300 R.F.	3600#	3255#
1634, 1635 1636		1500 R.F. or R.J.	300 R.F.	3600#	3255#
1634 & 1635		2500 R.F. or R.J.	300 R.F.	6170#	5430#



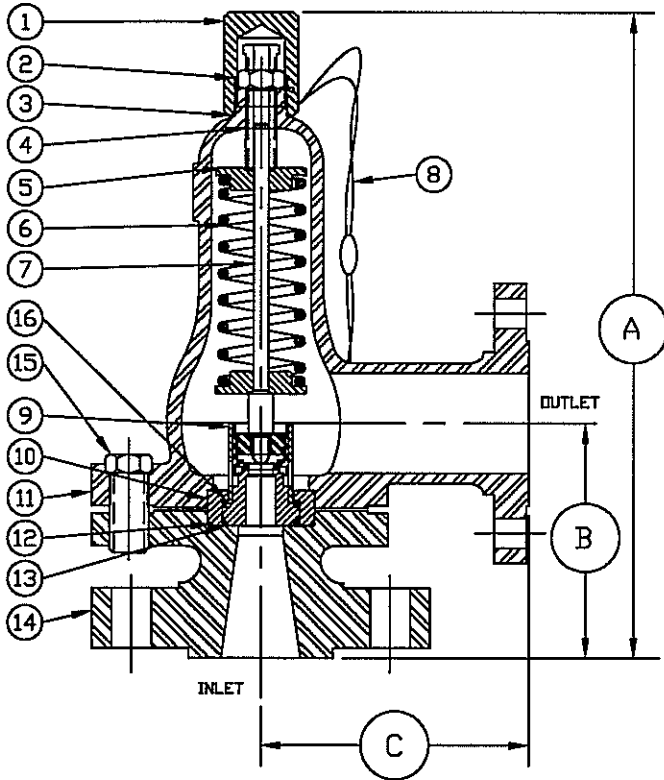
SAFETY-RELIEF VALVE MODEL 1600

(SERIES 1646,1647,1648 & 16412)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEAT ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES



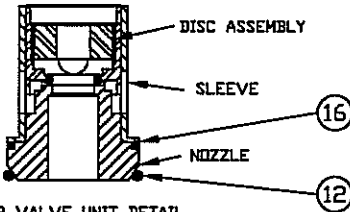
R.F. FLANGE DIMENSIONS

*ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.800, * 1.000,* & 1.281 *	3-150	4-150	19-3/8	7-1/4	7-1/8
	3-300		19-3/8	7-1/4	7-1/8
	3-600		19-3/8	7-1/4	7-1/8
	3-900		19-3/8	7-1/4	7-1/8
	4-150		19-3/8	7-1/4	7-1/8
1.750	4-150	4-150	19-3/8	7-1/4	7-1/8

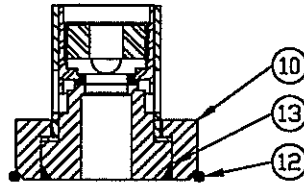
FOR R.T.J. DIMENSIONS, CONSULT FACTORY
SEE PAGE 23 & 24 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
*1646	.800	PLASTIC ONLY	40 - 2,220
*1647	1.000	PLASTIC ONLY	40 - 2,220
*1648	1.281	PLASTIC ONLY	40 - 1,100
16412	1.750	PLASTIC ONLY	40 - 250

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.



INNER VALVE UNIT DETAIL
1.281 & 1.750



INNER VALVE UNIT DETAIL
.800 & 1.000 †

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 2,000	TEFLON †
2,000 - 2,220	KEL-F †

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 95#
DEPENDING ON FLANGE SIZE

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S 316 S/S	303 S/S 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

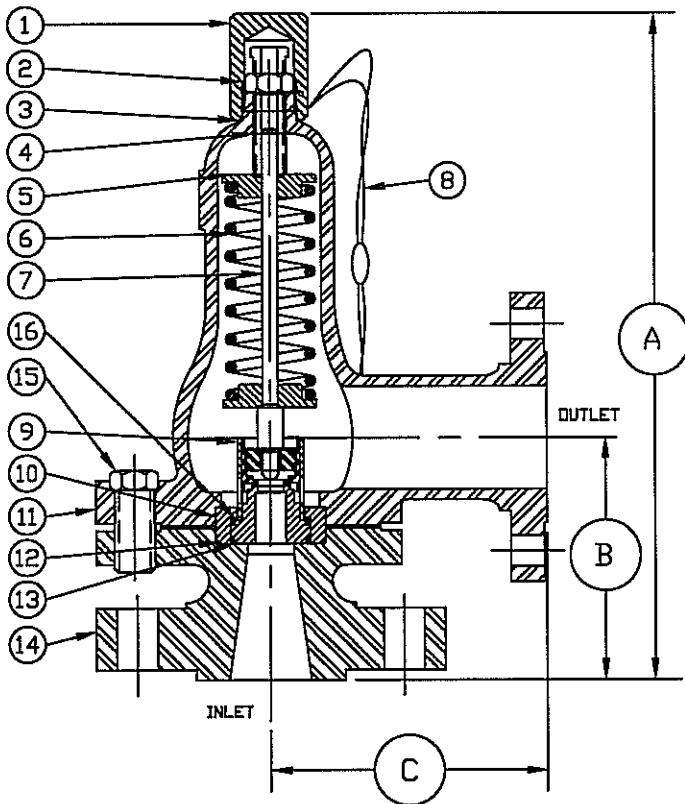


SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1646, 1647 & 1648)

FOR AIR & GAS SERVICE.
AT 10% OVERPRESSURE
METAL SEATS ONLY



R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.800, 1,000, & 1,281	3-150	4-150	19-3/8	7-1/4	7-1/8
	3-300		19-3/8	7-1/4	7-1/8
	3-600		19-3/8	7-1/4	7-1/8
	3-900		19-3/8	7-1/4	7-1/8
	4-150		19-3/8	7-1/4	7-1/8

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

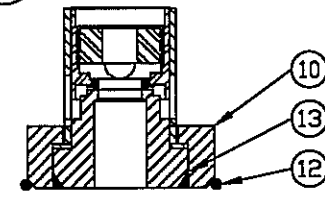
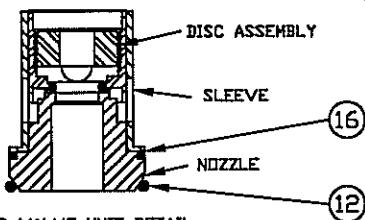
§ SEE PAGE 16 & 17 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1646	.800	METAL ONLY	40 - 1,000
1647	1,000	METAL ONLY	40 - 1,000
1648	1,281	METAL ONLY	40 - 1,000

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

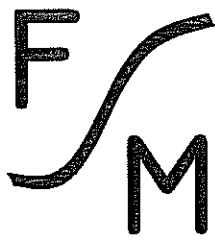


INNER VALVE UNIT DETAIL
1.281 & 1.750

INNER VALVE UNIT DETAIL
.800 & 1.000

WEIGHT IS APPROX. 95#
DEPENDING ON FANGE SIZE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
† 6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
† 9	INNER VALVE UNIT	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE MODEL 1600

(SERIES 1646, 1647, 1648 & 16412)

.800 ORIFICE / AREA: 0.503 SQ. IN.
 1.000 ORIFICE / AREA: 0.785 SQ. IN.
 1.281 ORIFICE / AREA: 1.287 SQ. IN.
 1.750 ORIFICE / AREA: 2.4053 SQ. IN.

VALVE TYPE	VALVE SIZE	FLANGE CONNECTIONS A.N.S.I. STANDARD		INLET PRESSURE AND TEMPERATURE LIMITS	
		INLET	OUTLET	100°F	450°F
1646, 1647 1648	3 X 4 4 X 4	150 R.F. or R.J.	150 R.F.	275#	165#
		300 R.F. or R.J.	150 R.F.	720#	650#
		600 R.F. or R.J.	150 R.F.	1440#	1305#
		900 R.F. or R.J.	150 R.F.	2220#	1955#
16412	4 X 4	150 R.F. or R.J.	150 R.F.	250#	165#



SAFETY-RELIEF VALVE

MODEL 1700

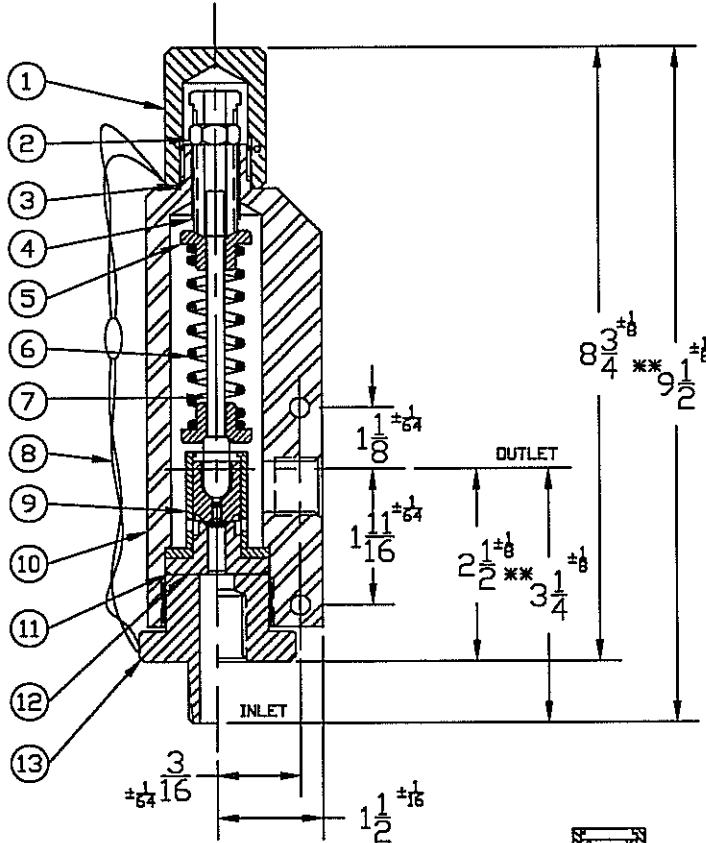
(SERIES 1711, 1713 & 1719)

FOR GAS AND AIR SERVICE

**THESE DIMENSIONS ARE GOOD FOR
1" FNPT & MS33649-16 ALSO.

THREAD CONNECTIONS

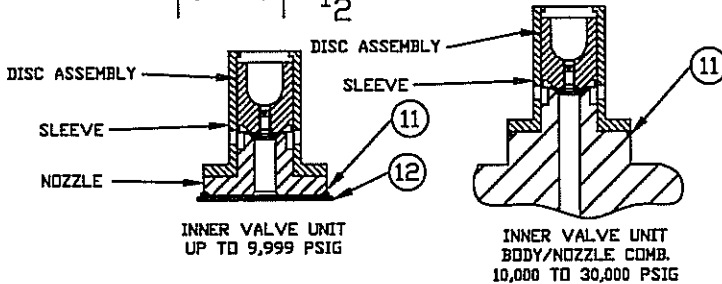
ORIFICE SIZE	INLET	OUTLET
.187	1/4, 3/8, 1/2, 3/4, 1" FNPT	1/2, 3/4, 1" FNPT
	1/4, 3/8, 1/2, 3/4, 1" MNPT	MS33649-4, 6, 8, 12, 16
	MS33649-4, 6, 8, 10, 12, 16	
	MS33656-8, 10, 12, 16	
	1/4, 9/16, 1" M.P. AUTOCLAVE	AUTOCLAVE
.250	1/4, 9/16, HP AMINCO	
	1/2, 3/4, 1" FNPT AUTOCLAVE	3/4, 1" FNPT
	1/2, 3/4, 1" MNPT	MS33649-12, 16
	MS33649-8, 10, 12, 16	AUTOCLAVE
.375	MS33656-8, 10, 12, 16	
	3/4, 1" FNPT AUTOCLAVE	1" FNPT AUTOCLAVE
	3/4, 1" MNPT	MS33649-16
	MS33649-12, 16	
	MS33656-12, 16	



SEE PAGE 23, 24 & 25 FOR CAPACITY CHART

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1711	.250	PLASTIC ONLY	40 - 14,000
1713	.375	PLASTIC ONLY	40 - 4,000
1719	.187	PLASTIC ONLY	40 - 30,000

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.



SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 30,000	VESPEL †

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 9#

***IVU FOR .250 & .375
C/S OR 316 S/S CLASS HAS
303 S/S SLEEVE
316 S/S NOZZLE

SEE PAGE 60 FOR
LIFTING DEVICES

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	LOCKNUT	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
4	PRESSURE SCREW	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING PLATES	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 17/7	ASTM A313, TYPE 17/7
7	SPRING POST	ASTM A479, TYPE 316	ASTM A582, TYPE 303
8	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
9	INNER VALVE UNIT***	ASTM A479, TYPE 316	ASTM A479, TYPE 316
10	BONNET	ASTM A479, TYPE 316	ASME SA29, TYPE 1018
11	BODY SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	GASKET	TEFLON	TEFLON
13	BODY	ASTM A479, TYPE 316	ASME SA29, TYPE 1018



SAFETY-RELIEF VALVE

MODEL *1500 -*1600 - 1700
 CAPACITY CHART
 PLASTIC SEATS ONLY

*ASME
 UV CODED
 NATIONAL BOARDED
 *ASME UV CODED PER SEC. VIII DIV. I

AIR

(MOL. WT. = 28.97)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

HYDROGEN

(MOL. WT. = 2.02)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	ORIFICE DIAMETER (IN.)						
	.250	.375	.500	.625	.800	1.000	1.281
40	38	93	177	277	454	709	1164
50	46	110	211	329	539	842	1382
70	60	145	277	433	709	1108	1818
90	74	179	344	537	879	1374	2255
100	82	197	377	589	964	1507	2473
125	100	240	460	719	1177	1839	3018
150	118	283	543	848	1390	2172	3563
175	136	327	626	978	1603	2504	4109
200	154	370	709	1108	1815	2836	4654
220	168	405	776	1212	1985	3102	5090
250	190	457	875	1368	2241	3501	5745
300	225	544	1041	1627	2666	4166	6835
320	240	578	1108	1731	2836	4431	7272
350	261	630	1208	1887	3091	4830	7926
400	297	717	1374	2146	3517	5495	9017
420	312	752	1440	2250	3687	5761	9453
450	333	804	1540	2406	3942	6159	10107
470	348	839	1606	2510	4112	6425	10544
500	369	891	1706	2666	4367	6824	11198
550	405	977	1872	2925	4793	7489	12289
600	441	1064	2038	3185	5218	8153	13379
650	477	1151	2205	3445	5644	8818	14470
700	513	1238	2371	3704	6069	9483	15561
750	549	1324	2537	3964	6494	10147	16651
800	585	1411	2703	4223	6920	10812	17742
850	621	1498	2869	4483	7345	11477	18833
900	657	1584	3035	4743	7770	12141	19923
950	693	1671	3202	5002	8196	12806	21014
1100	801	1931	3700	5781	9472	14800	24286
1400	1017	2452	4697	7339	12024	18788	
2000	1448	3493	6691	10454	17129	26763	
2400	1736	4187	8020	12531	20532	32080	
3000	2168	5227	10014	15647	25636	40056	
3800	2743	6615	12673	19801	32442		
4000	2887	6962	13337	20839			
5000	3607	8697	16660	26032			
6000	4326	10431	19984	31224			
7000	5045		23307				
7500	5405		24968				
8000	5756						
9000	6484						
10000	7204						
11000	7923						
12000	8642						
13000	9362						
14000	10081						

(#/HR. = SCFM x 4.596)

SET PRESSURE (PSIG)	ORIFICE DIAMETER (IN.)						
	.250	.375	.500	.625	.800	1.000	1.281
40	146	352	674	1054	1727	2698	4427
50	173	418	801	1251	2050	3203	5256
70	228	550	1054	1646	2697	4214	6915
90	283	682	1306	2041	3344	5225	8575
100	310	748	1433	2239	3668	5731	9404
125	371	913	1749	2732	4477	6995	11478
150	447	1078	2065	3226	5285	8259	13552
175	515	1243	2381	3720	6094	9522	15626
200	584	1408	2697	4213	6903	10786	17700
220	639	1540	2949	4608	7550	11797	19359
250	721	1737	3328	5201	8521	13314	21847
300	857	2067	3960	6188	10139	15841	25995
320	912	2199	4213	6583	10786	16852	27654
350	994	2397	4592	7175	11756	18369	30143
400	1131	2727	5224	8163	13374	20897	34291
420	1240	2859	5477	8558	14021	21908	35950
450	1268	3057	5856	9150	14992	23424	38438
470	1322	3189	6109	9545	15639	24435	40097
500	1405	3387	6488	10137	16609	25952	42586
550	1541	3717	7120	11125	18227	28480	46734
600	1678	4046	7752	12112	19845	31007	50882
650	1815	4376	8384	13100	21462	33535	55029
700	1952	4706	9016	14087	23080	36062	59177
750	2089	5036	9648	15074	24698	38590	63325
800	2225	5366	10279	16062	26315	41118	67472
850	2362	5696	10911	17049	27933	43645	71620
900	2499	6026	11543	18036	29551	46173	75768
950	2636	6355	12175	19024	31168	48071	79916
1100	3046	7345	14071	21986	36021	56021	92359
1400	3867	9324	17862	27910	45728	71449	
2000	5508	13282	25445	39758	65140	101781	
2400	6603	15921	30500	47657	78081	122002	
3000	8244	19899	38083	59505	97493	152333	
3800	10433	25157	48194	75303	123376		
4000	10980	26476	50722	79252			
5000	13716	33074	63360	98999			
6000	16452	39671	75998	118746			
7000	19188		88636				
7500	20556		94955				
8000	21924						
9000	24660						
10000	27395						
11000	30131						
12000	32867						
13000	35603						
14000	38339						

(#/HR. = SCFM x .3189)



SAFETY-RELIEF VALVE

MODEL *1500 -*1600 - 1700
 CAPACITY CHART
 PLASTIC SEATS ONLY

*ASME
 UV CODED
 NATIONAL BOARDED
 * ASME UV CODED PER SEC. VIII DIV. I

HELIUM

(MOL. WT. = 4.0)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	ORIFICE DIAMETER (IN.)						
	.250	.375	.500	.625	.800	1.000	1.281
40	103	249	478	746	1223	1910	3135
50	123	296	567	886	1452	2268	3722
70	162	389	746	1166	1910	2984	4897
90	200	483	925	1445	2368	3700	6072
100	220	530	1015	1585	2597	4058	6659
125	268	646	1238	1935	3170	4953	8128
150	317	763	1462	2284	3743	5848	9596
175	365	880	1686	2634	4316	6743	11065
200	413	997	1910	2984	4888	7638	12534
220	452	1090	2089	3263	5347	8354	13708
250	510	1230	2357	3683	6034	9428	15471
300	607	1464	2804	4382	7179	11218	18408
320	646	1557	2983	4662	7638	11934	19583
350	704	1698	3252	5081	8325	13008	21345
400	801	1931	3699	5780	9470	14797	24282
420	840	2025	3878	6060	9929	15513	25457
450	898	2165	4147	6479	10616	16587	27219
470	936	2258	4326	6759	11074	17303	28394
500	995	2398	4594	7179	11761	18377	30156
550	1091	2632	5042	7878	12907	20167	33093
600	1188	2865	5489	8577	14052	21957	36030
650	1285	3099	5937	9276	15198	23747	38698
700	1382	3333	6384	9975	16344	25537	41905
750	1479	3566	6832	10674	17489	27327	44842
800	1576	3800	7279	11374	18635	29116	47779
850	1673	4033	7727	12073	19780	30906	50716
900	1770	4267	8174	12772	20926	32696	53653
950	1866	4500	8622	13471	22071	34486	56590
1100	2157	5201	9964	15569	25508	39856	65402
1400	2738	6603	12649	19764	32381	50595	
2000	3901	9406	18018	28154	46127	72074	
2400	4676	11274	21598	33747	55291	86393	
3000	5838	14077	26968	42137	69038	107871	
3800	7388	17814	34127	53324	87366		
4000	7775	18749	35917	56121			
5000	9713	23420	44867	70104			
6000	11650	28092	53816	84087			
7000	13587		62765				
7500	14556		67240				
8000	15525						
9000	17462						
10000	19399						
11000	21337						
12000	23274						
13000	25211						
14000	27149						

(#/HR. = SCFM x 0.6330)

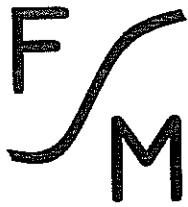
NATURAL GAS

(MOL. WT. = 19.0)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	ORIFICE DIAMETER (IN.)						
	.250	.375	.500	.625	.800	1.000	1.281
40	48	115	219	343	561	877	1439
50	56	136	260	407	667	1042	1709
70	74	179	343	535	877	1370	2249
90	92	222	425	664	1087	1699	2788
100	101	243	466	728	1193	1863	3058
125	123	297	569	888	1456	2274	3732
150	145	350	671	1049	1719	2685	4406
175	168	404	774	1209	1982	3096	5081
200	190	458	877	1370	2245	3507	5755
220	208	501	959	1498	2455	3836	6294
250	234	565	1082	1691	2770	4329	7103
300	279	672	1288	2012	3296	5151	8452
320	297	715	1370	2140	3507	5479	8991
350	323	779	1493	2333	3822	5973	9801
400	368	887	1699	2654	4348	6794	11149
420	386	930	1781	2782	4559	7123	11689
450	412	994	1904	2975	4874	7616	12498
470	430	1037	1986	3103	5085	7945	13037
500	457	1101	2110	3296	5400	8438	13846
550	501	1208	2315	3617	5926	9260	15195
600	546	1316	2520	3938	6452	10082	16544
650	590	1423	2726	4259	6978	10903	17892
700	635	1530	2931	4580	7504	11725	19241
750	679	1637	3137	4901	8030	12547	20589
800	724	1745	3342	5222	8556	13369	21938
850	768	1852	3548	5543	9082	14191	23286
900	813	1959	3753	5864	9608	15013	24635
950	857	2066	3959	6158	10134	15834	25984
1100	990	2388	4575	7148	11712	18300	30029
1400	1257	3032	5808	9075	14868	23231	
2000	1791	4319	8273	12927	21179	33093	
2400	2148	5174	9917	15495	25387	39667	
3000	2681	6460	12382	19347	31699	49529	
3800	3392	8180	15670	24484	40114		
4000	3570	8609	16492	25768			
5000	4460	10753	20601	32188			
6000	5349	12898	24710	38609			
7000	6239		28819				
7500	6683		30874				
8000	7128						
9000	8018						
10000	8907						
11000	9797						
12000	10687						
13000	11576						
14000	12465						

(#/HR. = SCFM x 2.9202)



SAFETY-RELIEF VALVE

MODEL 1500 -1600 - 1700 CORRECTION FACTORS

TABLE 1

MOLECULAR WT. AND VALUES OF C FOR GASES

	MOL. WT.	CP/CV	C		MOL. WT.	CP/CV	C
ACETYLENE	26	1.28	345	HYDROCHLORIC ACID	36.5	1.40	356
AIR	29	1.40	356	HYDROGEN	2	1.40	356
AMMONIA	17	1.33	351	HYDROGEN SULPHIDE	34	1.32	348
ARGON	40	1.66	377	ISOBUTANE	58	1.11	328
BENZENE	78	1.10	327	METHANE	16	1.30	346
CARBON BISULPHIDE	76	1.21	338	METHYL ALCOHOL	32	1.20	337
CARBON DIOXIDE	44	1.28	345	METHYL CHLORIDE	50.5	1.20	337
CARBON MONOXIDE	28	1.40	356	N-BUTANE	58	1.11	328
CHLORINE	71	1.36	352	NATURAL GAS	19	1.27	345
CYCLOHEXANE	84	1.08	324	NITROGEN	28	1.40	356
ETHANE	30	1.22	339	OXYGEN	32	1.40	356
ETHYLENE	28	1.20	337	PENTANE	72	1.09	325
HELIUM	4	1.66	377	PROPANE	44	1.14	331
HEXANE	86	1.08	324	SULPHUR DIOXIDE	64	1.26	342

TABLE 2

TEMPERATURE CORRECTION FACTORS FOR
GAS CAPACITY TABLES

MULTIPLY PUBLISHED CAPACITY AT 60°F BY FACTOR OPPOSITE
ACTUAL TEMPERATURES BELOW.

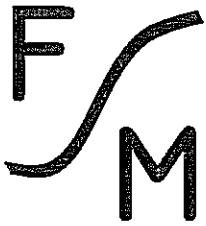
ACTUAL TEMP °F	CAPACITY CORRECTION FACTOR	ACTUAL TEMP °F	CAPACITY CORRECTION FACTOR
-400	2.945	50	1.010
-380	2.550	60	1.000
-360	2.280	70	.9905
-340	2.080	80	.9813
-320	1.927	90	.9723
-300	1.803	100	.9636
-280	1.700	110	.9552
-260	1.612	120	.9469
-240	1.537	130	.9388
-220	1.472	140	.9310
-200	1.414	150	.9233
-180	1.363	160	.9158
-160	1.317	180	.9014
-140	1.275	200	.8876
-120	1.237	220	.8746
-100	1.202	240	.8619
-90	1.186	260	.8498
-80	1.170	280	.8383
-70	1.155	300	.8272
-60	1.140	320	.8165
-50	1.126	340	.8062
-40	1.113	360	.7963
-30	1.100	380	.7868
-20	1.087	400	.7776
-10	1.075	420	.7687
0	1.063	440	.7592
10	1.052	460	.7518
20	1.041	480	.7438
30	1.030	500	.7360
40	1.020		

TABLE 3

MOLECULAR WEIGHT CORRECTIONS

TO CORRECT CAPACITIES OF GASES HAVING MOLECULAR WEIGHTS
OTHER THAN 29, MULTIPLY AIR CAPACITY BY CORRECTED FACTOR.

MOL. WT.	CORRECTION FACTOR	MOL. WT.	CORRECTION FACTOR
2	3.803	62	.684
4	2.693	64	.673
6	2.198	66	.663
8	1.904	68	.653
10	1.703	70	.644
12	1.555	72	.635
14	1.439	74	.626
16	1.346	76	.618
18	1.269	78	.610
20	1.204	80	.602
22	1.148	82	.595
24	1.099	84	.588
26	1.056	86	.581
28	1.018	88	.574
30	.983	90	.568
32	.952	92	.561
34	.924	94	.555
36	.898	96	.550
38	.874	98	.544
40	.851	100	.539
42	.831	102	.533
44	.812	104	.528
46	.794	106	.523
48	.777	108	.518
50	.762	110	.513
52	.747	112	.509
54	.733	114	.504
56	.720	116	.500
58	.707	118	.496
60	.695	120	.492



SAFETY-RELIEF VALVE

MODEL 3600 - 3800 - 3900

GENERAL DESCRIPTION: THE MODEL 3600 AND 3800 ARE A GENERAL PURPOSE SAFETY RELIEF VALVE FOR GAS AND HYDRAULIC SERVICE USE UP TO 10,000 PSIG. THEY ARE DESIGNED TO PROVIDE INDUSTRY WITH A LIGHT WEIGHT, COMPLETELY SEALED, HIGH CAPACITY VALVE SUITABLE FOR TEST STANDS WHERE TUBE FITTINGS ARE NECESSARY. THESE VALVES ARE SMALL AND CAN BE MADE WITH A PLASTIC SEAT FOR ABSOLUTE TIGHTNESS. IT IS SO DESIGNED THAT IT CAN BE READILY DISASSEMBLED AND CLEANED FOR QUICK SERVICE REPAIRS.

BODY AND BONNET: THE MODEL 3600 IS MADE OF ALL BAR STOCK AND IS AVAILABLE IN ALL MATERIAL CLASSES. THE MODEL 3800 IS MADE OF FORGED BONNET AND BAR STOCK BODY. THIS VALVE COMES IN 303, 316 AND CARBON STEEL MATERIALS. THE MODEL 3800 SERIES CAN ALSO BE NACE CERTIFIED UPON REQUEST.

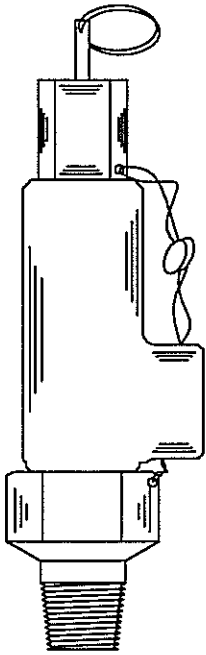
LIFT LEVERS: THESE VALVES CAN ALSO BE MADE WITH A PULL RING FOR AN OPEN TYPE LIFTING DEVICE.

GENERAL DESCRIPTION: THE MODEL 3900 IS A GENERAL PURPOSE SAFETY RELIEF VALVE DEVELOPED FOR HYDRAULIC AND GAS SERVICE USED UP TO 10,000 PSIG. IT IS A COMPACT, COMPLETELY SEALED, PRECISION DESIGNED, INCORPORATING THE FLUID MECHANICS STRESS FREE NOZZLE AND SEAT CONSTRUCTION. IT IS A RELIABLE RELIEF DEVICE FOR PUMP, COMPRESSOR, TANK AND PROCESS EQUIPMENT.

BODY AND BONNET: THE MODEL 3900 IS MADE OF ALL BAR STOCK MATERIAL AND IS AVAILABLE IN ALL MATERIAL CLASSES UPON REQUEST.

LIFT LEVERS: THE MODEL 3900 CAN NOT BE OFFERED WITH A LIFTING DEVICE.

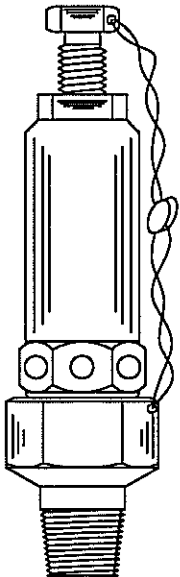
FACTORY TESTED: EACH MODEL 3600, 3800 AND 3900 FLUID MECHANICS SAFETY RELIEF VALVES ARE FACTORY TESTED AND FULLY WARRANTED FOR ONE YEAR.



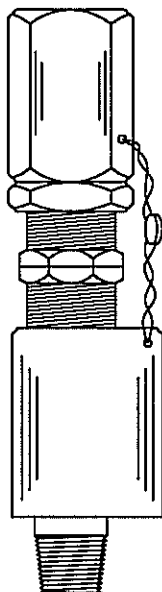
MODEL 3800 WITH PULL RING



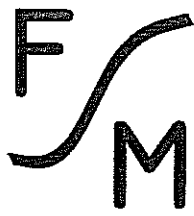
MODEL 3800



MODEL 3600



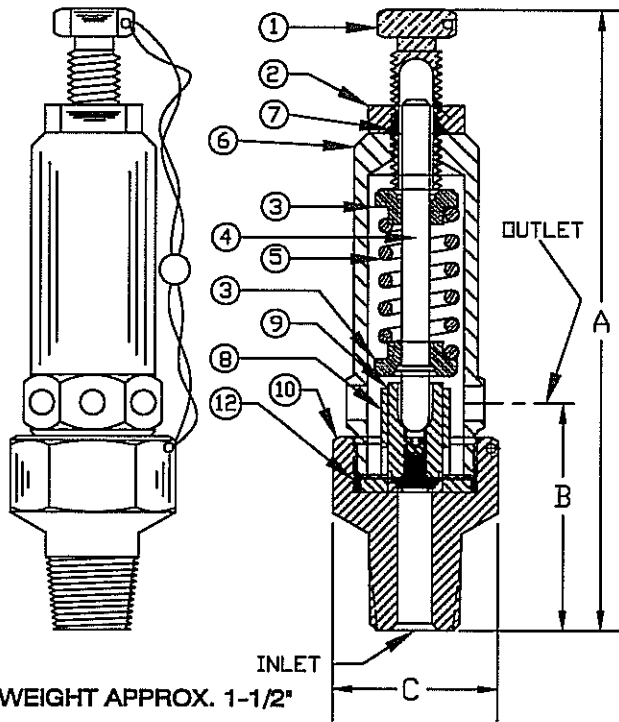
MODEL 3900



SAFETY-RELIEF VALVE MODEL 3600

(SERIES 360, 362, & 363)

FOR GAS & AIR SERVICE
AT 10% OVERPRESSURE



WEIGHT APPROX. 1-1/2"

DIMENSIONS

A±1/8	B±1/8	C(HEX)	INLET CONNECTIONS
5-1/2	2-1/8	1-3/8	1/4,3/8,1/2,3/4 MNPT MS33649-8 1/2 FNPT
5-1/8	1-3/4	1-3/8	1/8,1/4,3/8 FNPT MS33649-4,6 1/4,3/8 AMINCO MS33656-4,6,8
5-1/2	1-3/4	1-1/2	9/16 AMINCO
6-1/2	3-1/8	1-3/8	1/2 SOCKET WELD

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.156 & .250	1/4,3/8,1/2,3/4 MNPT	OPEN
	1/8,1/4,3/8,1/2 FNPT	1/8 FNPT
	MS33649-4,6,8	
	MS33656-4,6,8	
	1/4,3/8,9/16 HP AMINCO	
.312	1/2 SOCKET WELD	
	1/2,3/4 MNPT	OPEN
	1/2 FNPT	
	MS33649-8	
	MS33656-8	
	1/2 SOCKET WELD	

SEE PAGE 49 & 50 FOR CAPACITY CHARTS

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESS.	
			TG	MG
360	.156	PLASTIC ONLY	10,000	1,000
362	.250	PLASTIC ONLY	4,250	1,000
**363	.312	PLASTIC ONLY	3,000	1,000

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

** 'O'RING DESIGN IS AVAILABLE UP TO 1,000 PSIG.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 10,000	VESPEL †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F

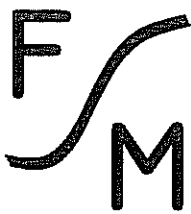
KEL-F : -400°F TO 400°F

VESPEL : -420°F TO 500°F

£ OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

(HIGH PRESSURE SPRINGS ARE MADE OF 17-7 PH)

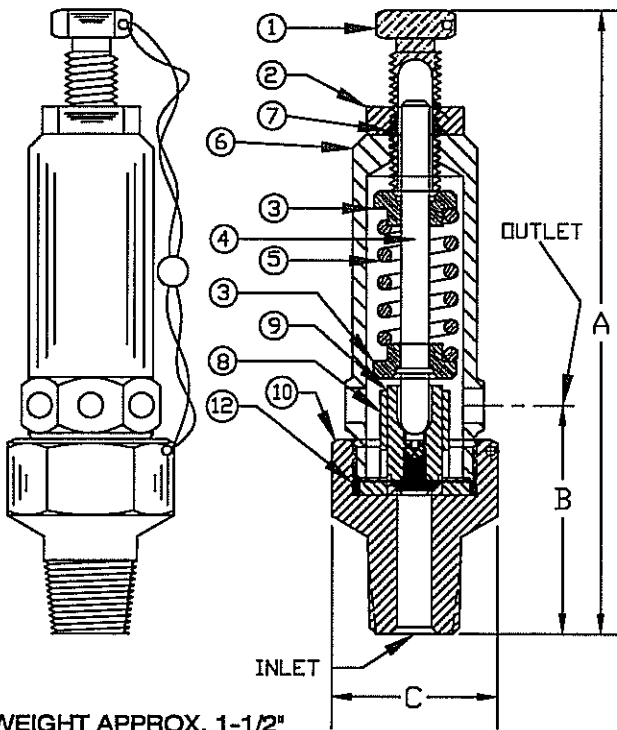
ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	BRASS MATERIAL CLASS
1	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
2	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
3	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
4	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
£ 5	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
6	BONNET	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM B16
7	LOCKNUT SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
8	DISC GUIDE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
9	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
10	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
12	BODY/BONNET SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE MODEL 3600

(SERIES 360, 362, & 363)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



WEIGHT APPROX. 1-1/2"

DIMENSIONS

A±1/8	B±1/8	C(HEX)	INLET CONNECTIONS
5-1/2	2-1/8	1-3/8	1/4,3/8,1/2,3/4 MNPT MS33649-8 1/2 FNPT
5-1/8	1-3/4	1-3/8	1/8,1/4,3/8 FNPT MS33649-4,6 1/4,3/8 AMINCO MS33656-4,6,8
5-1/2	1-3/4	1-1/2	9/16 AMINCO
6-1/2	3-1/8	1-3/8	1/2 SOCKET WELD

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.156 & .250	1/4,3/8,1/2,3/4 MNPT	OPEN
	1/8,1/4,3/8,1/2 FNPT	1/8 FNPT
	MS33649-4,6,8	
	MS33656-4,6,8	
	1/4,3/8,9/16 HP AMINCO	
.312	1/2 SOCKET WELD	
	1/2,3/4 MNPT	OPEN
	1/2 FNPT	
	MS33649-8	
	MS33656-8	
	1/2 SOCKET WELD	

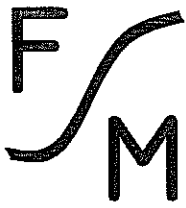
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
360	.156	METAL ONLY	17,000
362	.250	METAL ONLY	10,625
363	.312	METAL ONLY	7,050

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

£ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

(HIGH PRESSURE SPRINGS ARE MADE OF 17-7 PH)

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	BRASS MATERIAL CLASS
1	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
2	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
3	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
4	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
£ 5	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
6	BONNET	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM B16
7	LOCKNUT SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
8	DISC GUIDE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
9	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
10	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM B16
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
12	BODY/BONNET SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

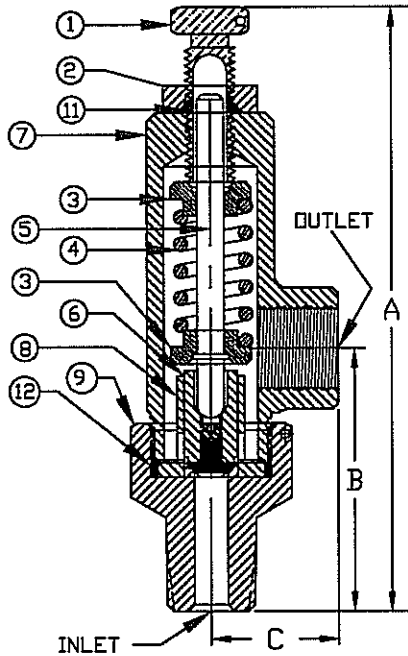


SAFETY-RELIEF VALVE

MODEL 3800

(SERIES 380, 382, & 383)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE



WEIGHT APPROX. 1-1/2"

DIMENSIONS

A±1/8	B±1/8	C(HEX)	INLET CONNECTIONS
5-5/8	2-1/2	1-3/16	1/4,3/8,1/2,3/4 MNPT MS33649-8 1/2 FNPT & 9/16 AMINCO
5-1/4	2-1/8	1-3/16	1/8,1/4,3/8 FNPT MS33649-4,6 1/4,3/8 AMINCO MS33656-4,6,8
6-5/8	3-1/2	1-3/16	1/2 SOCKET WELD

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.156 & .250	1/4,3/8,1/2,3/4 MNPT	1/8,1/4,3/8,1/2 FNPT
	1/8,1/4,3/8,1/2 FNPT	MS33649-4,6,8
	MS33649-4,6,8	MS33656-4,6,8
	MS33656-4,6,8	1/4 AMINCO
	1/4,3/8 HP AMINCO	
	SOCKET WELD, AUTOCLAVE	
.312	3/8,1/2 MNPT	3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-6,8
	MS33649-6,8	MS33656-6,8
	MS33656-6,8	

*SEE PAGE 49 & 50 FOR CAPACITY CHARTS

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
380	.156	PLASTIC ONLY	10,000
382	.250	PLASTIC ONLY	4,250
**383	.312	PLASTIC ONLY	3,000

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

**"O"RING DESIGN IS AVAILABLE UP TO 1,000 PSIG.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 10,000	VESPEL †

†TEMPERATURE RANGE: TEFLON : -450°F TO 500°F

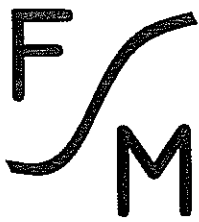
KEL-F : -400°F TO 400°F

VESPEL : -420°F TO 500°F

£ OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

(HIGH PRESSURE SPRINGS ARE MADE OF 17-7 PH)

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
2	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
£ 4	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
5	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
7	BONNET	ASTM A473	ASTM A182	ASTM A105
8	DISC GUIDE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
10	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
11	LOCKNUT SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY/BONNET SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

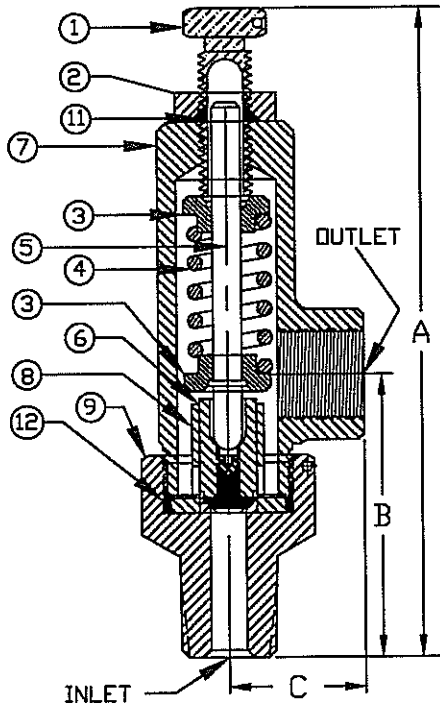


SAFETY-RELIEF VALVE

MODEL 3800

(SERIES 380, 382, & 383)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



WEIGHT APPROX. 1-1/2"

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.156 & .250	1/4, 3/8, 1/2, 3/4 MNPT	1/8, 1/4, 3/8, 1/2 FNPT
	1/8, 1/4, 3/8, 1/2 FNPT	MS33649-4,6,8
	MS33649-4,6,8	MS33656-4,6,8
	MS33656-4,6,8	1/4 AMINCO
	1/4, 3/8 HP AMINCO	
	SOCKET WELD, AUTOCLAVE	
.312	3/8, 1/2 MNPT	3/8, 1/2 FNPT
	1/4, 3/8, 1/2 FNPT	MS33649-6,8
	MS33649-6,8	MS33656-6,8
	MS33656-6,8	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
380	.156	METAL ONLY	17,000
382	.250	METAL ONLY	10,625
383	.312	METAL ONLY	7,050

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

DIMENSIONS

A±1/8	B±1/8	C(HEX)	INLET CONNECTIONS
5-5/8	2-1/2	1-3/16	1/4, 3/8, 1/2, 3/4 MNPT MS33649-8 1/2 FNPT & 9/16 AMINCO
5-1/4	2-1/8	1-3/16	1/8, 1/4, 3/8 FNPT MS33649-4,6 1/4, 3/8 AMINCO MS33656-4,6,8
6-5/8	3-1/2	1-3/16	1/2 SOCKET WELD

£ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

(HIGH PRESSURE SPRINGS ARE MADE OF 17-7 PH)

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
2	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
£ 4	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	DISC ASSEMBLY	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
7	BONNET	ASTM A473	ASTM A182	ASTM A105
8	DISC GUIDE	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	BODY	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	SEAL & WIRE	LEAD SEALS/S WIRE	LEAD SEALS/S WIRE	LEAD SEALS/S WIRE
11	LOCKNUT SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY/BONNET SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON

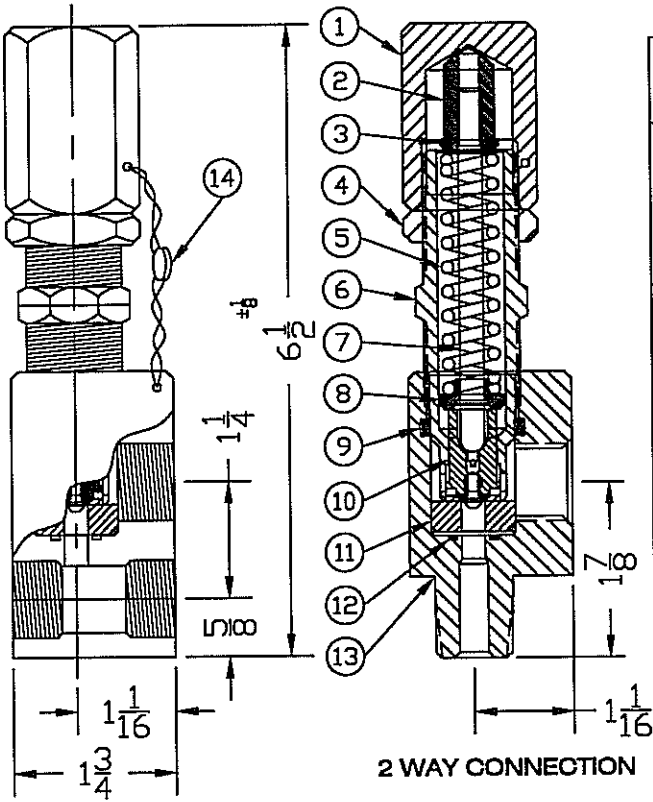


SAFETY-RELIEF VALVE

MODEL 3900

(SERIES 391, 392 & 393)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	MS33649-4,6,8	3/8 SOCKET WELD
	MS33656-6,8	
	1/4 AUTOCLAVE OR AMINCO	
.250	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	3/8,1/2 SOCKET WELD	3/8 SOCKET WELD
	MS33649-4,6,8	
	MS33656-6,8	
	9/16 AUTOCLAVE	
.312	3/8,1/2 MNPT	3/8,1/2 FNPT
	3/8,1/2 FNPT	MS33649-6,8
	3/8,1/2 SOCKET WELD	3/8 SOCKET WELD
	MS33649-6,8	
	MS33656-6,8	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
391	.187	PLASTIC ONLY	6,750
392	.250	PLASTIC ONLY	4,400
393	.312	PLASTIC ONLY	3,600

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

WEIGHT IS APPROX. 2-1/2#

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 6,750	VESPEL †

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	SPRING PLUNGER	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	SPRING PLUNGER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
6	BONNET	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
7	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SPRING PLATE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
10	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	NOZZLE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
12	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE

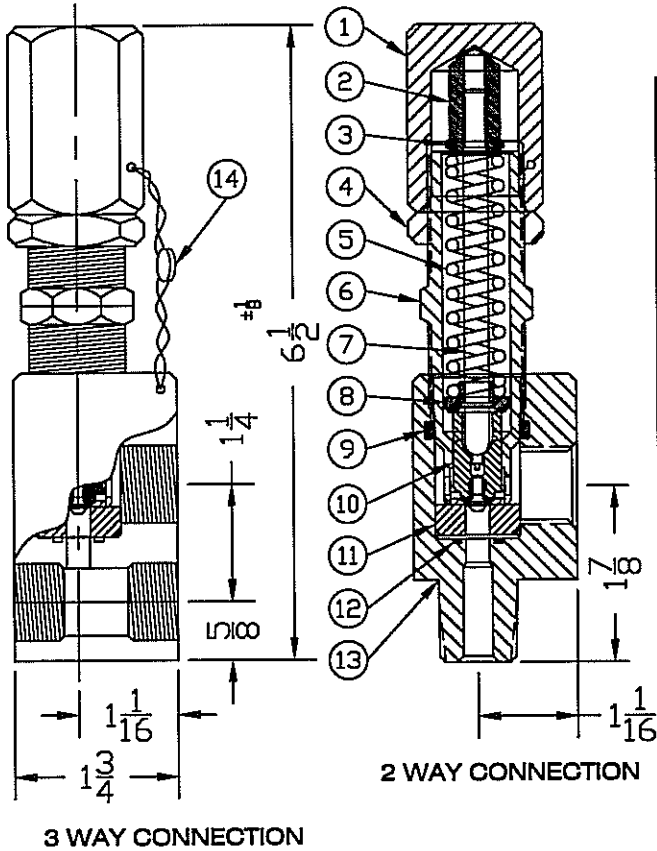


SAFETY-RELIEF VALVE

MODEL 3900

(SERIES 391, 392 & 393)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	MS33649-4,6,8	3/8 SOCKET WELD
	MS33656-6,8	
	1/4 AUTOCLAVE/AMINCO	
.250	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	3/8,1/2 SOCKET WELD	3/8 SOCKET WELD
	MS33649-4,6,8	
	MS33656-6,8	
.312	3/8,1/2 MNPT	3/8,1/2 FNPT
	3/8,1/2 FNPT	MS33649-6,8
	3/8,1/2 SOCKET WELD	3/8 SOCKET WELD
	MS33649-6,8	
	MS33656-6,8	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
391	.187	METAL ONLY	15,150
392	.250	METAL ONLY	10,825
393	.312	METAL ONLY	7,175

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

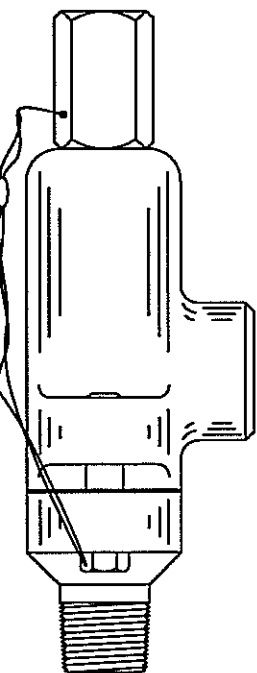
WEIGHT IS APPROX. 2-1/2#

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	SPRING PLUNGER	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	SPRING PLUNGER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
6	BONNET	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
7	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SPRING PLATE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
10	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	NOZZLE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
12	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE

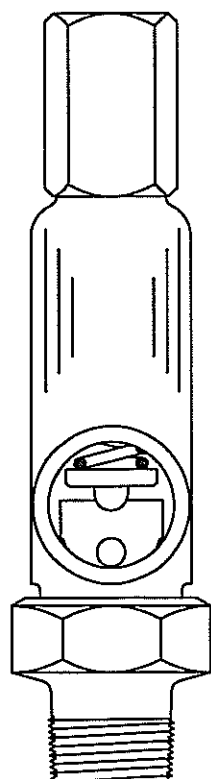
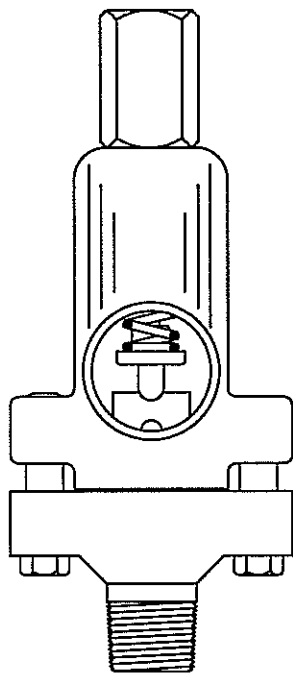


SAFETY-RELIEF VALVE

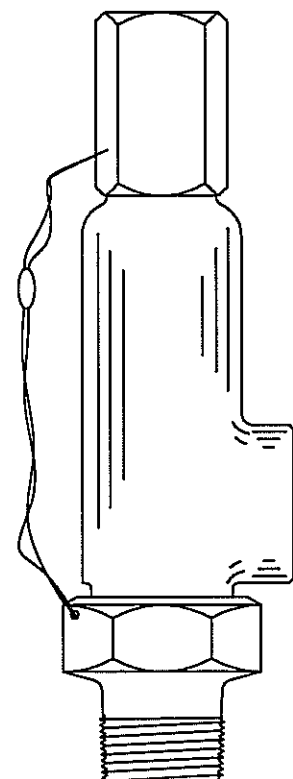
MODEL 4000 - 4200



MODEL 4000



MODEL 4200



GENERAL DESCRIPTION: THESE PRECISION MADE SAFETY RELIEF VALVES FEATURE REPLACEABLE INNER VALVE UNITS OF STAINLESS STEEL AND EXCEPTIONALLY HEAVY CAST METAL BODIES. PERFORMANCE IS BUBBLE TIGHT AFTER REPEATED OPERATION. MODEL 4000 & 4200 VALVES ARE HIGHLY SUITABLE TO OIL FIELD AND PROCESSING USE.

APPLICATIONS INCLUDE:

- GAS AND AIR SYSTEMS
- OIL AND GAS SEPERATORS
- GAS DEHYDRATION SYSTEMS
- NON-COOKING REFINERY SERVICE
- PIPELINE INJECTION PUMPS
- SALT WATER DISPOSAL PUMPS
- HYDRAULIC PRESSURE SYSTEMS
- RECIPROCATING PUMPS
- CHEMICAL PROCESSING

NAVY APPLICATIONS: OUR 4000 MODEL IS AVAILABLE IN UNION CONNECTIONS PER NAVY SPECIFICATIONS . CONSULT FACTORY.

MIL-F-1183
810-1385884
810-1385943
810-1385946

REPLACEABLE INNER VALVE UNITS: CONSISTS OF A STAINLESS STEEL NOZZLE AND CAST STAINLESS STEEL DISC WHICH ARE GROUND AND TESTED AS A UNIT.

STRESS-FREE NOZZLE: THE STAINLESS STEEL NOZZLE IS FREE OF TORQUE STRESS AND DISTORTION AROUND THE SEAT AREA, SINCE IT IS NOT SCREWED INTO THE MAIN BODY.

POSITIVE RESEATING: IS ASSURED BY MEANS OF TOP AND BOTTOM GUIDES.

BODY AND BONNET: ARE AVAILABLE IN CARBON STEEL, STAINLESS STEEL AND BRONZE.

SPRING: IS AVAILABLE IN VARIOUS STEEL ALLOYS.

LIFT LEVERS: CAN BE FURNISHED.

FACTORY TESTED: EACH MODEL 4000 & 4200 FLUID MECHANICS SAFETY RELIEF VALVE IS FACTORY TESTED AND FULLY WARRANTED FOR ONE YEAR.



SAFETY-RELIEF VALVE

MODEL 4000

(SERIES 402,403,405 & 406)

***ASME
UV CODED
NATIONAL BOARDED**

*ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE.(PLASTIC SEATS ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES

THREAD CONNECTIONS

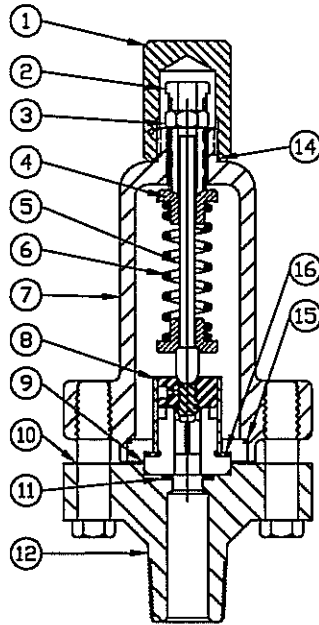
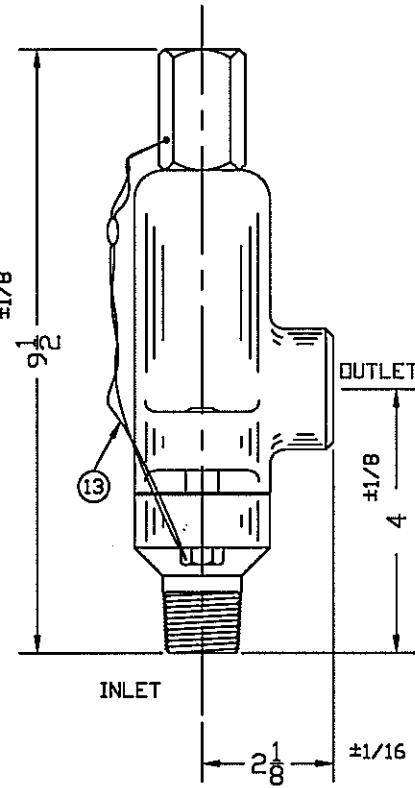
*ORIFICE SIZE	INLET	OUTLET
.250 & .312*	1/2,3/4,1,1 1/4,1 1/2 MNPT	3/4,1,1 1/4,1 1/2 FNPT
	1/2,3/4,1 FNPT	MS33649-12,16,24
	MS33649-8,10,12,16	3/4,1 SOCKET WELD
	1/2,3/4,1 SOCKET WELD	1/2,3/4-150&-300 RF
.437*	1/2,3/4-150&-300 RF	
	3/4,1,1 1/4,1 1/2 MNPT	1,1 1/4,1 1/2 FNPT
	3/4,1 FNPT	MS33649-16,24
	MS33649-12,16	1 SOCKET WELD
.500	3/4,1 SOCKET WELD	
	3/4-150&-300 RF	
	1,1 1/4,1 1/2 MNPT	1,1 1/4,1 1/2 FNPT
	1 FNPT	MS33649-16,24
	MS33649-16	1 SOCKET WELD
	1 SOCKET WELD	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
402	.250	PLASTIC ONLY	50 - 11,800
403*	.312	PLASTIC ONLY	50 - *6,000/6,650
405*	.437	PLASTIC ONLY	50 - *3,500/3,650
406	.500	PLASTIC ONLY	50 - 3,750

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON ¶
3,000 - 5,000	KEL-F ¶
5,000 - 11,800	VESPEL ¶

¶ TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

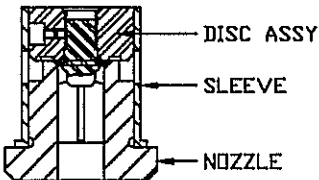


SEE PAGE 51 & 52
FOR CAPACITY CHARTS

† OTHER SPRING MATERIALS
UPON REQUEST.

§ SEE PAGE 91 & 92 FOR
PART NUMBERING SYSTEM.

WEIGHT IS APPROX. 8#



INNER VALVE UNIT DETAIL
PLASTIC SEAT

ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
4	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASTM B584,ALLOY 875	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
8	INNER VALVE UNIT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	RETAINER RING	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASTM B584,ALLOY 875	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
13	SEAL & WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE
14	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON

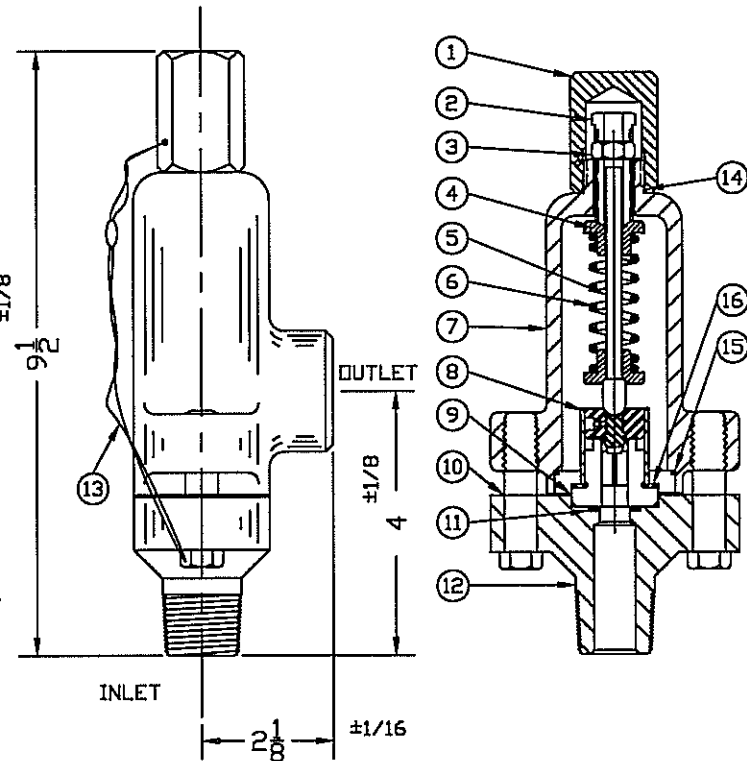


SAFETY-RELIEF VALVE

MODEL 4000

(SERIES 404, 405 & 406)

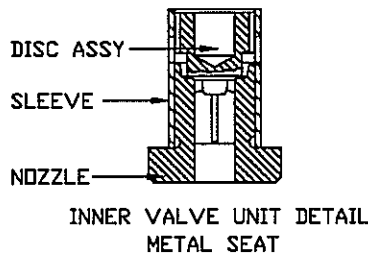
FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375 & .437	3/4, 1, 1 1/4, 1 1/2 MNPT	1, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16, 24
	MS33649-12, 16	1 SOCKET WELD
	3/4, 1 SOCKET WELD	
.500	1, 1 1/4, 1 1/2 MNPT	1, 1 1/4, 1 1/2 FNPT
	1 FNPT	MS33649-16, 24
	MS33649-16	1 SOCKET WELD
	1 SOCKET WELD	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
404	.375	METAL ONLY	50 - 9,900
405	.437	METAL ONLY	50 - 3,650
406	.500	METAL ONLY	50 - 2,000



§SEE PAGE 91 & 92 FOR
PART NUMBERING SYSTEM.

WEIGHT IS APPROX. 8#

† OTHER SPRING MATERIALS
UPON REQUEST.

ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
8	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
13	SEAL & WIRE	LEAD SEAL, COPPER WIRE	LEAD SEAL, S/S WIRE	LEAD SEAL, COPPER WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON



SAFETY-RELIEF VALVE

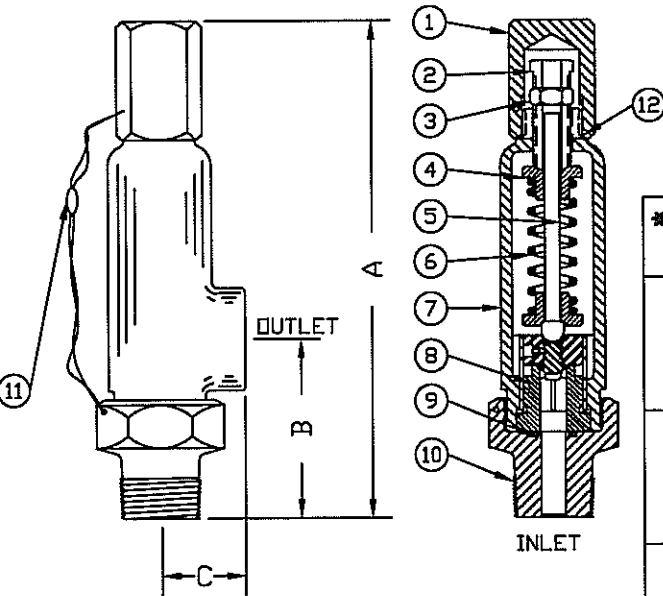
MODEL 4200

(SERIES 422, 423 & 425)

***ASME**
UV CODED
NATIONAL BOARD

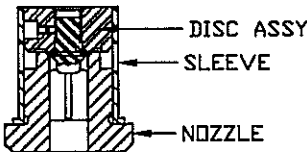
* ASME UV CODED PER SEC. VIII DIV. I
AIR & GAS SERVICE (PLASTIC SEATS ONLY)

AIR SERVICE MUST HAVE LIFT LEVER
SEE PAGE 60 FOR LIFTING DEVICES



THREAD CONNECTIONS

*ORIFICE SIZE	INLET	OUTLET
.250	1/2, 3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1/4, 1/2, 3/4, 1, 2 FNPT
	1/4, 3/8, 1/2, 3/4, 1 FNPT	MS33649-8, 12, 16
	1/4, 3/8, 9/16 AMINCO	MS33649-4, 6, 8, 12, 16
.312 *	1/2, 3/4, 1, 1 1/4, 1 1/2, 2 MNPT	3/4, 1, 2 FNPT
	1/2, 3/4, 1, 1 1/4, 1 1/2 FNPT	MS33649-12, 16
	MS33649-8, 10, 12, 16	MS33656-12
.437 *	3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1, 2 FNPT
	3/4, 1, 1 1/4, 1 1/2 FNPT	**MS33649-16 CAN'T HAVE CONE ON MS33656-16 ADAPTER
	MS33649-8, 12, 16	
	MS33656-12	



INNER VALVE UNIT DETAIL
PLASTIC SEAT

**425 RELIEF VALVE WITH MS33649-16 OUTLET
MUST USE MS33656-16 WITH NO CONE

DIMENSIONS	A ± 1/8	B ± 1/8	C ± 1/16	APPROX WEIGHT
1 1/4, 1 1/2, 2" MNPT x 2" FNPT	9"	3-7/8"	2-1/8"	7#
ALL OTHERS	8-3/8"	3"	1-7/16"	4-1/2#

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
422	.250	PLASTIC ONLY	50 - 11,800
*423	.312	PLASTIC ONLY	50 - *6,000/6,500
*425	.437	PLASTIC ONLY	50 - *3,500/3,650

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 11,800	VESPEL †

SEE PAGE 51 & 52 FOR CAPACITY CHARTS
† OTHER SPRING MATERIALS UPON REQUEST
§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM
BACK PRESSURE SEALS AVAILABLE UPON REQUEST
I.V.U. FOR .437 C/S CLASS IS 17-4 PH;
303 S/S, 316 S/S.

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
5	SPRING POST	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
6	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASME A351, TYPE CF8M	ASTM B584, ALLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
9	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
10	BODY	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 1018
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/COPPER WIRE
12	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON

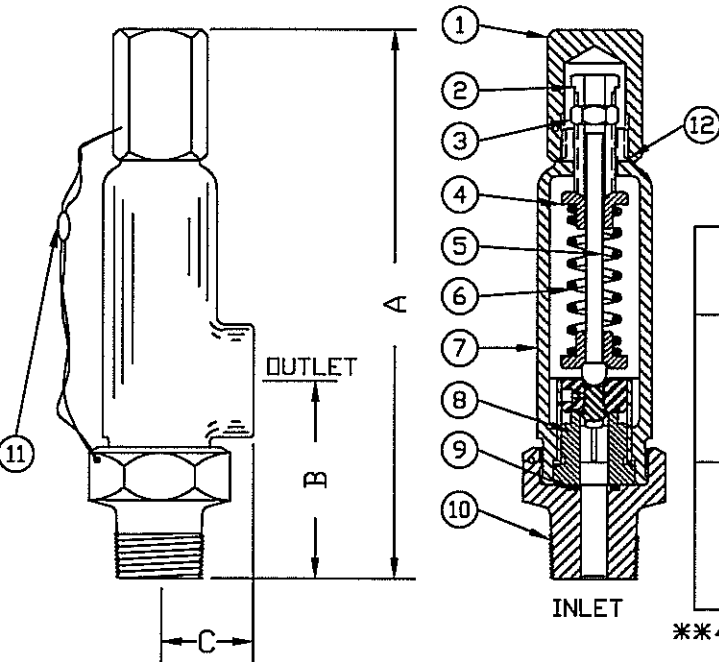


SAFETY-RELIEF VALVE

MODEL 4200

(SERIES 424 & 425)

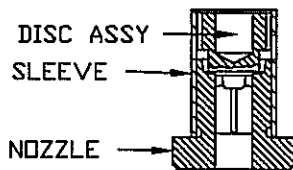
FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375	1/2,3/4,1,1 1/4,1 1/2,2 MNPT	3/4,1,2 FNPT
	1/2,3/4,1,1 1/4,1 1/2 FNPT	MS33649-12,16
	MS33649-8,10,12,16	
	MS33656-12	
.437	3/4,1,1 1/4,1 1/2,2 MNPT	1,2 FNPT
	3/4,1,1 1/4,1 1/2 FNPT	**MS33649-16 CANT HAVE CONE ON MS33656-16 ADAPTER
	MS33649-8,12,16	
	MS33656-12	

**425 RELIEF VALVE WITH MS33649-16 OUTLET
MUST USE MS33656-16 WITH NO CONE



INNER VALVE UNIT DETAIL
METAL SEAT

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
424	.375	METAL ONLY	50 - 9,900
425	.437	METAL ONLY	50 - 3,650

DIMENSIONS	A ±1/8	B ±1/8	C ±1/16	APPROX WEIGHT
1 1/4, 1 1/2, 2' MNPT x 2' FNPT	9"	3-7/8	2-1/8	7#
ALL OTHERS	8-3/8	3"	1-7/16	4-1/2#

BACK PRESSURE SEALS AVAILABLE UPON REQUEST

I.V.U. FOR .437 C/S CLASS IS 17-4 PH;
303 S/S; 316 S/S.

† OTHER SPRING MATERIALS UPON REQUEST

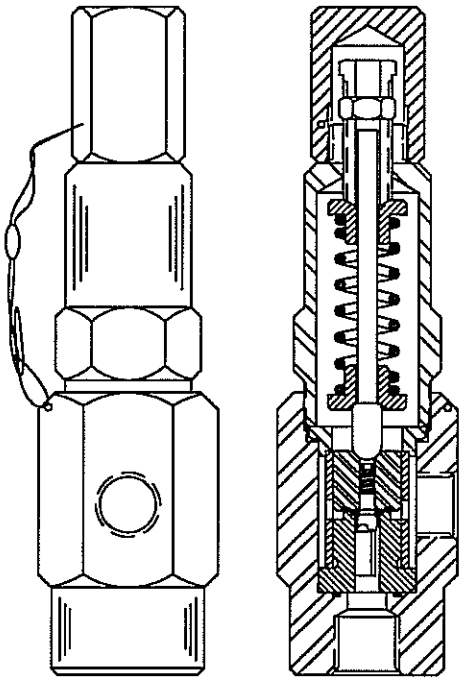
§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
4	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING †	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASME A351,TYPE CF8M	ASTM B584,ALLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
9	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
10	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/COPPER WIRE
12	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

F
M

SAFETY-RELIEF VALVE

MODEL 4400 - A4400 - B4400



GENERAL DESCRIPTION: THESE COMPACT SAFETY RELIEF VALVES ARE DESIGNED TO HANDLE DRY, CLEAN GASES FROM HYDROGEN TO NITROGEN WITH BUBBLE TIGHT PERFORMANCE AND CONSISTENT REPEATABILITY UP TO PRESSURES OF 15,000 PSIG. THESE VALVES CAN BE MADE OF ANY MATERIAL CLASSES UPON REQUEST.

REPLACEABLE INNER VALVE UNITS HAS PLASTIC SEATS, AS INDICATED BY VALVE SERIES NUMBER.

APPLICATIONS INCLUDE: AIRCRAFT, MISSILE GROUND SUPPORT EQUIPMENT, TESTING, FOOD PROCESSING AND REFRIGERATION EQUIPMENT. MODIFICATIONS CAN BE MADE OF SPECIFIC APPLICATIONS.

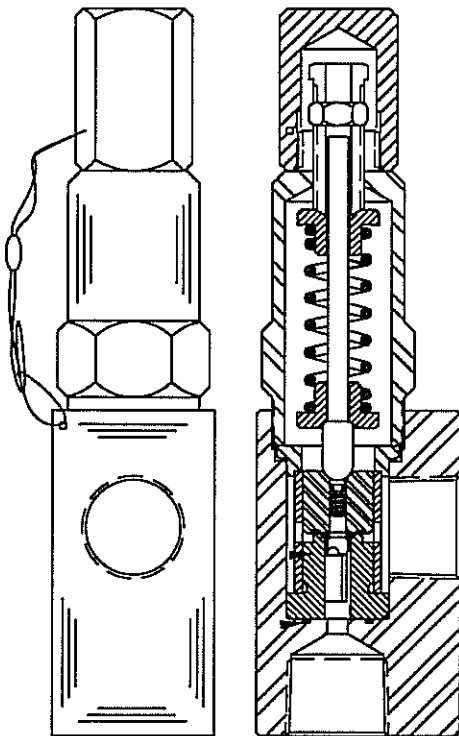
CRYOGENIC SERVICE: SPECIAL MATERIALS ADAPT THESE VALVES TO LOW TEMPERATURE SERVICE. CRYOGENIC SERVICE MUST BE STATED AT THE TIME OF ORDERING.

AVAILABLE IN TWO TYPES:

POP TYPE RELIEF, WITH BLOW DOWN CONTROL
OVERPRESSURE: RELIEF

FULLY PROVEN: MODEL 4400, A4400 & B4400 VALVES HAVE BEEN FULLY TESTED BY GOVERNMENT APPROVED TESTING LABORATORIES.

FACTORY TESTED: ALL MODEL 4400, A4400 & B4400 VALVES ARE SET AND TESTED TO MEET CUSTOMER SPECIFICATIONS AND ARE FULLY WARRANTED FOR ONE YEAR.





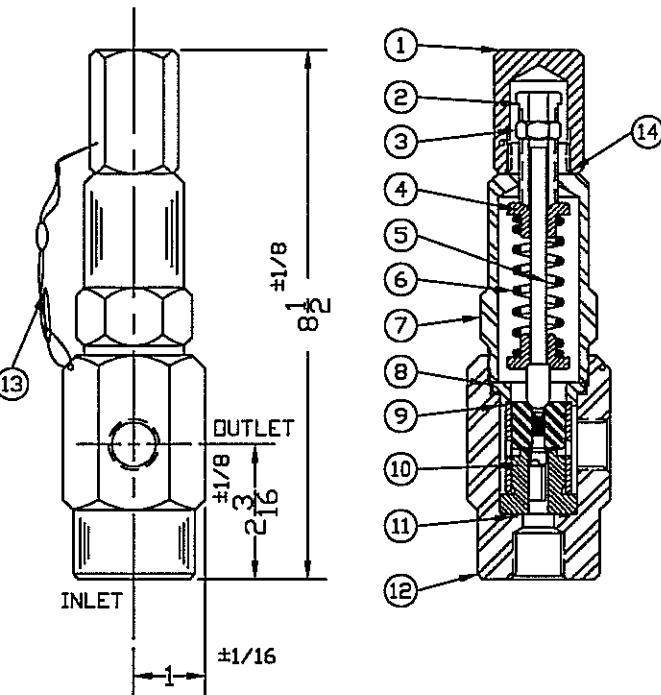
SAFETY-RELIEF VALVE

MODEL 4400

(SERIES 441,442 & 443)

FOR AIR AND GAS SERVICE
AT 10% OVERPRESSURE

SEE PAGE 60 FOR LIFTING DEVICES.



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2 FNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,9/16 AMINCO	
	MS33649-4,6,8,12	
.250	1/4,3/8,1/2 FNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,9/16 AMINCO	
	MS33649-4,6,8,12	
.312	3/8,1/2 FNPT	3/8,1/2 FNPT
	3/8,9/16 AMINCO	
	MS33649-4,6,8,12	

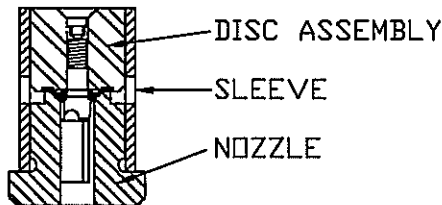
SEE PAGE 53 & 54 FOR CAPACITY CHARTS.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
441	.187	PLASTIC ONLY	50 - 16,000
442	.250	PLASTIC ONLY	50 - 13,200
443	.312	PLASTIC ONLY	50 - 9,200

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 16,000	VESPEL †



INNER VALVE UNIT DETAIL

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

WEIGHT IS APPROX. 5#
† OTHER SPRING MATERIALS UPON REQUEST.

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS
1	HOOD	ASTM A582,TYPE 303	ASTM A479,TYPE 316
2	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316
3	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316
4	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316
5	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASTM A582,TYPE 303	ASTM A479,TYPE 316
8	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
9	RETAINER RING	ASTM A582,TYPE 303	ASTM A479,TYPE 316
10	INNER VALVE UNIT	ASTM A582,TYPE 303	ASTM A479,TYPE 316
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316
13	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
14	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



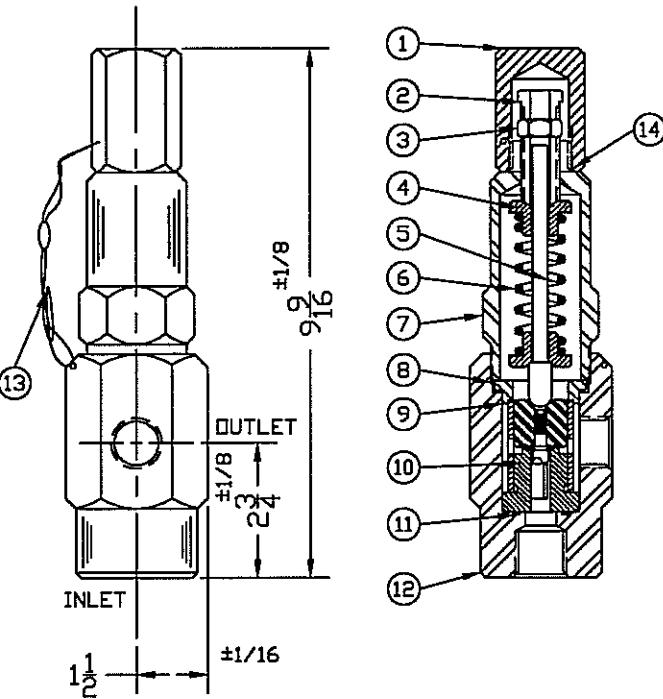
SAFETY-RELIEF VALVE

MODEL A4400

(SERIES A441,A442,A443,A445 & A446)

FOR AIR AND GAS SERVICE
AT 10% OVERPRESSURE

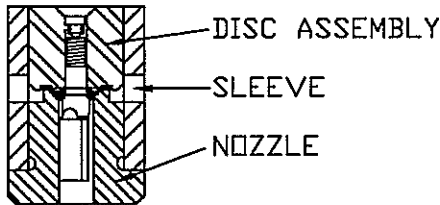
SEE PAGE 60 FOR LIFTING DEVICES.



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187 & .250	3/8,1/2,3/4 FNPT	1/2,3/4 FNPT
	1/4,9/16 AMINCO	MS33649-4,6,8
.312 & .437	1/2,3/4 FNPT	1/2,3/4 FNPT
	1/4,9/16 AMINCO	MS33649-8
.500	3/4 FNPT	3/4 FNPT
	MS33649-12	

SEE PAGE 53 & 54 FOR CAPACITY CHARTS.



SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
A441	.187	PLASTIC ONLY	50 - 33,000
A442	.250	PLASTIC ONLY	50 - 16,000
A443	.312	PLASTIC ONLY	50 - 12,000
A445	.437	PLASTIC ONLY	50 - 7,300
A446	.500	PLASTIC ONLY	50 - 4,900

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON ¶
3,000 - 5,000	KEL-F ¶
5,000 - 33,000	VESPEL ¶

WEIGHT IS APPROX. 11#
†OTHER SPRING MATERIALS UPON REQUEST.

¶ TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

ITEM NO.	PART NAME	303 S/S	316 S/S
		MATERIAL CLASS	MATERIAL CLASS
1	HOOD	ASTM A582,TYPE 303	ASTM A479,TYPE 316
2	PRESSURE SCREW	ASTM A582,TYPE 303	ASTM A479,TYPE 316
3	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316
4	SPRING PLATES (2)	ASTM A582,TYPE 303	ASTM A479,TYPE 316
5	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASTM A582,TYPE 303	ASTM A479,TYPE 316
8	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
9	RETAINER RING	ASTM A582,TYPE 303	ASTM A479,TYPE 316
10	INNER VALVE UNIT	ASTM A582,TYPE 303	ASTM A479,TYPE 316
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316
13	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
14	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



SAFETY-RELIEF VALVE

MODEL B4400

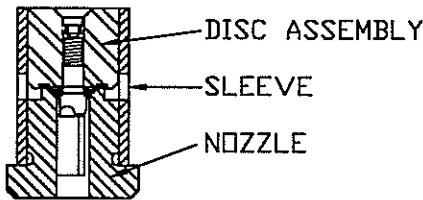
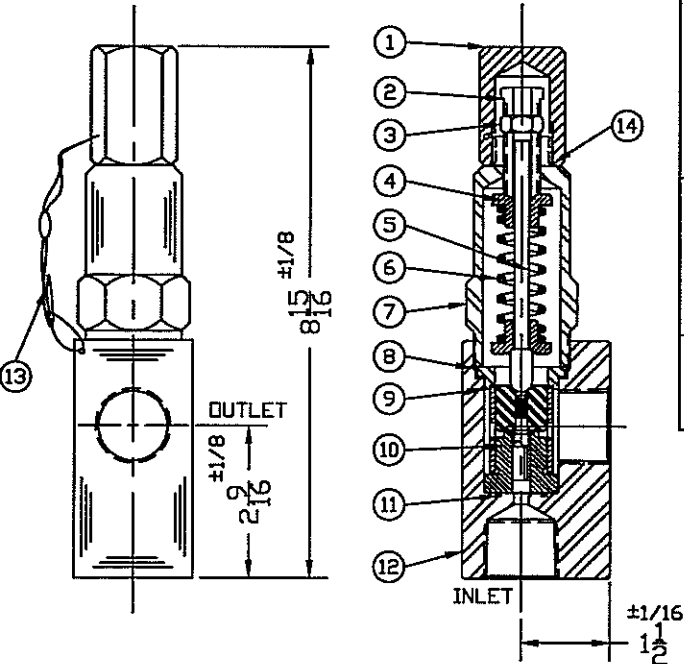
(SERIES B441, B442, B443, B445 & B446)

FOR AIR AND GAS SERVICE
AT 10% OVERPRESSURE

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187 & .250	1/4, 3/8, 1/2, 3/4, 1 FNPT	3/8, 1/2, 3/4, 1 FNPT
	3/8, 1/2, 3/4, 1 MNPT	MS33649-8, 12, 16
	1/4, 9/16 AMINCO	MS16142-8
	9/16, 3/4 AUTOCLAVE	
	MS33649-8, 12, 16	
.312	3/8, 1/2, 3/4, 1 FNPT	1/2, 3/4, 1 FNPT
	3/8, 1/2, 3/4, 1 MNPT	MS33649-8, 12, 16
	9/16 AMINCO	
	9/16, 3/4 AUTOCLAVE	
.437 & .500	3/4, 1 FNPT	3/4, 1 FNPT
	3/4, 1 MNPT	MS33649-12, 16
	MS33649-12, 16	

SEE PAGE 60 FOR LIFTING DEVICES.



INNER VALVE UNIT DETAIL

SEE PAGE 53 & 54 FOR CAPACITY CHARTS.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
B441	.187	PLASTIC ONLY	50 - 15,000
B442	.250	PLASTIC ONLY	50 - 13,200
B443	.312	PLASTIC ONLY	50 - 9,200
B445	.437	PLASTIC ONLY	50 - 4,000
B446	.500	PLASTIC ONLY	50 - 2,000

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 15,000	VESPEL †

WEIGHT IS APPROX. 7#

† OTHER SPRING MATERIALS UPON REQUEST.

‡ TEMPERATURE RANGE: TEFLON : -450°F TO 500°F

KEL-F : -400°F TO 400°F

VESPEL : -420°F TO 500°F

ITEM NO.	PART NAME	303 S/S	316 S/S
		MATERIAL CLASS	MATERIAL CLASS
1	HOOD	ASTM A582, TYPE 303	ASTM A479, TYPE 316
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM A582, TYPE 303	ASTM A479, TYPE 316
8	BODY SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316
10	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM A582, TYPE 303	ASTM A479, TYPE 316
13	SEAL & WIRE	LEAD SEAL, S/S WIRE	LEAD SEAL, S/S WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON



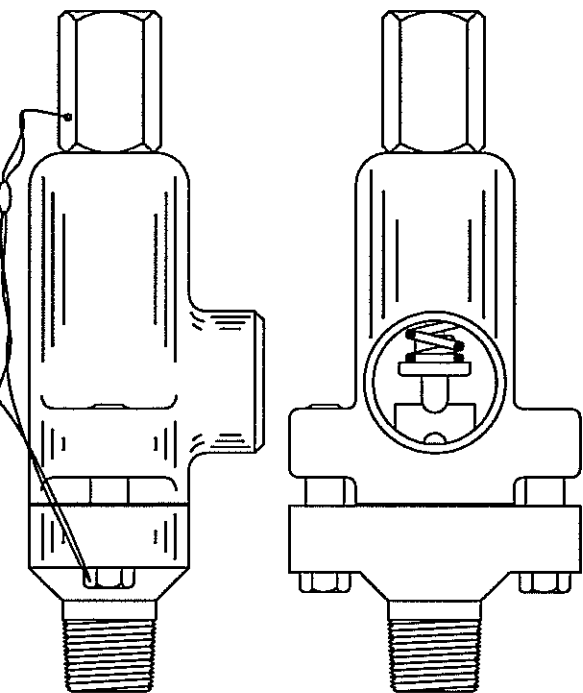
SAFETY-RELIEF VALVE

MODEL 4700 - 4900

GENERAL DESCRIPTION: THESE PRECISION MADE SAFETY RELIEF VALVES FEATURE REPLACEABLE INNER VALVE UNITS OF STAINLESS STEEL AND EXCEPTIONALLY HEAVY CAST METAL BODIES ON THE 4700 MODEL. PERFORMANCE IS BUBBLE-TIGHT AFTER REPEATED OPERATIONS. MODEL 4700 AND 4900 VALVES ARE HIGHLY SUITABLE TO OIL FIELD AND PROCESSING USE.

APPLICATIONS INCLUDE:

- GAS AND AIR SYSTEMS
- OIL AND GAS SEPERATORS
- GAS DEHYDRATION SYSTEMS
- GAS BOOSTER SYSTEMS
- NON-COOKING REFINERY SERVICE
- PIPELINE INJECTION PUMPS
- SALT WATER DISPOSAL PUMPS
- HYDRAULIC PRESSURE SYSTEMS
- RECIPROCATING PUMPS
- CHEMICAL PROCESSING
- NAVAL APPLICATIONS



MODEL 4700

REPLACEABLE INNER VALVE UNITS: CONSISTS OF A STAINLESS STEEL NOZZLE AND STAINLESS STEEL DISC WHICH ARE GROUND AND TESTED AS A UNIT.

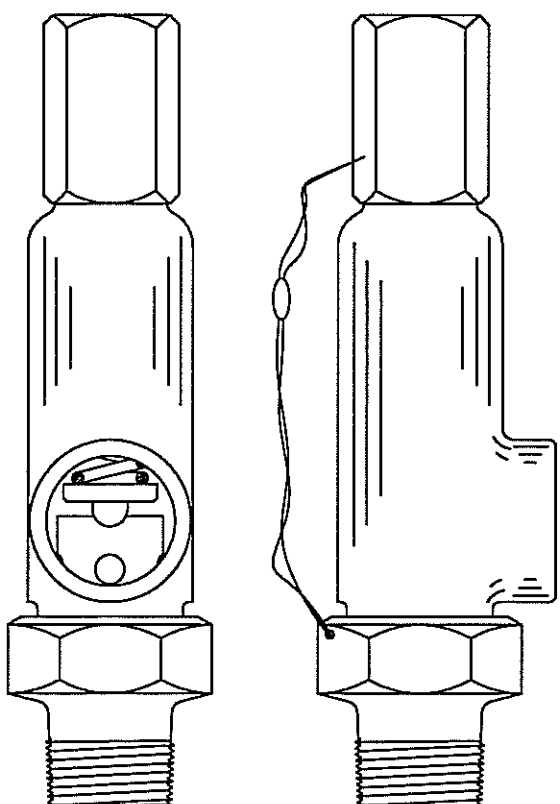
STRESS-FREE NOZZLE: THE STAINLESS STEEL NOZZLE IS FREE OF TORQUE STRESS AND DISTORTION AROUND THE SEAT AREA SINCE IT IS NOT SCREWED INTO THE MAIN BODY.

BODY AND BONNET: ARE AVAILABLE IN CARBON STEEL, STAINLESS STEEL AND BRONZE.

SPRING: IS AVAILABLE IN VARIOUS STEEL ALLOYS.

LIFT LEVERS: CAN BE FURNISHED.

FACTORY TESTED: EACH MODEL 4700 & 4900 FLUID MECHANICS SAFETY RELIEF VALVE IS FACTORY TESTED AND FULLY WARRANTED FOR ONE YEAR.



MODEL 4900

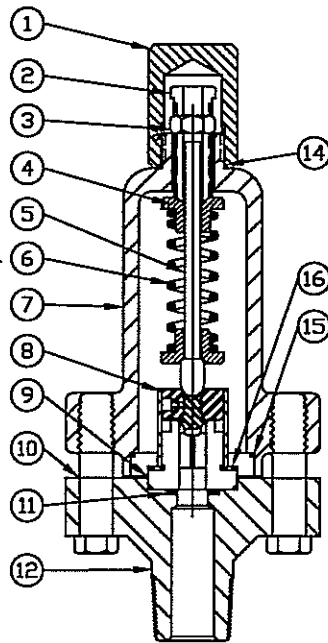
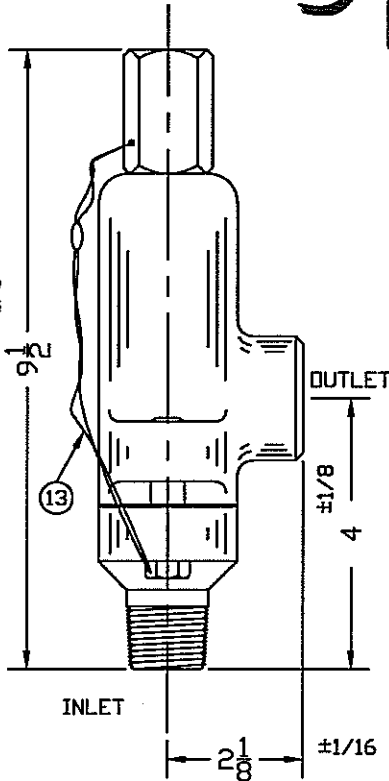


SAFETY-RELIEF VALVE MODEL 4700

(SERIES 474 & 476)

FOR GAS AND AIR SERVICE
AT 10% OVERPRESSURE

SEE PAGE 60 FOR LIFTING DEVICES.



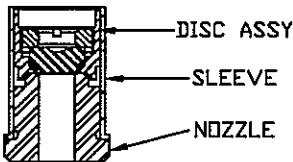
THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4, 1 1/2 SDC WELD	
	3/4-150 & -300 RF	
.500	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4-150 & -300 RF	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
474	.375	PLASTIC ONLY	50 - 5,000
476	.500	PLASTIC ONLY	10 - 2,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
10 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
3,000 - 5,000	VESPEL †



INNER VALVE UNIT DETAIL
PLASTIC SEAT

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

SEE PAGE 55 & 56
FOR CAPACITY CHARTS

† OTHER SPRING MATERIALS
UPON REQUEST.

WEIGHT IS APPROX. 8#

§ SEE PAGE 91 & 92
FOR PART NUMBERING SYSTEM.

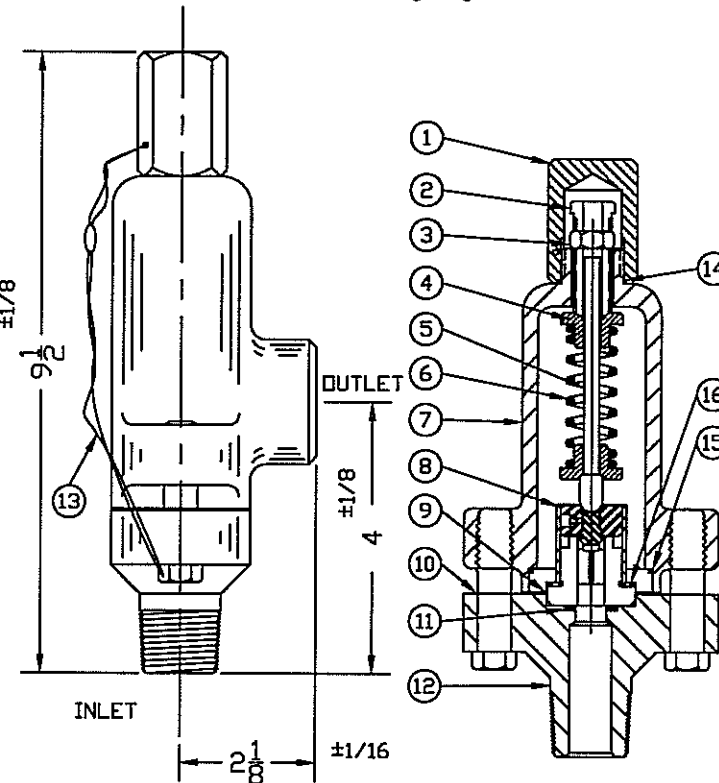
ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
8	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
13	SEAL & WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S WIRE	LEAD SEAL/COPPER WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON



SAFETY-RELIEF VALVE MODEL 4700

(SERIES 474 & 476)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



THREAD CONNECTIONS

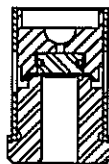
ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4, 1 1/2 SDC WELD	
	3/4-150 & -300 RF	
.500	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4-150 & -300 RF	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
474	.375	METAL ONLY	50 - 2,000
476	.500	METAL ONLY	10 - 2,000

WEIGHT IS APPROX. 8#

†OTHER SPRING MATERIALS
UPON REQUEST.

§ SEE PAGE 91 & 92
FOR PART NUMBERING SYSTEM.



INNER VALVE UNIT DETAIL
METAL SEAT

ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
8	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
13	SEAL & WIRE	LEAD SEAL, COPPER WIRE	LEAD SEAL, S/S WIRE	LEAD SEAL, COPPER WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON



SAFETY-RELIEF VALVE

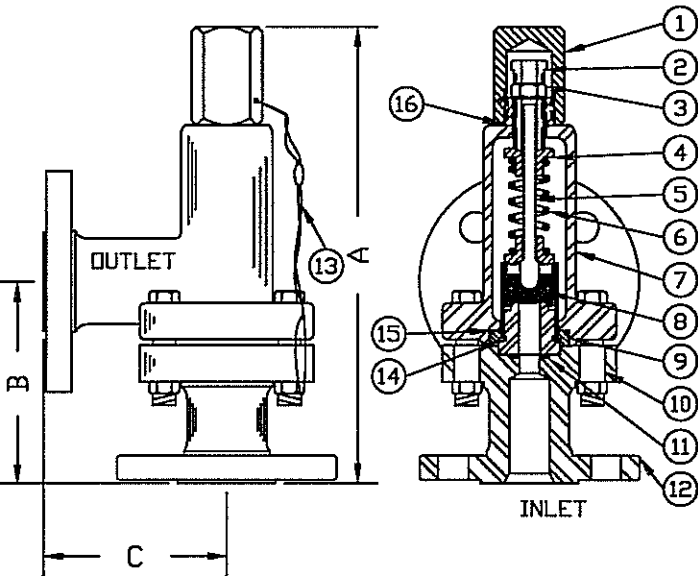
MODEL 4800

(SERIES 484 & 486)

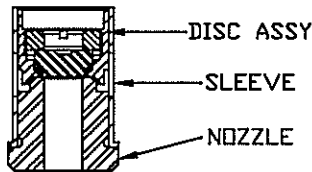
FOR AIR AND GAS SERVICE
AT 10% OVERPRESSURE

SEE PAGE 60 FOR LIFTING DEVICES

R.F. FLANGE DIMENSIONS



ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/16
.375	1/2-150 x 3/4-300	9	4-3/8	3-11/16
	3/4-150 x 1-150	9	4-3/8	3-11/16
	3/4-300 x 1-150	9	4-3/8	3-11/16
	3/4-600 x 1-150	9	4-3/8	3-11/16
	3/4-900 x 1-300	9	4-3/8	3-11/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
.500	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1½-150 x 2-150	9-9/16	4-7/16	4-3/16
	1½-300 x 2-150	9-9/16	4-7/16	4-3/16
	1½-600 x 2-300	9-9/16	4-7/16	4-3/16
1½-900 x 2-300	9-9/16	4-7/16	4-3/16	



INNER VALVE UNIT DETAIL
PLASTIC SEAT

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
484	.375	PLASTIC ONLY	50 - 5,000
486	.500	PLASTIC ONLY	50 - 2,000

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON ¶
3,000 - 5,000	KEL-F ¶
3,000 - 5,000	VESPEL ¶

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
4	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
8	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
10	BOLTS (4)	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
13	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE
14**	BACK PRESSURE SEAL	TEFLON OR METAL	TEFLON OR METAL
15**	RETAINER SEAL	TEFLON OR METAL	TEFLON OR METAL
16	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

¶ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F

‡ OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 15#

**AVAILABLE UPON REQUEST.

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

SEE PAGE 55 & 56 FOR CAPACITY CHARTS.



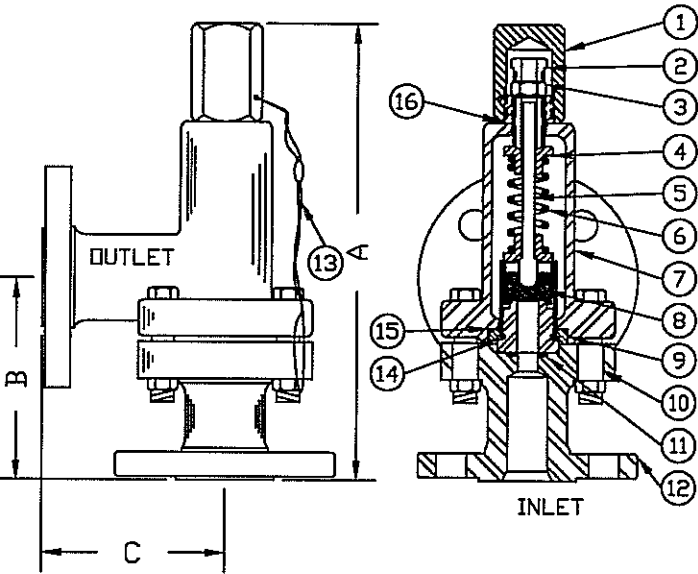
SAFETY-RELIEF VALVE

MODEL 4800

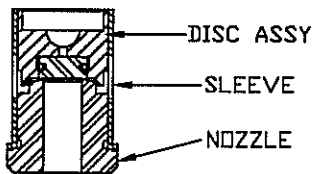
(SERIES 484 & 486)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY

R.F. FLANGE DIMENSIONS



ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/16
.375	1/2-150 x 3/4-300	9	4-3/8	3-11/16
	3/4-150 x 1-150	9	4-3/8	3-11/16
	3/4-300 x 1-150	9	4-3/8	3-11/16
	3/4-600 x 1-150	9	4-3/8	3-11/16
	3/4-900 x 1-300	9	4-3/8	3-11/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
.500	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1½-150 x 2-150	9-9/16	4-7/16	4-3/16
	1½-300 x 2-150	9-9/16	4-7/16	4-3/16
	1½-600 x 2-300	9-9/16	4-7/16	4-3/16
1½-900 x 2-300	9-9/16	4-7/16	4-3/16	



INNER VALVE UNIT DETAIL
METAL SEAT

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
484	.375	METAL ONLY	50 - 1,000
486	.500	METAL ONLY	50 - 1,000

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 15#

***AVAILABLE UPON REQUEST.

§ SEE PAGE 91 & 92 FOR
PART NUMBERING SYSTEM.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
4	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
8	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
10	BOLTS (4)	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
13	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/COPPER WIRE
14**	BACK PRESSURE SEAL	TEFLON OR METAL	TEFLON OR METAL
15**	RETAINER SEAL	TEFLON OR METAL	TEFLON OR METAL
16	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

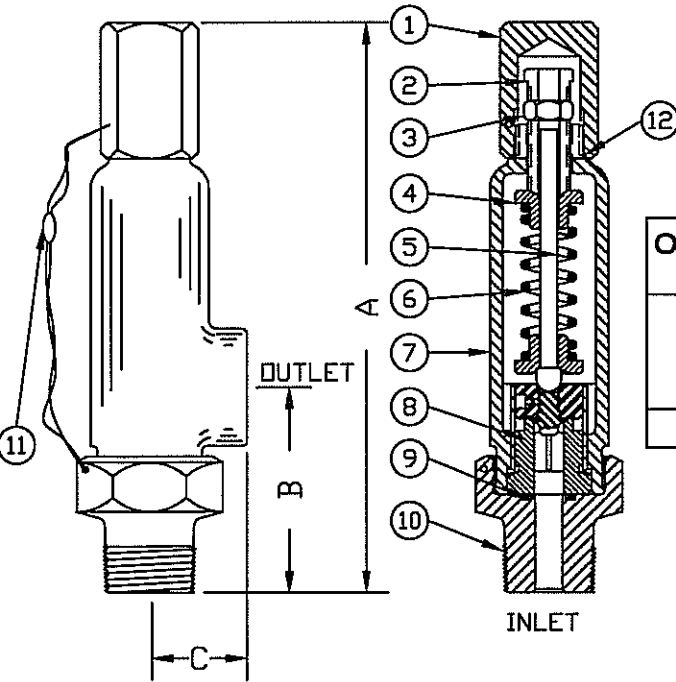


SAFETY-RELIEF VALVE MODEL 4900 (SERIES 494 & 496)

FOR AIR AND GAS SERVICE
AT 10% OVERPRESSURE

SEE PAGE 60 FOR LIFTING DEVICES

THREAD CONNECTIONS



ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1/2, 3/4, 1, 2" FNPT
	1/2, 3/4, 1 FNPT	**MS33649-16 CAN'T HAVE CONE ON MS33656-16 ADAPTER
	MS33649-12, 16	
.500	1 1/4, 1 1/2, 2 MNPT	2 FNPT

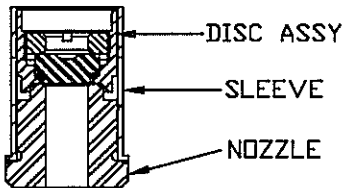
**494 RELIEF VALVE WITH MS33649-16 OUTLET
MUST USE MS33656-16 WITH NO CONE

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
494	.375	PLASTIC ONLY	50 - 4,500
496	.500	PLASTIC ONLY	50 - 2,000

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 4,500	KEL-F †
3,000 - 4,500	VESPEL †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F
VESPEL : -420°F TO 500°F



INNER VALVE UNIT DETAIL
PLASTIC SEAT

DIMENSIONS	A ^{±1/8}	B ^{±1/8}	C ^{±1/16}	APPROX WEIGHT
1 1/4, 1 1/2, 2" MNPT x 2" FNPT	9"	3-7/8"	2-1/8"	7#
ALL OTHERS	8-3/8"	3"	1-7/16"	4-1/2#

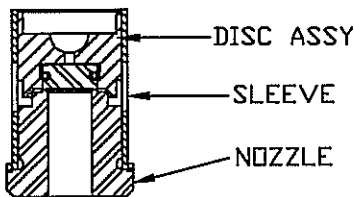
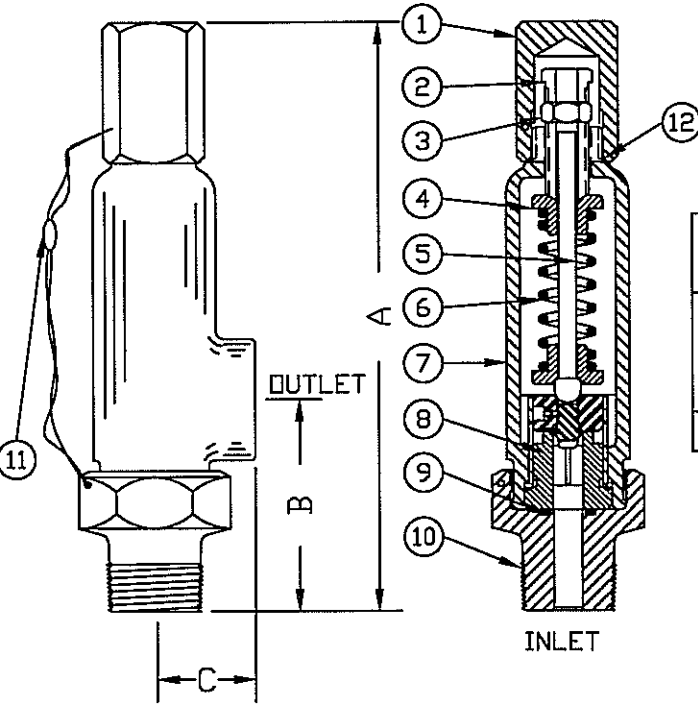
SEE PAGE 55 & 56 FOR CAPACITY CHARTS
† OTHER SPRING MATERIALS UPON REQUEST
§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM
BACK PRESSURE SEALS AVAILABLE UPON REQUEST

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
3	LOCKNUT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
4	SPRING PLATES (2)	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
5	SPRING POST	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
6	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASME A351, TYPE CF8M	ASTM B584, ALLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
9	NOZZLE SEAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL
10	BODY	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 1018
11	SEAL & WIRE	LEAD SEAL; S/S WIRE	LEAD SEAL; COPPER WIRE	LEAD SEAL; COPPER WIRE
12	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON



SAFETY-RELIEF VALVE MODEL 4900 (SERIES 494 & 496)

FOR AIR & GAS SERVICE
AT 10% OVERPRESSURE
METAL SEATS ONLY



INNER VALVE UNIT DETAIL
METAL SEAT

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1/2, 3/4, 1, 2" FNPT
	1/2, 3/4, 1 FNPT	**MS33649-16 CAN'T HAVE CONE ON MS33656-16 ADAPTER
.500	1 1/4, 1 1/2, 2 MNPT	2 FNPT

**494 RELIEF VALVE WITH MS33649-16 OUTLET
MUST USE MS33656-16 WITH NO CONE

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
494	.375	METAL ONLY	50 - 1,000
496	.500	METAL ONLY	50 - 1,000

DIMENSIONS	A±1/8	B±1/8	C±1/16	APPROX WEIGHT
1 1/4, 1 1/2, 2" MNPT x 2" FNPT	9"	3-7/8	2-1/8	7#
ALL OTHERS	8-3/8	3"	1-7/16	4-1/2#

‡ OTHER SPRING MATERIALS UPON REQUEST
§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM
BACK PRESSURE SEALS AVAILABLE UPON REQUEST

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
3	LOCKNUT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
4	SPRING PLATES (2)	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
5	SPRING POST	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
6	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASME A351, TYPE CF8M	ASTM B584, ALLLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
9	NOZZLE SEAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL
10	BODY	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 1018
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/COPPER WIRE
12	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON



SAFETY-RELIEF VALVE

MODEL 3600-3800

CAPACITY CHART

PLASTIC SEATS ONLY

AIR

(MOL. WT. = 28.97)

HYDROGEN

(MOL. WT. = 2.02)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	1/2 x 1/2 OR 1/2 x OPEN	
	ORIFICE DIAMETER (IN.)	
	.156	.250
50	11	21
75	16	30
100	20	38
125	25	46
140	28	51
150	29	54
160	31	58
180	35	64
200	38	71
250	47	88
300	56	104
350	65	121
400	74	138
450	83	154
500	92	171
550	101	188
600	110	204
650	119	221
700	128	238
750	137	254
800	146	271
900	164	304
1000	182	338
1100	200	371
1300	236	438
1500	271	504
1700	307	571
2000	361	671
2500	451	838
3000	539	1004
3500	630	1171
4000	720	1338
4250	764	1421
5000	899	
5500	989	
6000	1078	
6500	1168	
7000	1258	
7500	1347	
8000	1437	
8500	1526	
9000	1616	
9500	1706	
10000	1795	

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	1/2 x 1/2 OR 1/2 x OPEN	
	ORIFICE DIAMETER (IN.)	
	.156	.250
50	43	80
75	60	112
100	77	144
125	94	175
140	105	194
150	111	207
160	118	220
180	132	245
200	146	270
250	180	334
300	214	397
350	248	461
400	282	524
450	316	587
500	350	651
550	384	714
600	418	778
650	452	841
700	486	904
750	521	968
800	555	1031
900	623	1158
1000	691	1285
1100	759	1411
1300	896	1666
1500	1032	1918
1700	1168	2172
2000	1373	2552
2500	1714	3186
3000	2055	3820
3500	2396	4453
4000	2737	5087
4250	2907	5404
5000	3419	
5500	3759	
6000	4100	
6500	4441	
7000	4782	
7500	5123	
8000	5464	
8500	5805	
9000	6146	
9500	6487	
10000	6828	

(#/HR. = SCFM x 4.596)

(#/HR. = SCFM x .3189)



SAFETY-RELIEF VALVE

MODEL 3600-3800

CAPACITY CHART

PLASTIC SEATS ONLY

HELIUM

(MOL. WT. = 4)

NATURAL GAS

(MOL. WT. = 19)

SCFM (60°F - 14,7 PSIA) 10% OVERPRESSURE

SCFM (60°F - 14,7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	1/2 x 1/2 OR	1/2 x OPEN
	ORIFICE DIAMETER (IN.)	
	.156	.250
50	31	57
75	43	79
100	55	102
125	67	124
140	74	138
150	79	147
160	84	156
180	93	174
200	103	192
250	127	236
300	151	281
350	176	326
400	200	371
450	224	416
500	248	461
550	272	506
600	296	551
650	320	595
700	345	640
750	369	685
800	393	730
900	441	820
1000	489	910
1100	538	999
1300	634	1179
1500	731	1358
1700	827	1538
2000	972	1807
2500	1214	2256
3000	1455	2705
3500	1696	3154
4000	1938	3602
4250	2059	3827
5000	2421	
5500	2662	
6000	2904	
6500	3145	
7000	3386	
7500	3628	
8000	3869	
8500	4111	
9000	4352	
9500	4594	
10000	4835	

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	1/2 x 1/2 OR	1/2 x OPEN
	ORIFICE DIAMETER (IN.)	
	.156	.250
50	14	26
75	20	36
100	25	47
125	31	57
140	34	63
150	36	67
160	38	71
180	43	80
200	47	88
250	58	109
300	70	129
350	81	150
400	92	170
450	103	191
500	114	212
550	125	232
600	136	253
650	147	273
700	158	294
750	169	315
800	180	335
900	203	376
1000	225	418
1100	247	459
1300	291	541
1500	336	624
1700	380	706
2000	446	830
2500	557	1036
3000	668	1242
3500	779	1448
4000	890	1654
4250	945	1757
5000	1112	
5500	1222	
6000	1333	
6500	1444	
7000	1555	
7500	1666	
8000	1777	
8500	1888	
9000	1998	
9500	2109	
10000	2220	

(#/HR. = SCFM x .6330)

(#/HR. = SCFM x 2.9202)



INLINE SAFETY-RELIEF VALVE CAPACITY CHARTS

MODEL 3800 PLASTIC SEATS ONLY

BASED ON AIR SERVICE @ 70°F
AND 10% OVERPRESSURE

NOTE: THIS SCFM CHART IS FOR THE MODIFIED DISC GUIDE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS
	MS33649-8 x MS33649-8
HOLES SIZES IN DISC GUIDE .160	ORIFICE DIAMETER
	.250
100	83
200	165
300	225
400	330
500	412
600	494
700	577
800	659
900	741
1000	824
1500	1236
2000	1648
2500	2060
3000	2472
3500	2884
4000	3296
4000	3501



INLINE SAFETY-RELIEF VALVE CAPACITY CHARTS

MODEL 3800
PLASTIC SEATS ONLY

BASED ON AIR SERVICE @ 70°F
AND 10% OVERPRESSURE

NOTE: THIS SCFM CHART IS FOR THE MODIFIED DISC GUIDE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	MS33649-8 x MS33649-8		
HOLES SIZES IN DISC GUIDE .160	ORIFICE DIAMETER		
	.156		
(PSIG)	SCFM	(PSIG)	SCFM
100	35	4500	1574
200	70	5000	1749
300	105	5500	1924
400	140	6000	2099
500	175	6500	2274
600	210	7000	2449
700	245	7500	2624
800	280	8000	2798
900	315	8500	2973
1000	350	9000	3148
1500	525	9500	3323
2000	700	10000	3498
2500	875		
3000	1050		
3500	1224		
4000	1399		



SAFETY-RELIEF VALVE

MODEL 4000*- 4200*

CAPACITY CHART

PLASTIC SEATS ONLY

*ASME

UV CODED

NATIONAL BOARDED

* ASME UV CODED PER SEC. VIII DIV. I

AIR

(MOL. WT. = 28.97)

SCFM (60°F - 14,7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	1/2 x 3/4	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)		
	.312*	.437*	.500
50	24	86	88
75	33	121	123
100	42	155	157
150	61	223	226
175	70	257	261
200	80	291	296
250	98	359	365
300	117	427	434
350	136	496	504
400	155	564	573
450	173	632	642
500	192	700	712
550	211	768	781
600	229	837	850
650	248	906	919
700	267	973	989
750	285	1041	1058
800	304	1109	1127
850	323	1178	1197
900	342	1246	1266
950	360	1314	1335
1000	379	1382	1405
1200	454	1655	1682
1400	529	1928	1959
1600	603	2201	2236
1800	678	2473	2513
2000	753	2746	2791
2200	828	3019	
2400	903	3292	
2600	977	3565	
2800	1052	3837	
3000	1127	4110	
3500	1314	4792	
4000	1501		
4200	1576		
4400	1651		
4600	1725		
4800	1800		
5000	1875		
5200	1950		
5400	2025		
5600	2099		
5800	2174		
6000	2249		
6100	2286		
6200	2323		
6300	2361		
6400	2398		
6500	2436		

(#/HR. = SCFM x 4.596)

HYDROGEN

(MOL. WT. = 2.02)

SCFM (60°F - 14,7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	1/2 x 3/4	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)		
	.312*	.437*	.500
50	90	329	334
75	126	458	466
100	161	588	598
150	232	847	861
175	268	977	993
200	304	1107	1125
250	375	1366	1388
300	446	1626	1653
350	517	1885	1915
400	588	2144	2179
450	659	2404	2442
500	730	2663	2706
550	801	2992	2970
600	872	3182	3233
650	944	3441	3497
700	1015	3700	3760
750	1086	3960	4024
800	1157	4219	4287
850	1228	4479	4551
900	1299	4738	4814
950	1370	4997	5078
1000	1441	5257	5341
1200	1726	6294	6396
1400	2010	7332	7450
1600	2295	8369	8504
1800	2579	9406	9558
2000	2864	10444	10612
2200	3148	11481	
2400	3433	12519	
2600	3717	13556	
2800	4002	14594	
3000	4286	15631	
3500	4997	18225	
4000	5708		
4200	5993		
4400	6277		
4600	6562		
4800	6846		
5000	7131		
5200	7415		
5400	7700		
5600	7984		
5800	8269		
6000	8553		

(#/HR. = SCFM x .3189)



SAFETY-RELIEF VALVE

MODEL 4000*- 4200* CAPACITY CHART

PLASTIC SEATS ONLY

*ASME
UV CODED
NATIONAL BOARDED

* ASME UV CODED PER SEC. VIII DIV. I

HELIUM
(MOL. WT. = 4.0)
SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	1/2 x 3/4	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)		
	.312*	.437*	.500
50	64	233	237
75	89	325	330
100	114	416	423
150	165	600	610
175	190	692	703
200	215	784	796
250	265	967	983
300	316	1151	1170
350	366	1335	1356
400	416	1518	1543
450	467	1702	1730
500	517	1886	1916
550	567	2069	2103
600	618	2253	2289
650	668	2437	2476
700	719	2620	2663
750	769	2804	2849
800	819	2988	3036
850	870	3171	3223
900	920	3355	3409
950	970	3539	3596
1000	1021	3722	3782
1200	1222	4457	4529
1400	1425	5192	5275
1600	1625	5926	6022
1800	1826	6661	6768
2000	2028	7396	7515
2200	2229	8130	
2400	2431	8865	
2600	2632	9600	
2800	2834	10334	
3000	3035	11069	
3500	3539	12906	
4000	4042		
4200	4244		
4400	4445		
4600	4647		
4800	4848		
5000	5049		
5200	5251		
5400	5452		
5600	5654		
5800	5855		
6000	6057		

(#/HR. = SCFM x 0.6330)

NATURAL GAS
(MOL. WT. = 19.0)
SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	1/2 x 3/4	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)		
	.312*	.437*	.500
50	29	107	109
75	41	149	151
100	52	191	194
150	76	276	280
175	87	318	323
200	99	360	366
250	122	444	451
300	145	529	537
350	168	613	623
400	191	697	708
450	214	782	794
500	237	866	880
550	261	950	966
600	284	1035	1051
650	307	1119	1137
700	330	1203	1223
750	353	1288	1308
800	376	1372	1394
850	399	1456	1480
900	422	1541	1565
950	446	1625	1651
1000	469	1709	1737
1200	561	2046	2079
1400	654	2384	2422
1600	746	2721	2765
1800	839	3058	3098
2000	931	3396	3451
2200	1024	3733	
2400	1116	4070	
2600	1209	4408	
2800	1301	4745	
3000	1394	5082	
3500	1625	5926	
4000	1856		
4200	1949		
4400	2041		
4600	2134		
4800	2226		
5000	2318		
5200	2411		
5400	2503		
5600	2596		
5800	2688		
6000	2781		

(#/HR. = SCFM x 2.9202)



SAFETY-RELIEF VALVE

MODEL 4400 -A4400 - B4400

CAPACITY CHART

AIR

PLASTIC SEATS ONLY

HYDROGEN

(MOL. WT. = 28.97)

(MOL. WT. = 2.02)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS			
	1/2x1/2	1/2x3/4	1/2x3/4	3/4x1
	ORIFICE DIAMETER (IN.)			
	.312	.312	.437	.500
50	27	35	50	88
100	49	62	89	157
150	70	90	128	226
200	92	117	167	296
300	134	172	245	434
400	177	227	323	573
500	220	282	402	712
600	263	337	480	850
700	306	392	558	989
800	349	447	636	1127
900	392	502	714	1266
1000	435	557	793	1405
1250	542	695	998	1751
1500	649	832	1184	2098
2000	864	1107	1575	2791
2250	971	1245	1770	
2500	1078	1382	1966	
2750	1186	1520	2161	
3000	1293	1657	2357	
3250	1400	1795	2553	
3500	1507	1932	2748	
3750	1615	2070	2943	
4000	1722	2207	3139	
4500	1936	2482	3530	
5000	2151	2757	3921	
5500	2365	3032	4312	
6000	2579	3307	4703	
6500	2794	3582		
7000	3009	3857		
7500	3223	4132		
8000	3438	4407		
9000	3867	4957		
10000		5507		
12000		6607		

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS			
	1/2x1/2	1/2x3/4	1/2x3/4	3/4x1
	ORIFICE DIAMETER (IN.)			
	.312	.312	.437	.500
50	103	133	189	334
100	185	237	337	598
150	267	342	486	861
200	348	446	635	1125
300	511	655	932	1652
400	674	865	1230	2179
500	838	1074	1527	2706
600	1001	1283	1824	3233
700	1164	1492	2122	3760
800	1327	1701	2419	4287
900	1490	1910	2717	4814
1000	1653	2120	3014	5341
1250	2061	2643	3758	6659
1500	2469	3165	4501	7977
2000	3285	4211	5988	10612
2250	3693	4740	6741	
2500	4101	5257	7476	
2750	4508	5780	8219	
3000	4916	6303	8963	
3250	5324	6826	9706	
3500	5732	7349	10450	
3750	6140	7872	11194	
4000	6548	8395	11937	
4500	7364	9440	13424	
5000	8179	10486	14911	
5500	8995	11532	16399	
6000	9811	12578	17886	
6500	10627	13624		
7000	11442	14670		
7500	12258	15715		
8000	13074	16761		
9000	14705	18853		
10000		20945		
12000		25128		

(#/HR. = SCFM x 4.596)

(#/HR. = SCFM x .3189)



SAFETY-RELIEF VALVE

MODEL 4400 -A4400 - B4400

CAPACITY CHART

PLASTIC SEATS ONLY

HELIUM

(MOL. WT. = 4.0)

NATURAL GAS

(MOL. WT. = 19)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS			
	1/2x1/2	1/2x3/4	1/2x3/4	3/4x1
	ORIFICE DIAMETER (IN.)			
	.312	.312	.437	.500
50	73	94	134	237
100	131	168	239	423
150	189	242	344	610
200	247	316	449	796
300	362	464	660	1170
400	478	612	871	1543
500	593	760	1081	1916
600	709	909	1292	2289
700	824	1057	1503	2663
800	940	1205	1713	3036
900	1055	1353	1924	3409
1000	1171	1501	2134	3782
1250	1460	1871	2661	4716
1500	1748	2242	3187	5649
2000	2326	2982	4241	7515
2250	2615	3352	4767	
2500	2904	3723	5294	
2750	3193	4093	5820	
3000	3481	4463	6347	
3250	3770	4834	6873	
3500	4059	5204	7400	
3750	4348	5574	7926	
4000	4637	5944	8453	
4500	5214	6685	9506	
5000	5792	7426	10559	
5500	6370	8166	11612	
6000	6947	8907	12665	
6500	7525	9647		
7000	8103	10388		
7500	8680	11128		
8000	9258	11869		
9000	10413	13350		
10000		14831		
12000		17794		

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS			
	1/2x1/2	1/2x3/4	1/2x3/4	3/4x1
	ORIFICE DIAMETER (IN.)			
	.312	.312	.437	.500
50	34	43	61	109
100	60	77	110	194
150	87	111	158	280
200	113	145	206	366
300	166	213	303	537
400	219	281	400	708
500	272	349	497	880
600	325	417	593	1051
700	378	485	690	1223
800	432	553	787	1394
900	485	621	883	1565
1000	538	689	980	1737
1250	670	859	1222	2165
1500	803	1029	1464	2594
2000	1068	1369	1947	3451
2250	1201	1539	2189	
2500	1333	1709	2431	
2750	1466	1879	2672	
3000	1599	2049	2914	
3250	1731	2219	3156	
3500	1864	2389	3398	
3750	1996	2559	3639	
4000	2129	2729	3881	
4500	2394	3069	4365	
5000	2659	3410	4848	
5500	2925	3750	5332	
6000	3190	4090	5815	
6500	3455	4430		
7000	3720	4770		
7500	3986	5110		
8000	4251	5450		
9000	4781	6130		
10000		6810		
12000		8170		

(#/HR. = SCFM x 0.6330)

(#/HR. = SCFM x 2.9202)



SAFETY-RELIEF VALVE

MODEL 4700 - 4800 - 4900

CAPACITY CHART

PLASTIC SEATS ONLY

AIR

(MOL. WT. = 28.97)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

HYDROGEN

(MOL. WT. = 2.02)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)	
	.375	.500
50	113	198
75	158	276
100	202	354
150	291	510
200	370	666
250	469	822
300	558	978
350	648	1134
400	737	1290
450	826	1446
500	915	1602
550	1004	1758
600	1093	1913
650	1182	2069
700	1271	2225
750	1360	2381
800	1449	2537
850	1539	2693
900	1628	2849
950	1717	3005
1000	1806	3161
1200	2162	3785
1400	2519	4409
1600	2875	5033
1800	3231	5657
2000	3588	6281
2200	3944	6905
2400	4301	7529
2500	4479	7841
2600	4657	
2800	5013	
3000	5370	
3200	5726	
3400	6083	
3600	6439	
3800	6795	
4000	7152	
4200	7508	
4400	7865	
4600	8221	
4800	8577	
5000	8934	

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)	
	.375	.500
50	429	752
75	599	1048
100	768	1345
150	1107	1938
200	1446	2531
250	1785	3125
300	2124	3718
350	2463	4311
400	2801	4904
450	3140	5497
500	3479	6091
550	3818	6684
600	4157	7277
650	4496	7870
700	4834	8463
750	5173	9056
800	5512	9651
850	5851	10243
900	6190	10836
950	6529	11429
1000	6868	12022
1200	8223	14395
1400	9578	16768
1600	10934	19141
1800	12289	21514
2000	13645	23886
2200	15000	26259
2400	16355	28632
2500	17033	29818
2600	17711	
2800	19066	
3000	20421	
3200	21777	
3400	23132	
3600	24488	
3800	25843	
4000	27198	
4200	28554	
4400	29909	
4600	31265	
4800	32620	
5000	33975	

(#/HR. = SCFM x 4.596)

(#/HR. = SCFM x .3189)



SAFETY-RELIEF VALVE

MODEL 4700 - 4800 - 4900

CAPACITY CHART

PLASTIC SEATS ONLY

HELIUM

(MOL. WT. = 4.0)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

NATURAL GAS

(MOL. WT. = 19)

SCFM (60°F - 14.7 PSIA) 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)	
	.375	.500
50	304	532
75	422	742
100	544	952
150	784	1372
200	1024	1793
250	1264	2213
300	1504	2633
350	1744	3053
400	1984	3473
450	2224	3893
500	2464	4313
550	2704	4733
600	2944	5153
650	3183	5573
700	3423	5993
750	3663	6413
800	3903	6833
850	4143	7253
900	4383	7673
950	4623	8093
1000	4863	8513
1200	5823	10194
1400	6783	11874
1600	7742	13554
1800	8702	15234
2000	9662	16914
2200	10622	18595
2400	11582	20275
2500	12061	21115
2600	12541	
2800	13501	
3000	14461	
3200	15421	
3400	16381	
3600	17340	
3800	18300	
4000	19260	
4200	20220	
4400	21179	
4600	22139	
4800	23099	
5000	24059	

(#/HR. = SCFM x 0.6330)

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	3/4 x 1	1 x 1-1/4
	ORIFICE DIAMETER (IN.)	
	.375	.500
50	140	244
75	195	341
100	250	437
150	360	630
200	470	823
250	580	1016
300	691	1209
350	801	1402
400	911	1595
450	1021	1787
500	1131	1980
550	1241	2173
600	1352	2366
650	1462	2559
700	1572	2752
750	1682	2945
800	1792	3138
850	1902	3330
900	2013	3523
950	2123	3716
1000	2233	3909
1200	2674	4680
1400	3114	5452
1600	3555	6223
1800	3996	6995
2000	4436	7766
2200	4877	8538
2400	5318	9309
2500	5538	9695
2600	5758	
2800	6199	
3000	6640	
3200	7081	
3400	7521	
3600	7962	
3800	8403	
4000	8843	
4200	9284	
4400	9725	
4600	10165	
4800	10606	
5000	11047	

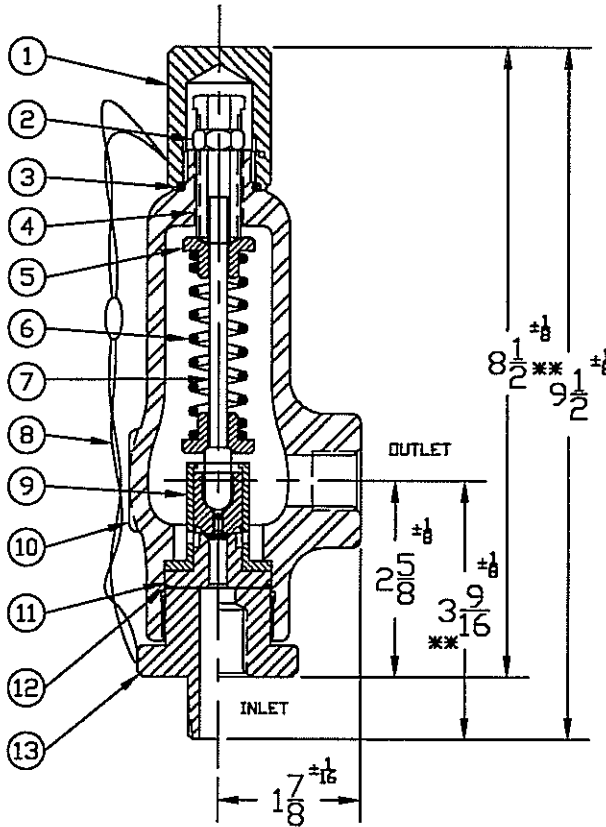
(#/HR. = SCFM x 2.9202)



SAFETY-RELIEF VALVE MODEL 1500 (SERIES 1513 & 1519)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE

**THESE DIMENSIONS ARE GOOD FOR
1" FNPT & MS33649-16 ALSO.



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187	1/4, 3/8, 1/2, 3/4, 1" FNPT	1/2, 3/4, 1" FNPT
	1/4, 3/8, 1/2, 3/4, 1" MNPT	MS33649-4, 6, 8, 12, 16
	MS33649-4, 6, 8, 10, 12, 16	
	MS33656-8, 10, 12, 16	
	1/4, 9/16, 1" M.P. AUTOCLAVE	
	1/4, 9/16, 1" H.P. AMINCO	
.375	GRAYLOC	GRAYLOC
	3/4, 1" FNPT	1" FNPT
	3/4, 1" MNPT	MS33649-16
	MS33649-12, 16 GRAYLOC	MS16142-16, 1" FLPT
	MS33656-12, 16 3/4, 1" AUTOCLAVE	GRAYLOC

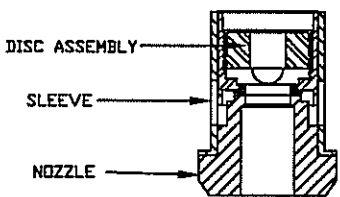
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1519	.187	PLASTIC ONLY	40 - 15,000
1513	.375	PLASTIC ONLY	40 - 3,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 15,000	VESPEL †

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SEE PAGE 72 & 73 FOR CAPACITY CHART



INNER VALVE UNIT

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 7#

‡ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

***IVU FOR .375
C/S OR 316 S/S CLASS HAS
303 S/S SLEEVE
316 S/S NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	LOCKNUT	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
4	PRESSURE SCREW	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING PLATES	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 17/7	ASTM A313, TYPE 17/7
7	SPRING POST	ASTM A479, TYPE 316	ASTM A582, TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT***	ASTM A479, TYPE 316	ASTM A479, TYPE 316
10	BONNET	ASME SA351, TYPE CF8M	ASME SA216, TYPE WCB
11	BODY SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	GASKET	TEFLON	TEFLON
13	BODY	ASME SA351, TYPE CF8M	ASME SA29, TYPE 1018



SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1523 & 1524)

FOR LIQUID SERVICE

AT 10% OVERPRESSURE

THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1, 1 1/4, 1 1/2 MNPT	1, 1 1/4, 1 1/2 FNPT
	3/4, 1, 1 1/4, 1 1/2 FNPT	MS33649-16,20,24
	MS33649-12,16,20,24 GRAYLOC	GRAYLOC
	MS33656-12,16,24	
	3/4, 1" AUTOCLAVE	
.500	1, 1 1/4, 1 1/2 MNPT	1, 1 1/2 FNPT
	1, 1 1/4, 1 1/2 FNPT	MS33649-16,24
	MS33649-16,20,24 GRAYLOC	GRAYLOC
	MS33656-16,24	
	1" AUTOCLAVE	

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1523	.375	PLASTIC ONLY	40 - 3,500
1524	.500	PLASTIC ONLY	40 - 3,500

SEE PAGE 72 FOR CAPACITY CHART

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

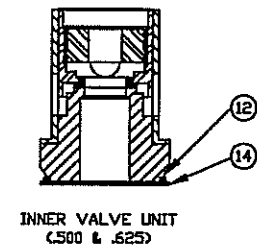
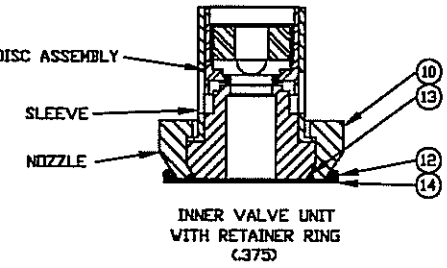
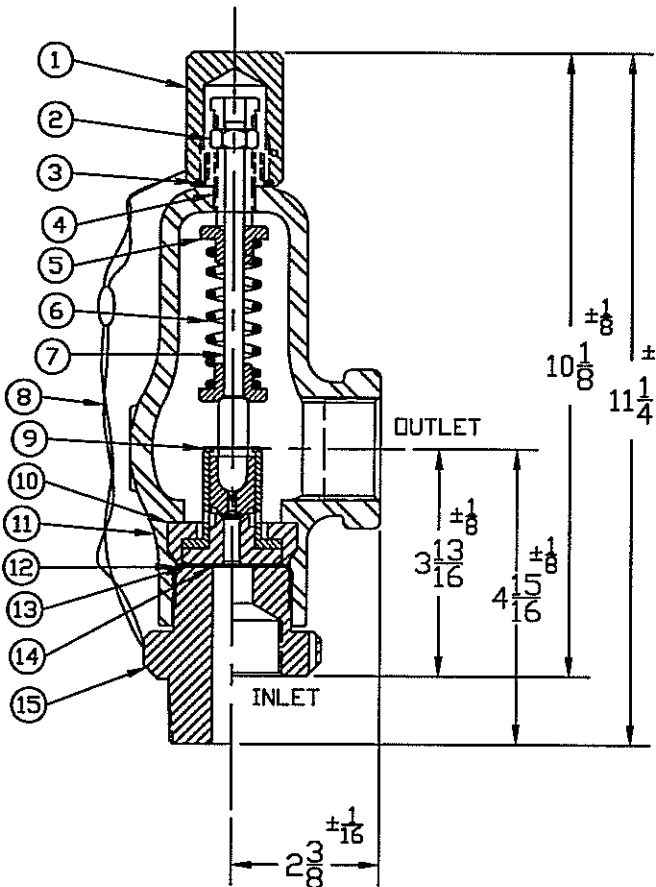
† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

† USE RETAINER & RETAINER SEAL FOR THIS INNER VALVE UNIT ONLY.

† OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

***IVU FOR .375 OR 316 S/S CLASS HAS 303 S/S SLEEVE 316 S/S NOZZLE

WEIGHT IS APPROX. 12#



ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT***	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CFBM	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASME SA29,TYPE 1018

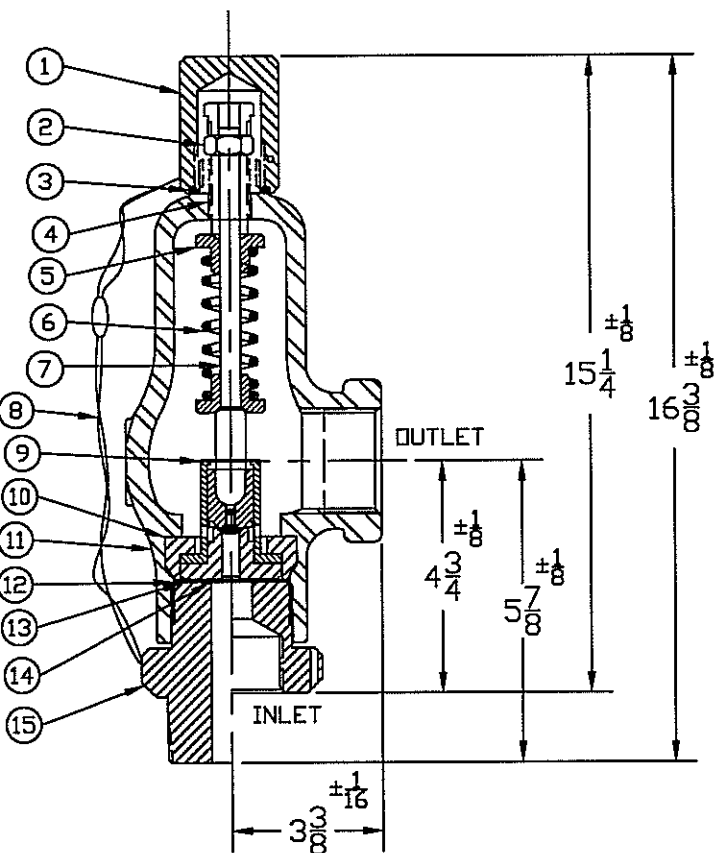


SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1534 & 1536)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.500	1, 1½, 1¾, 2 MNPT OR FNPT	1½, 2, 2½ FNPT
	MS33649-16,20,24,28,32	MS33649-24,32
	MS33656-16,20,24,32 GR	GRAYLOC
.800	1¾, 1½, 2 MNPT OR FNPT	2, 2½ FNPT
	MS33649-20,24,28,32	MS33649-24,32
	MS33656-24,32 GRAYLOC	GRAYLOC

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1534	.500	PLASTIC ONLY	40 - 3,500
1536	.800	PLASTIC ONLY	40 - 3,500

SEE PAGE 72 FOR CAPACITY CHART

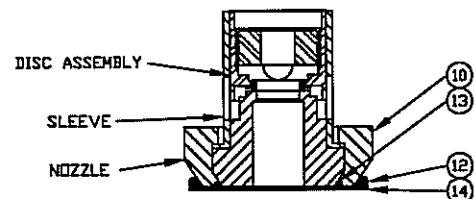
SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

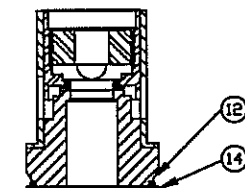
WEIGHT IS APPROX. 30#

‡ OTHER SPRING MATERIALS AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER SEAL FOR THESE INNER VALVE UNITS ONLY.



INNER VALVE UNIT WITH RETAINER RING (.500 & .625)



INNER VALVE UNIT (.800 & 1.000)

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASTM B584,ALLOY 875	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018

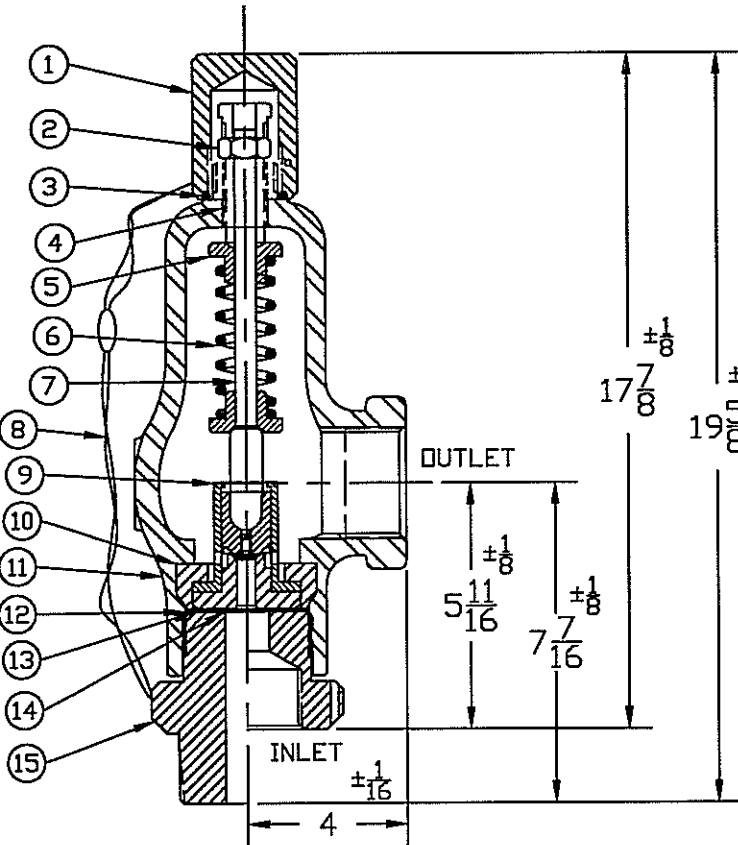


SAFETY-RELIEF VALVE

MODEL 1500

(SERIES 1546 & 1548)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.800 & 1.281	2, 2½, 3" FNPT	2½, 3" FNPT
	2, 2½, 3" MNPT	
	MS33656-24,32	

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1546	.800	PLASTIC ONLY	40 - 3,500
1548	1.281	PLASTIC ONLY	40 - 1,100

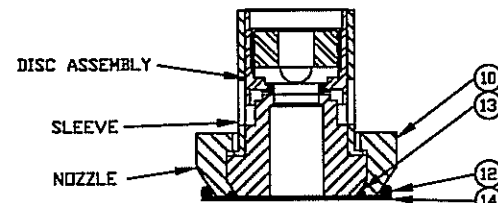
SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

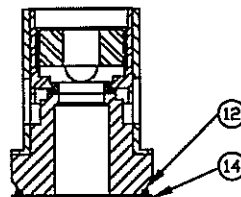
† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

† USE RETAINER & RETAINER
SEAL FOR THESE INNER
VALVE UNITS ONLY.

‡ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F



INNER VALVE UNIT
WITH RETAINER RING
(.800 & 1.000)



INNER VALVE UNIT
(1.281)

WEIGHT IS APPROX. 45#

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BONNET	ASME SA351,TYPE CF8M	ASTM B584,ALLOY 875	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	GASKET	TEFLON	TEFLON	TEFLON
15	BODY	ASTM A479,TYPE 316	ASTM B16	ASME SA29,TYPE 1018

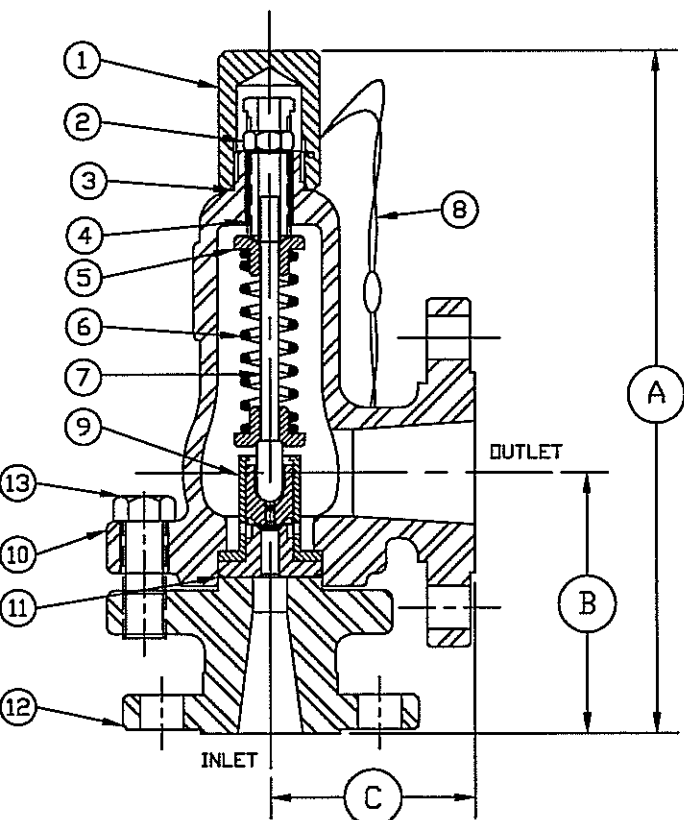


SAFETY-RELIEF VALVE

MODEL 1600

SERIES 1613

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/16
.375	1-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1-300 x 1½-150	9-5/8	3-5/8	2-15/16
	1-600 x 1½-150	9-7/8	3-7/8	2-15/16
	1-900 x 1½-300	10-13/16	4-7/8	3-5/8
	1-1500 x 1½-300	10-13/16	4-7/8	3-5/8
	1-2500 x 1½-300	11-1/16	5-1/8	3-5/8
	1½-150 x 1½-150	9-5/8	3-5/8	2-15/16
	1½-150 x 2-150	9-5/8	3-5/8	3-5/8
	1-150 x 2-150	9-5/8	3-5/8	3-5/8
1-1500 x 1½-1500				

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

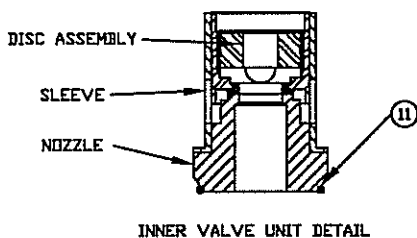
SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1613	.375	PLASTIC ONLY	40 - 3,500

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SEE PAGE 72 FOR CAPACITY CHART

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON ¶
3,000 - 3,500	KEL-F ¶



¶ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 20#
DEPENDING ON FLANGE SIZE

***IVU FOR .375
C/S OR 316 S/S CLASS IS
303 S/S SLEEVE
316 S/S NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	BONNET	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME SA351,TYPE CF8M	ASME SA216,TYPE WCB
13	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7

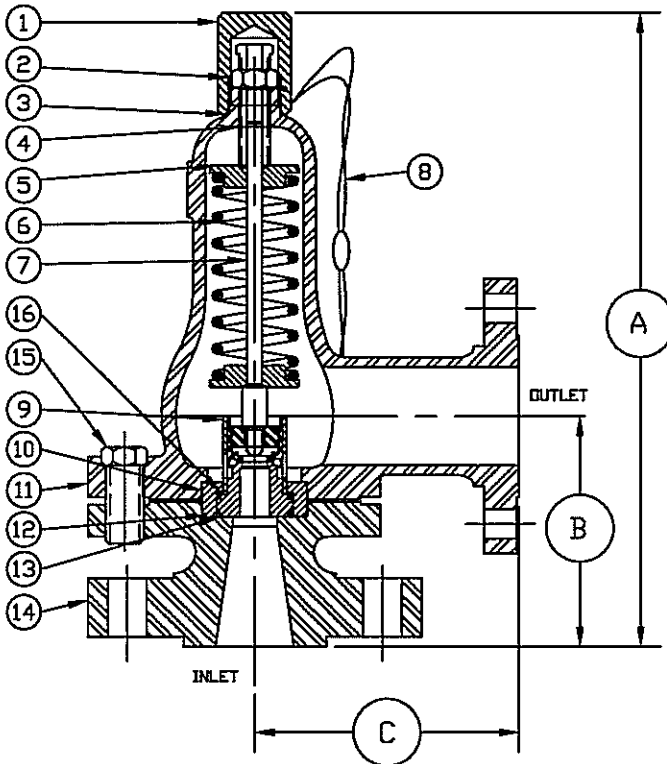


SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1623 & 1624)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.375 & .500	1-150	2-150 OR 2½-150	11-1/16	4-7/8	6
	1-300		11-1/16	4-7/8	6
	1-600		11-1/16	4-7/8	6
	1½-150		11-1/16	4-7/8	6
	1½-300		11-1/16	4-7/8	6
	1½-600		11-1/16	4-7/8	6
	1½-900	2-300	11-1/16	4-7/8	6
	1½-1500	OR	11-1/16	4-7/8	6
	1½-2500	2½-300	11-3/4	5-1/2	6
	2-150	2-150	11-1/16	4-7/8	6
	2-300	OR	11-1/16	4-7/8	6
	2-600	2½-150	11-1/16	4-7/8	6

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

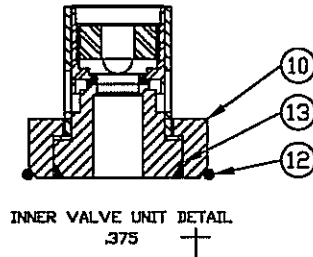
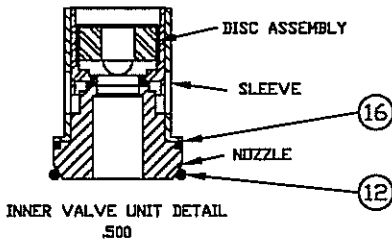
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1623	.375	PLASTIC ONLY	40 - 3,500
1624	.500	PLASTIC ONLY	40 - 3,500

SEE PAGE 72 FOR CAPACITY CHART

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON ¶
3,000 - 3,500	KEL-F ¶



¶ TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 35#
DEPENDING ON FLANGE SIZE

† .250 & .375 ORIFICE HAS
303 S/S SLEEVE,
316 S/S/ NOZZLE

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

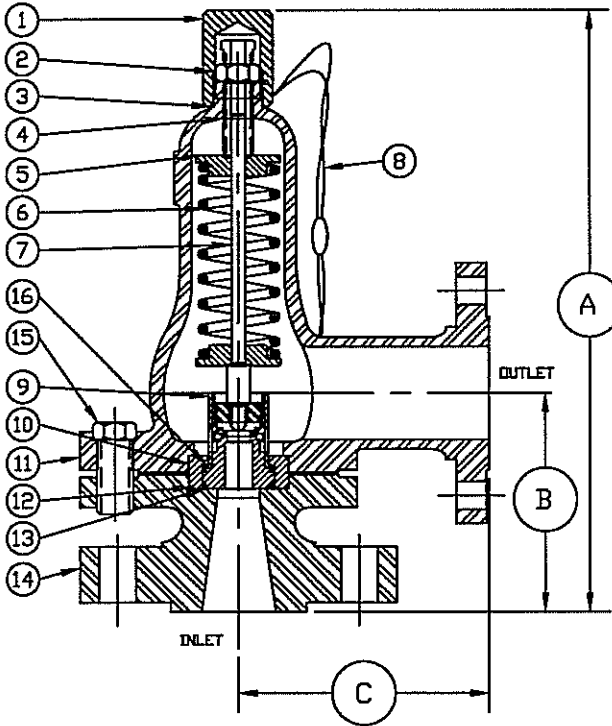


SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1634 & 1636)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/8	
.500	1½-150	2½-150,	16-5/8	6-1/8	6-3/4	
	1½-300		16-5/8	6-1/8	6-3/4	
	1½-600		16-5/8	6-1/8	6-3/4	
	.800	1½-900	2½-300,	16-5/8	6-1/8	6-3/4
		1½-1500	2-150,	16-5/8	6-1/8	6-3/4
		2-150	3-150,	16-5/8	6-1/8	6-3/4
2-300		OR	16-5/8	6-1/8	6-3/4	
2-600			16-5/8	6-1/8	6-3/4	
2-900			16-5/8	6-1/8	6-3/4	
.800	2-1500	3-300	16-5/8	6-1/8	6-3/4	
	2-2500		17-3/16	6-11/16	6-3/4	
	3-150		16-5/8	6-1/8	6-3/4	

FOR R.T.J. DIMENSIONS, CONSULT FACTORY

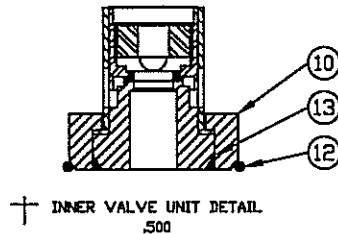
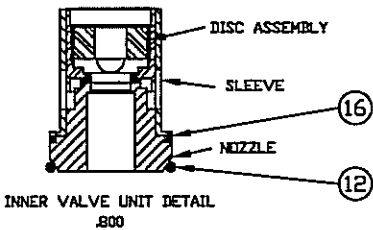
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1634	.500	PLASTIC ONLY	40 - 3,500
1636	.800	PLASTIC ONLY	40 - 3,500

SEE PAGE 72 FOR CAPACITY CHART

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †



† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 60#
DEPENDING ON FLANGE SIZE

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE
9	INNER VALVE UNIT	303 S/S 316 S/S	303 S/S 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

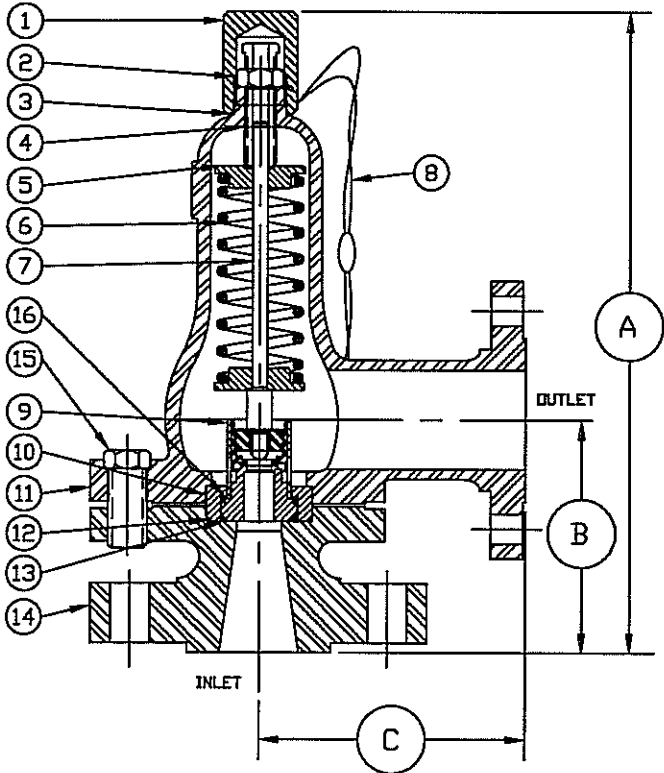


SAFETY-RELIEF VALVE

MODEL 1600

(SERIES 1646 & 1648)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



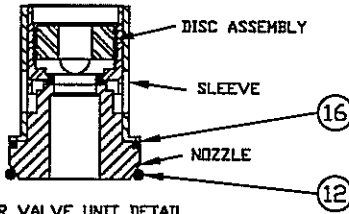
R.F. FLANGE DIMENSIONS

ORIFICE SIZE	INLET	OUTLET	A ±1/8	B ±1/8	C ±1/16
.800 & 1.281	3-150	4-150	19-3/8	7-1/4	7-1/8
	3-300		19-3/8	7-1/4	7-1/8
	3-600		19-3/8	7-1/4	7-1/8
	3-900		19-3/8	7-1/4	7-1/8
	4-150		19-3/8	7-1/4	7-1/8

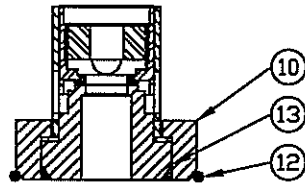
FOR R.T.J. DIMENSIONS, CONSULT FACTORY

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1646	.800	PLASTIC ONLY	40 - 2,220
1648	1.281	PLASTIC ONLY	40 - 1,100

§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.



INNER VALVE UNIT DETAIL
1.281 & 1.750



INNER VALVE UNIT DETAIL
.800 & 1.000

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 2,000	TEFLON †

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 95#
DEPENDING ON FLANGE SIZE

† USE RETAINER RING FOR
THESE INNER VALVE UNITS
ONLY.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/77	ASTM A313,TYPE 17/77
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/S WIRE
9	INNER VALVE UNIT	303 S/S ; 316 S/S	303 S/S ; 316 S/S
10	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
12	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	RETAINER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
14	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
15	BOLTS (3 REQUIRED)	ASTM A479,TYPE 316	B7
16	B.P. SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON



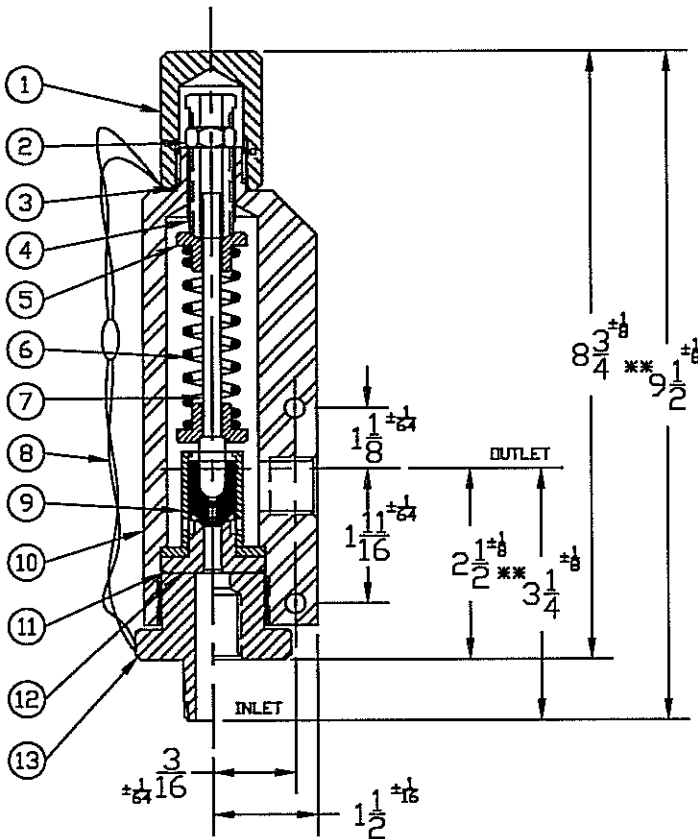
SAFETY-RELIEF VALVE

MODEL 1700

(SERIES 1713 & 1719)

**THESE DIMENSIONS ARE GOOD FOR
1" FNPT & MS33649-16 ALSO.

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS

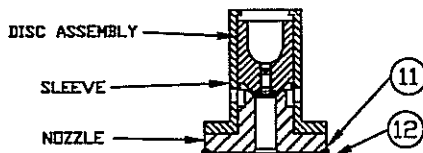
ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2,3/4,1" FNPT	1/2,3/4,1" FNPT
	1/4,3/8,1/2,3/4,1" MNPT	MS33649-4,6,8,12,16
	MS33649-4,6,8,10,12,16	
	MS33656-8,10,12,16	
	1/4,3/8,9/16,3/4,1" AUTOCLAVE	
.375	1/4,9/16 HP AMINCO GRAYLOC	GRAYLOC
	3/4,1" FNPT AUTOCLAVE	1" FNPT AUTOCLAVE
	3/4, 1" MNPT	MS33649-16
	MS33649-12,16	
	MS33656-12,16	

SEE PAGE 72 & 73 FOR CAPACITY CHART
§ SEE PAGE 89 & 90 FOR PART NUMBERING SYSTEM.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
1719	.187	PLASTIC ONLY	40 - 15,000
1713	.375	PLASTIC ONLY	40 - 3,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
40 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †



INNER VALVE UNIT
UP TO 9,999 PSIG

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

† OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

***IVU FOR .375
C/S OR 316 S/S CLASS HAS
303 S/S SLEEVE
316 S/S NOZZLE

WEIGHT IS APPROX. 9#

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING PLATES	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 17/7	ASTM A313,TYPE 17/7
7	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SEAL & WIRE	LEAD SEAL,S/S WIRE	LEAD SEAL,S/S WIRE
9	INNER VALVE UNIT***	ASTM A479,TYPE 316	ASTM A479,TYPE 316
10	BONNET	ASTM A479,TYPE 316	ASME SA29,TYPE 1018
11	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	GASKET	TEFLON	TEFLON
13	BODY	ASTM A479,TYPE 316	ASME SA29,TYPE 1018



SAFETY-RELIEF VALVE

MODEL 3900

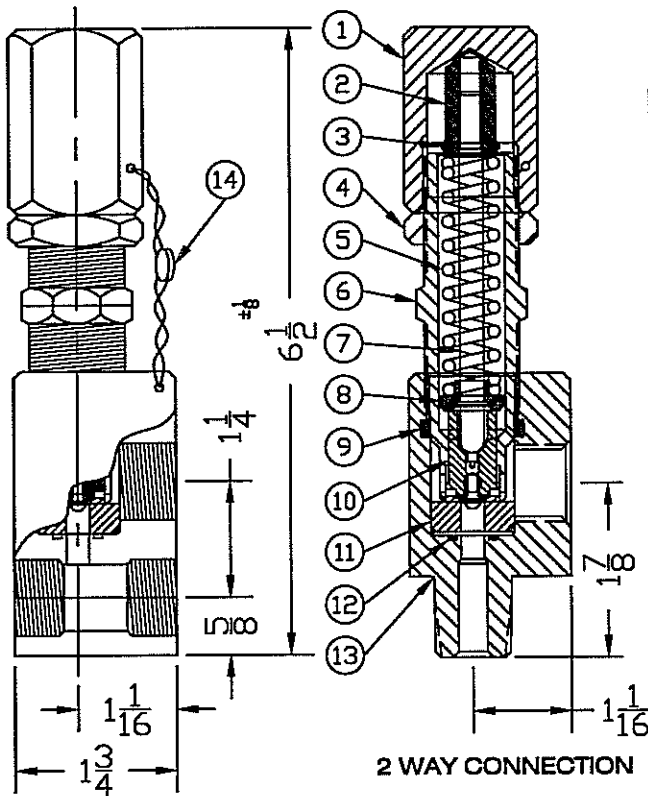
(SERIES 391 & 392)

LIQUID SERVICE

*ASME (140°F MAX.)
UV CODED

NATIONAL BOARDED

*ASME UV CODED PER SEC. VIII DIV. I
.250 DRIFICE 1/2 X 1/2 CONNECTIONS ONLY



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.187	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	MS33649-4,6,8	3/8 SOCKET WELD
	MS33656-6,8	
	1/4 AUTOCLAVE OR AMINCO	
.250	1/4,3/8,1/2,3/4 MNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 FNPT	MS33649-4,6,8
	3/8,1/2 SOCKET WELD	3/8 SOCKET WELD
	MS33649-4,6,8	
	MS33656-6,8	
	9/16 AUTOCLAVE	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	MAX. SET PRESSURE
391**	.187	PLASTIC/METAL	6,750
392*	.250	PLASTIC ONLY	*2,000 / 6,000

** .187 DRIFICE AT 25% OVERPRESSURE

* .250 DRIFICE AT 10% OVERPRESSURE

SUGGESTED SEAT MATERIAL

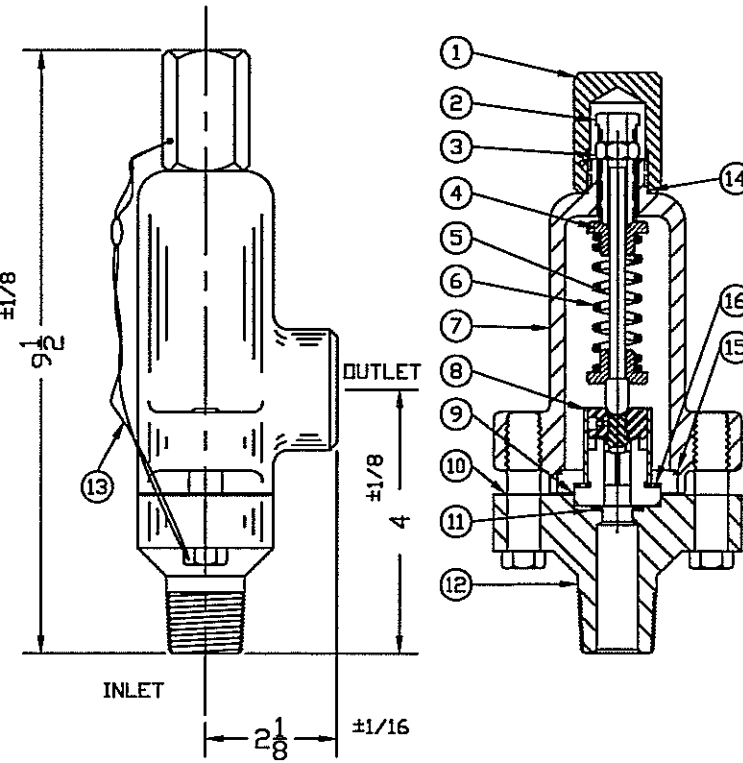
SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 5,000	KEL-F †
5,000 - 6,750	VESPEL †

ITEM NO.	PART NAME	303 S/S MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	SPRING PLUNGER	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	SPRING PLUNGER SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
4	LOCKNUT	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
6	BONNET	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
7	SPRING POST	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
8	SPRING PLATE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	BODY SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
10	DISC ASSEMBLY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
11	NOZZLE	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASTM A582,TYPE 303
12	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
13	BODY	ASTM A582,TYPE 303	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/S/S WIRE



SAFETY-RELIEF VALVE MODEL 4000 (SERIES 404 & 406)

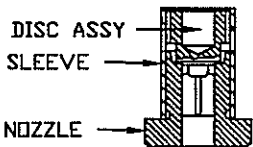
FOR LIQUID SERVICE
AT 25% OVERPRESSURE



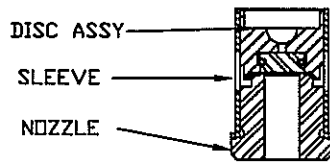
THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375 & .437	3/4, 1, 1 1/4, 1 1/2 MNPT	1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16, 24
	MS33649-12, 16	1 SOCKET WELD
	3/4, 1 SOCKET WELD	
	3/4-150&-300 RF	
.500	1 1/4, 1 1/2 MNPT	1 1/4, 1 1/2 FNPT
	1 FNPT	MS33649-16, 24
	MS33649-16	1 SOCKET WELD
	1 SOCKET WELD	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
404	.375	METAL ONLY	50 - 5,000
405	.437	METAL ONLY	50 - 3,500
406	.500	METAL ONLY	50 - 2,000



INNER VALVE UNIT DETAIL
.375 & .437



INNER VALVE UNIT DETAIL
.500

SEE PAGE 76 FOR CAPACITY CHARTS.
§SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM.

WEIGHT IS APPROX. 8#

† OTHER SPRING MATERIALS
UPON REQUEST.

ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
8	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
13	SEAL & WIRE	LEAD SEAL, COPPER WIRE	LEAD SEAL, S/S WIRE	LEAD SEAL, COPPER WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON

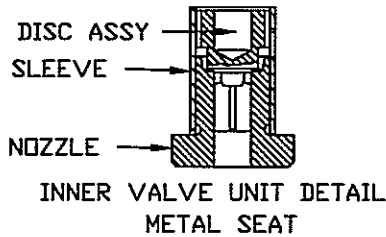
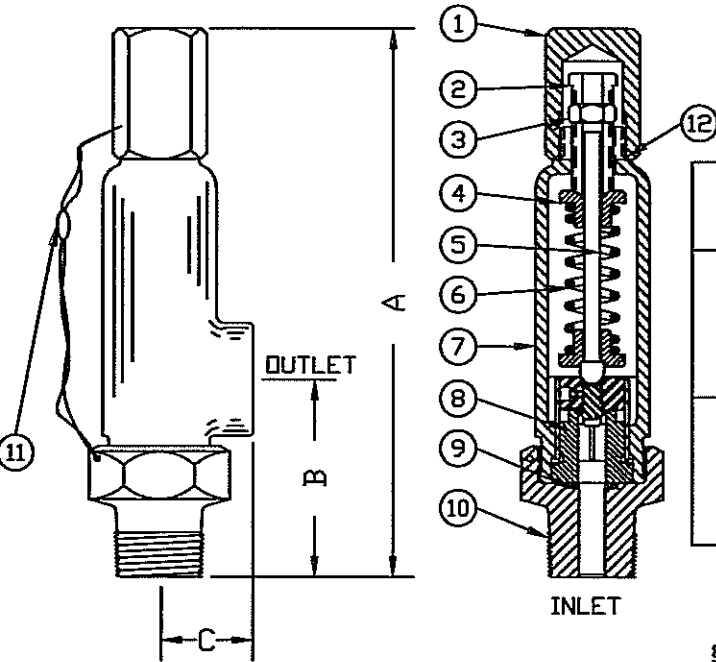


SAFETY-RELIEF VALVE

MODEL 4200

(SERIES 424 & 425)

FOR LIQUID SERVICE
AT 25% OVERPRESSURE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.375	1/2, 3/4, 1, 1 1/4, 1 1/2, 2 MNPT	3/4, 1, 2 FNPT
	1/2, 3/4, 1, 1 1/4, 1 1/2 FNPT	MS33649-12, 16
	MS33649-8, 10, 12, 16	
	MS33656-12	
.437	3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1, 2 FNPT
	3/4, 1, 1 1/4, 1 1/2 FNPT	**MS33649-16 CANT HAVE CONE ON MS33656-16 ADAPTER
	MS33649-8, 12, 16	
	MS33656-12	

**425 RELIEF VALVE WITH MS33649-16 OUTLET
MUST USE MS33656-16 WITH NO CONE

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM
SEE PAGE 76 FOR CAPACITY CHARTS.

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
424	.375	METAL ONLY	50 - 9,900
425	.437	METAL ONLY	50 - 3,650

BACK PRESSURE SEALS AVAILABLE UPON REQUEST
I.V.U. FOR .437 C/S CLASS IS 17-4 PHJ
303 S/S, 316 S/S.

† OTHER SPRING MATERIALS UPON REQUEST

DIMENSIONS	A ±1/8	B ±1/8	C ±1/16	APPROX WEIGHT
1 1/4, 1 1/2, 2' MNPT x 2' FNPT	9"	3-7/8"	2-1/8"	7#
ALL OTHERS	8-3/8"	3"	1-7/16"	4-1/2#

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
5	SPRING POST	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
6	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASME A351, TYPE CF8M	ASTM B584, ALLLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
9	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
10	BODY	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 1018
11	SEAL & WIRE	LEAD SEAL, S/S WIRE	LEAD SEAL, COPPER WIRE	LEAD SEAL, COPPER WIRE
12	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON

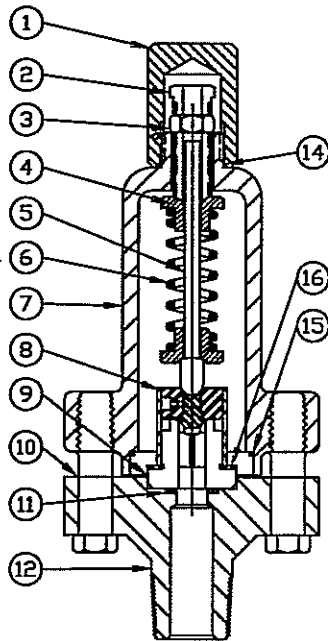
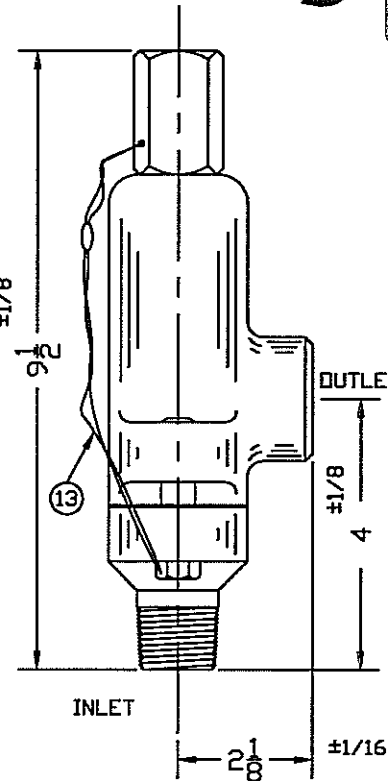


SAFETY-RELIEF VALVE

MODEL 4700

(SERIES 474 & 476)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS		
ORIFICE SIZE	INLET	OUTLET
.375	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4, 1 1/2 SDC WELD	
	3/4-150 & -300 RF	
.500	3/4, 1 1/4, 1 1/2 MNPT	3/4, 1 1/4, 1 1/2 FNPT
	3/4, 1 FNPT	MS33649-16
	MS33649-12, 16	3/4, 1 1/2 SDC WELD
	3/4-150 & -300 RF	

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
474	.375	PLASTIC ONLY	50 - 3,500
476	.500	PLASTIC ONLY	10 - 3,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
10 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

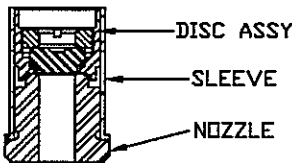
† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

SEE PAGE 72
FOR CAPACITY CHARTS

† OTHER SPRING MATERIALS
UPON REQUEST.

WEIGHT IS APPROX. 8#

§ SEE PAGE 91 & 92
FOR PART NUMBERING SYSTEM.



INNER VALVE UNIT DETAIL
PLASTIC SEAT

ITEM NO.	PART NAME	BRONZE MATERIAL CLASS	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
3	LOCKNUT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
4	SPRING PLATES (2)	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
5	SPRING POST	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
6	SPRING	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
8	INNER VALVE UNIT	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
9	RETAINER RING	ASTM A582, TYPE 303	ASTM A479, TYPE 316	ASTM A582, TYPE 303
10	BOLTS (2)	ASTM B16	ASTM A479, TYPE 316	ASME SA29, TYPE 12L14
11	NOZZLE SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
12	BODY	ASTM B584, ALLOY 875	ASME A351, TYPE CF8M	ASME SA216, TYPE WCB
13	SEAL & WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE
14	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
15	RETAINER RING SEAL	TEFLON	TEFLON	TEFLON
16	BACK PRESSURE SEAL	TEFLON	TEFLON	TEFLON



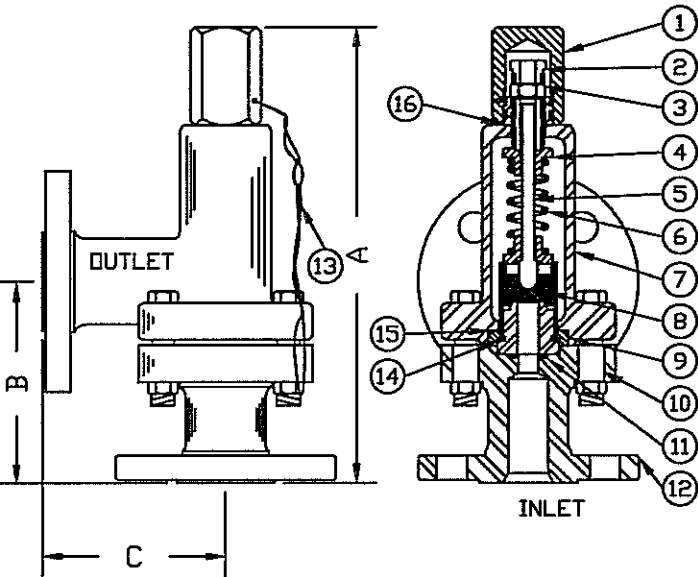
SAFETY-RELIEF VALVE

MODEL 4800

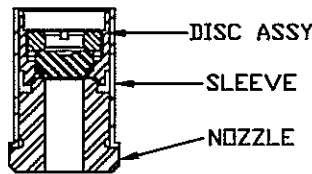
(SERIES 484 & 486)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE

R.F. FLANGE DIMENSIONS



ORIFICE SIZE	INLET & OUTLET	A ±1/8	B ±1/8	C ±1/8
.375	1/2-150 x 3/4-300	9	4-3/8	3-11/16
	3/4-150 x 1-150	9	4-3/8	3-11/16
	3/4-300 x 1-150	9	4-3/8	3-11/16
	3/4-600 x 1-150	9	4-3/8	3-11/16
	3/4-900 x 1-300	9	4-3/8	3-11/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
.500	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1-150 x 1½-150	9-9/16	4-7/16	4-3/16
	1-300 x 1½-150	9-9/16	4-7/16	4-3/16
	1-600 x 1½-300	9-9/16	4-7/16	4-3/16
	1-900 x 1½-300	9-9/16	4-7/16	4-3/16
	1½-150 x 2-150	9-9/16	4-7/16	4-3/16
	1½-300 x 2-150	9-9/16	4-7/16	4-3/16
	1½-600 x 2-300	9-9/16	4-7/16	4-3/16
1½-900 x 2-300	9-9/16	4-7/16	4-3/16	



INNER VALVE UNIT DETAIL
PLASTIC SEAT

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
484	.375	PLASTIC ONLY	50 - 3,500
486	.500	PLASTIC ONLY	50 - 3,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
2	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303
3	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
4	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303
5	SPRING POST	ASTM A479,TYPE 316	ASTM A582,TYPE 303
6	SPRING	ASTM A313,TYPE 316	ASTM A313,TYPE 316
7	BONNET	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
8	INNER VALVE UNIT	ASTM A479,TYPE 316	ASTM A582,TYPE 303
9	RETAINER RING	ASTM A479,TYPE 316	ASTM A582,TYPE 303
10	BOLTS (4)	ASTM A479,TYPE 316	ASME SA29,TYPE 12L14
11	NOZZLE SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
12	BODY	ASME A351,TYPE CF8M	ASME SA216,TYPE WCB
13	SEAL & WIRE	LEAD SEAL/S WIRE	LEAD SEAL/COPPER WIRE
14**	BACK PRESSURE SEAL	TEFLON OR METAL	TEFLON OR METAL
15**	RETAINER SEAL	TEFLON OR METAL	TEFLON OR METAL
16	HOOD SEAL	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON

† TEMPERATURE RANGE
TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

‡ OTHER SPRING MATERIALS
AVAILABLE UPON REQUEST.

WEIGHT IS APPROX. 15#

**AVAILABLE UPON REQUEST.

§ SEE PAGE 91 & 92 FOR
PART NUMBERING SYSTEM.

SEE PAGE 72
FOR CAPACITY CHARTS.

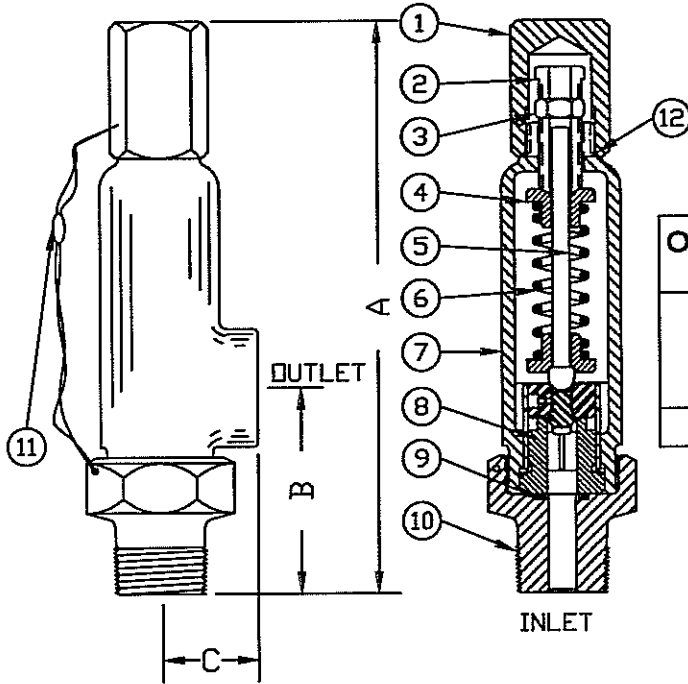


SAFETY-RELIEF VALVE

MODEL 4900

(SERIES 494 & 496)

FOR LIQUID SERVICE
AT 10% OVERPRESSURE



THREAD CONNECTIONS

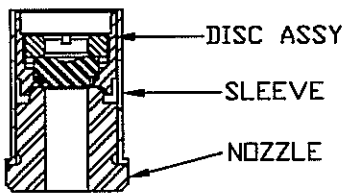
ORIFICE SIZE	INLET	OUTLET
.375	1/2, 3/4, 1, 1 1/4, 1 1/2, 2 MNPT	1/2, 3/4, 1', 2' FNPT
	1/2, 3/4, 1 FNPT	
	MS33649-12, 16	MS33649-16
.500	1 1/4, 1 1/2, 2 MNPT	2 FNPT

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE
494	.375	PLASTIC ONLY	50 - 3,500
496	.500	PLASTIC ONLY	50 - 3,500

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
50 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

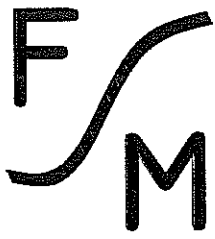


INNER VALVE UNIT DETAIL
PLASTIC SEAT

SEE PAGE 72 FOR CAPACITY CHARTS
‡ OTHER SPRING MATERIALS UPON REQUEST
§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM
BACK PRESSURE SEALS AVAILABLE UPON REQUEST

DIMENSIONS	A ±1/8	B ±1/8	C ±1/16	APPROX WEIGHT
1 1/4, 1 1/2, 2" MNPT x 2" FNPT	9"	3-7/8"	2-1/8"	7#
ALL OTHERS	8-3/8"	3"	1-7/16"	4-1/2#

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	CARBON STEEL MATERIAL CLASS
1	HOOD	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 12L14
2	PRESSURE SCREW	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
3	LOCKNUT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
4	SPRING PLATES (2)	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
5	SPRING POST	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
6	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
7	BONNET	ASME A351, TYPE CF8M	ASTM B584, ALLOY 875	ASTM A395
8	INNER VALVE UNIT	ASTM A479, TYPE 316	ASME A582, TYPE 303	ASME A582, TYPE 303
9	NOZZLE SEAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL	TEFLON, BUNA-N, METAL
10	BODY	ASTM A479, TYPE 316	ASTM B16	ASME SA29, TYPE 101B
11	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/COPPER WIRE
12	HOOD SEAL	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON



SAFETY-RELIEF VALVE

MODEL 1500-1600-1700
 -4700 - 4800 - 4900
 WATER CAPACITY CHART

PLASTIC SEATS

GPM AT 70°F AND 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	3/4 x 1	1 x 1-1/2
	ORIFICE DIAMETER (IN.)	
	.375	.500
50	19	38
100	27	54
150	33	66
200	39	76
250	43	85
300	47	93
350	51	100
400	55	108
450	58	114
500	61	120
600	67	132
700	72	143
800	77	152
900	82	161
1000	86	170
1100	90	179
1250	96	191
1500	106	209
1750	114	225
2000	122	240
2250	129	256
2500	136	269
2750	143	283
3000	149	295
3250	155	307
3500	161	318



SAFETY-RELIEF VALVE

WATER CAPACITY CHARTS

MODEL 1519 & 1719
PLASTIC SEATS ONLY

BASED ON WATER SERVICE @ 70°F
AND 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	9/16 x 3/4 MP AUTOCLAVE	
	ORIFICE DIAMETER (.187)	
500	.75	GPM
1000	2.125	
1500	3.25	
2000	4.25	
2500	5.3	
3000	6.4	
3500	7.5	
4000	8.6	
4500	9.7	
5000	10.8	
5500	11.9	
6000	13.0	
6500	14.1	
7000	15.2	
7500	16.3	
8000	17.4	
8500	18.5	
9000	19.6	
9500	20.7	
10000	21.8	

OBSOLETE 4/16/12



SAFETY-RELIEF VALVE

WATER CAPACITY CHARTS

MODEL 1519 & 1719
PLASTIC SEATS ONLY

BASED ON WATER SERVICE @ 70°F
AND 10% OVERPRESSURE

$$.611 (\text{FLOW FACTOR}) \times \sqrt{\text{S.P.} + 10\%} = \text{GPM}$$

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS	
	9/16 x 3/4 MP AUTOCLAVE	
	ORIFICE DIAMETER (.187)	
500	14.3	GPM
1000	20.3	
1500	24.8	
2000	28.7	
2500	32.0	
3000	35.1	
3500	37.9	
4000	40.5	
4500	43.0	
5000	45.3	



SAFETY-RELIEF VALVE

36026-2IX0

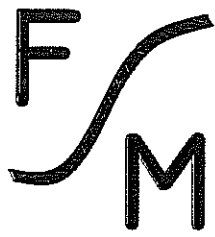
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WATER CAPACITY CHART

PLASTIC SEATS

SCFM AT 70°F AND 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS
	1/4 AUTOCLAVE X 1/8 FNPT
	ORIFICE DIAMETER (IN.)
	.156
100	.14 GPM
200	.19
300	.24
400	.27
500	.31
600	.33
700	.36
800	.39
900	.41
1000	.43
1500	.53
2000	.61
2500	.68
3000	.75
3500	.81
4000	.86
4500	.92
5000	.96
6000	1.06
7000	1.14
8000	1.22
9000	1.29
10000	1.36



SAFETY-RELIEF VALVE

MODEL 3900

WATER CAPACITY CHART

PLASTIC & METAL SEATS

GPM AT 70°F AND 25% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS
	1/4 × 3/8
	ORIFICE DIAMETER (IN.)
	.187
50	
75	
100	7
150	
200	10
250	
300	13
350	
400	15
450	
500	16
600	18
700	19
800	21
900	22
1000	23
1500	28
2000	33
2500	36
3000	40
3500	43
4000	46
5000	52
6000	58



SAFETY-RELIEF VALVE

MODEL 3900 WATER CAPACITY CHART

PLASTIC SEATS

***ASME
UV CODED
NATIONAL BOARDED**

* ASME UV CODED PER SEC. VIII DIV. I
LIQUID SERVICE (PLASTIC SEAT ONLY)

GPM AT 70°F AND 10% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	1/2 x 1/2	SET PRESSURE	1/2 x 1/2
	ORIFICE DIAMETER (IN.)		
	.250	PSIG	.250
75	7.2	550	19.6
80	7.5	600	20.5
85	7.7	650	21.3
90	7.9	700	22.1
95	8.1	750	22.9
100	8.4	800	23.6
110	8.8	850	24.4
120	9.2	900	25.1
130	9.5	950	25.8
140	9.9	1000	26.4
150	10.2	1050	27.1
160	10.6	1100	27.7
170	10.9	1150	28.3
180	11.2	1200	29.0
190	11.5	1250	29.6
200	11.8	1300	30.1
210	12.1	1350	30.7
220	12.4	1400	31.3
230	12.7	1450	31.8
240	13.0	1500	32.4
250	13.2	1550	32.9
275	13.9	1600	33.4
300	14.5	1650	34.0
325	15.1	1700	34.5
350	15.6	1750	35.0
375	16.2	1800	35.5
400	16.7	1850	36.0
425	17.2	1900	36.4
450	17.7	1950	36.9
475	18.2	2000	37.4
500	18.7		



SAFETY-RELIEF VALVE

MODEL 4000 - 4200 WATER CAPACITY CHART

METAL SEATS ONLY

GPM AT 70°F AND 25% OVERPRESSURE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	3/4 x 1	3/4 x 1	1 x 1-1/2
	ORIFICE DIAMETER (IN.)		
	.375	.437	.500
50	9	15	20
100	13	21	28
150	16	25	34
200	18	29	39
250	20	32	44
300	22	36	48
350	24	39	52
400	26	41	55
450	28	44	59
500	29	46	62
600	32	51	68
700	34	55	73
800	37	58	78
900	39	62	83
1000	41	65	88
2000	47	74	100
3000	57	91	
4000	66	105	
5000	73		
6000	80		
7000	87		
8000	94		
9000	101		



INLINE SAFETY-RELIEF VALVE

MODEL 5000 - 5100 - 5200

PLASTIC SEATS FOR HYDRAULIC & GAS

GENERAL DESCRIPTION: THESE PRECISION-MADE INLINE RELIEF VALVES FEATURE REPLACEABLE DISC ASSEMBLIES AND NOZZLES OF STAINLESS STEEL, STELLITE OR PLASTIC INSERTS WITH STAINLESS STEEL BODY, BASE AND BONNETS. PERFORMANCE IS BUBBLE TIGHT AFTER REPEATED OPERATIONS. MODEL 5000, 5100, AND 5200 VALVES ARE HIGHLY SUITABLE FOR HYDRAULIC, AIR, AND GASEOUS SYSTEMS.

APPLICATIONS INCLUDE:

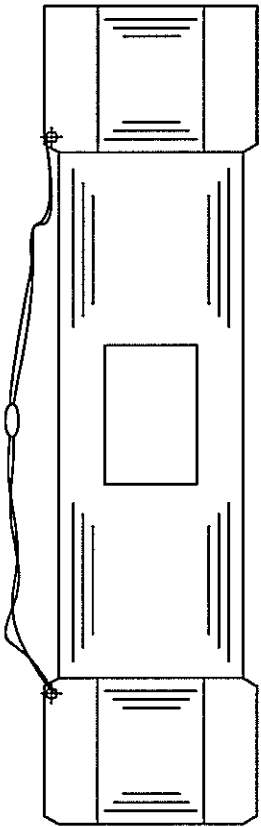
**GASEOUS SYSTEMS
HYDRAULIC SYSTEMS**

REPLACEABLE METAL NOZZLE AND DISC ARE LAPPED AT THE FACTORY AS A UNIT.

STRESS FREE NOZZLE: THE STAINLESS STEEL NOZZLE IS FREE TO TORQUE STRESS AND DISTORTION AROUND THE SEAT AREA SINCE IT IS NOT SCREWED INTO THE BODY.

SPRING IS AVAILABLE IN VARIOUS ALLOYS

FACTORY TESTED: EACH MODEL 5000, 5100 AND 5200 FLUID MECHANICS INLINE RELIEF VALVES ARE FACTORY TESTED AND FULLY WARRANTED FOR ONE YEAR.

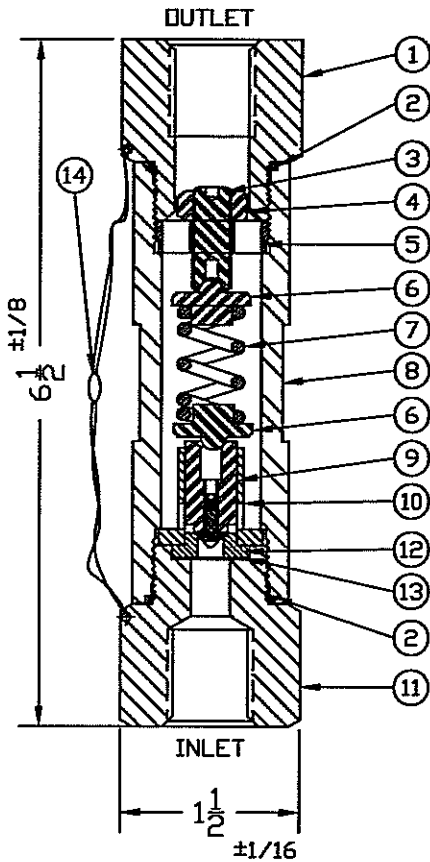




INLINE SAFETY-RELIEF VALVE MODEL 5000

(SERIES 500,502,503 & 504)

FOR GAS AND AIR SERVICE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.156 & .250	1/4,3/8,1/2 FNPT	1/4,3/8,1/2 FNPT
	1/4,3/8,1/2 MNPT	1/2 MNPT
	MS33649-4,6,8	MS33649-4,6,8
	MS33656-4,6,8	MS33656-4,6,8
.312	3/8,1/2 FNPT	3/8,1/2 FNPT
	3/8,1/2 MNPT	1/2 MNPT
	MS33649-6,8	MS33649-6,8
	MS33656-6,8	MS33656-6,8
.375	3/8,1/2 FNPT	3/8,1/2 FNPT
	3/8,1/2 MNPT	1/2 MNPT
	MS33649-6,8	MS33649-6,8
	MS33656-6,8	MS33656-6,8

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE	BURST PRESSURE
500	.156	PLASTIC ONLY	1 - 3,500	12,000
502	.250	PLASTIC ONLY	1 - 3,500	12,000
503	.312	PLASTIC ONLY	1 - 3,500	12,000
504	.375	PLASTIC ONLY	1 - 3,500	12,000

SEE PAGE 81 & 82 FOR CAPACITY CHARTS
WEIGHT APPROXIMATELY 2-1/2#

† OTHER SPRING MATERIALS UPON REQUEST

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM

* SEATS DESIGNED WITH BUNA-N VITON, EPR OR KALREZ ARE AVAILABLE FOR CLOSE RESEAT APPLICATIONS.

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
1 - 75	* O'RING DESIGN *
50 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	303 S/S MATERIAL CLASS
1	BONNET	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
2	"O" RING	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
3	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
4	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
7	SPRING †	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
8	BODY	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
9	DISC ASSEMBLY	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
10	DISC GUIDE	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BASE	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
12	NOZZLE	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
13	GASKET	TEFLON	TEFLON	TEFLON
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S/S WIRE

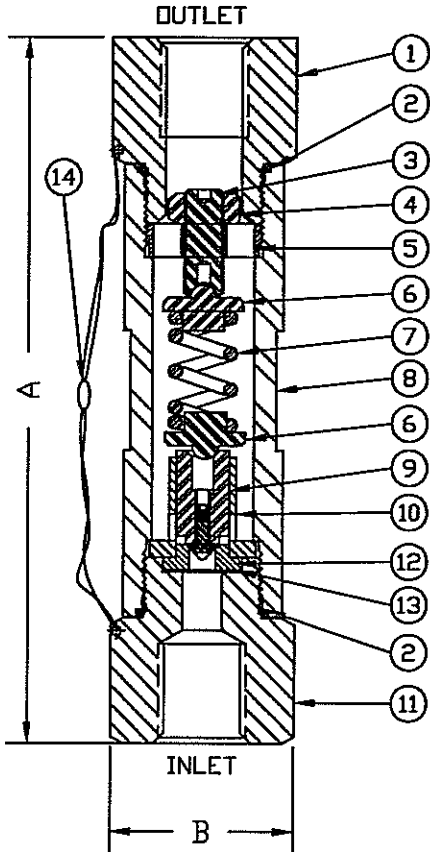


INLINE SAFETY-RELIEF VALVE

MODEL 5100

(SERIES 512, 513 & 514)

FOR GAS AND AIR SERVICE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.250	3/4, 1" FNPT	3/4, 1" FNPT
	3/4, 1" MNPT	3/4, 1" MNPT
.312	MS33649-12,16	MS33649-12,16
.375	MS33656-12,16	MS33656-12,16

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE	BURST PRESSURE
512	.250	PLASTIC ONLY	1 - 3,500	12,000
513	.312	PLASTIC ONLY	1 - 3,500	12,000
514	.375	PLASTIC ONLY	1 - 3,500	12,000

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
1 - 75	'O'RING DESIGN *
50 - 3,000	TEFLON †
3,000 - 3,500	KEL-F †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F
KEL-F : -400°F TO 400°F

CONNECTIONS	A ±1/8	B ±1/16 HEX
MS33649-16 & MS33656-16	7"	1-7/8
ALL OTHERS	7"	1-3/4

SEE PAGE 81 & 82 FOR CAPACITY CHARTS
WEIGHT APPROXIMATELY 3#

† OTHER SPRING MATERIALS UPON REQUEST

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM

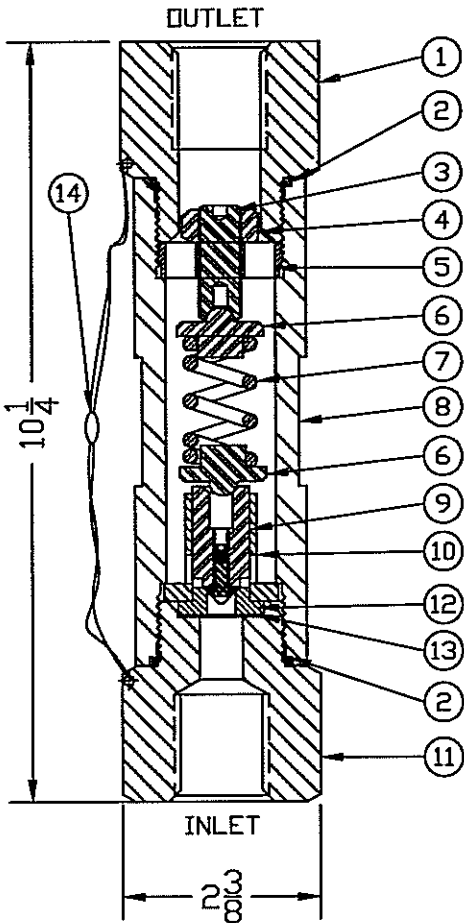
* SEATS DESIGNED WITH BUNA-N, VITON, EPR
OR KALREZ ARE AVAILABLE FOR CLOSE
RESEAT APPLICATIONS.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	303 S/S MATERIAL CLASS
1	BONNET	ASTM A479, TYPE 316	ASTM B16	ASTM A582, TYPE 303
2	'O' RING	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON	TEFLON, BUNA-N, VITON
3	PRESSURE SCREW	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
4	LOCKNUT	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
5	SPRING RETAINER	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
6	SPRING PLATES (2)	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
7	SPRING †	ASTM A313, TYPE 316	ASTM A313, TYPE 316	ASTM A313, TYPE 316
8	BODY	ASTM A479, TYPE 316	ASTM B16	ASTM A582, TYPE 303
9	DISC ASSEMBLY	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
10	DISC GUIDE	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
11	BASE	ASTM A479, TYPE 316	ASTM B16	ASTM A582, TYPE 303
12	NOZZLE	ASTM A479, TYPE 316	ASTM A582, TYPE 303	ASTM A582, TYPE 303
13	GASKET	TEFLON	TEFLON	TEFLON
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S/S WIRE



INLINE SAFETY-RELIEF VALVE MODEL 5200 (SERIES 527)

FOR GAS AND AIR SERVICE



THREAD CONNECTIONS

ORIFICE SIZE	INLET	OUTLET
.625	1,1¼,1½" FNPT	1,1¼,1½" FNPT
	1,1¼,1½" MNPT	1,1¼,1½" MNPT
	MS33649-16,20,24	MS33649-16,20,24
	MS33656-16,24	MS33656-16,24

SERIES NO. §	ORIFICE SIZE	SEAT MATERIAL	SET PRESSURE RANGE	BURST PRESSURE
527	.625	PLASTIC ONLY	1 - 3,000	12,000

SUGGESTED SEAT MATERIAL

SET PRESSURE	SEAT MATERIAL
1 - 75	*O-RING DESIGN *
50 - 3,000	TEFLON †

† TEMPERATURE RANGE: TEFLON : -450°F TO 500°F

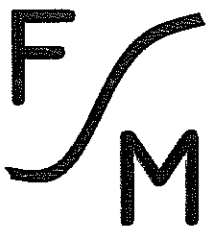
WEIGHT APPROXIMATELY 9-1/2#

‡ OTHER SPRING MATERIALS UPON REQUEST

§ SEE PAGE 91 & 92 FOR PART NUMBERING SYSTEM

* SEATS DESIGNED WITH BUNA-N, VITON, EPR OR KALREZ ARE AVAILABLE FOR CLOSE RESEAT APPLICATIONS.

ITEM NO.	PART NAME	316 S/S MATERIAL CLASS	BRONZE MATERIAL CLASS	303 S/S MATERIAL CLASS
1	BONNET	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
2	*O RING	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON	TEFLON,BUNA-N,VITON
3	PRESSURE SCREW	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
4	LOCKNUT	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
5	SPRING RETAINER	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
6	SPRING PLATES (2)	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
7	SPRING †	ASTM A313,TYPE 316	ASTM A313,TYPE 316	ASTM A313,TYPE 316
8	BODY	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
9	DISC ASSEMBLY	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
10	DISC GUIDE	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
11	BASE	ASTM A479,TYPE 316	ASTM B16	ASTM A582,TYPE 303
12	NOZZLE	ASTM A479,TYPE 316	ASTM A582,TYPE 303	ASTM A582,TYPE 303
13	GASKET	TEFLON	TEFLON	TEFLON
14	SEAL & WIRE	LEAD SEAL/S/S WIRE	LEAD SEAL/COPPER WIRE	LEAD SEAL/S/S WIRE



INLINE SAFETY-RELIEF VALVE

CAPACITY CHARTS

MODEL 5000 & 5100
PLASTIC SEATS ONLY

BASED ON AIR SERVICE @ 70°F
AND 10% OVERPRESSURE

NOTE: THIS SCFM CHART IS FOR THE MODIFIED DISC GUIDE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	MS33649-8 x MS33649-8		
	ORIFICE DIAMETER		
HOLES SIZES IN DISC GUIDE	.250	.312	.375
	.160	.160	.187
100	80	89	104
200	151	168	197
300	222	246	289
400	293	325	381
500	364	403	474
1000	719	797	936
1500	1073	1190	1398
2000	1428	1583	1860
2500	1783	1976	2322
3000	2137	2370	2784
3500	2492	2763	3246



INLINE SAFETY-RELIEF VALVE CAPACITY CHARTS

MODEL 5000 & 5100 PLASTIC SEATS ONLY

BASED ON AIR SERVICE @ 70°F
AND 10% OVERPRESSURE

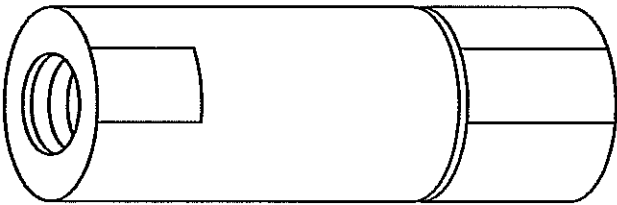
NOTE: THIS SCFM CHART IS FOR THE OLD STYLE DISC GUIDE

SET PRESSURE (PSIG)	MINIMUM CONNECTIONS		
	MS33649-8 x MS33649-8		
	ORIFICE DIAMETER		
	.250	.312	.375
100	39	68	97
200	75	129	183
300	110	189	268
400	145	250	354
500	180	310	440
1000	356	613	869
1500	532	915	1298
2000	708	1218	1727
2500	884	1520	2156
3000	1060	1823	2585
3500	1236	2125	3015



INLINE CHECK VALVES

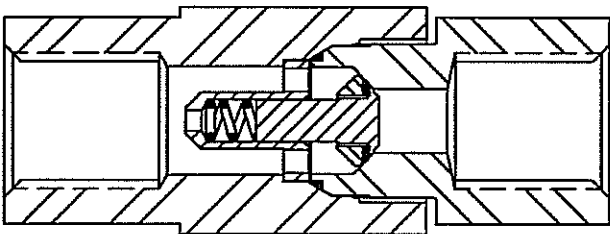
MODEL 2000 - 2100 - 2200 - 2300



FLUID MECHANICS INLINE CHECK VALVES ARE DESIGNED TO GIVE BUBBLE TIGHT SHUTOFF FOR THOUSANDS OF CYCLES WHEN HANDLING CLEAN DRY GASSES OR LIQUIDS.

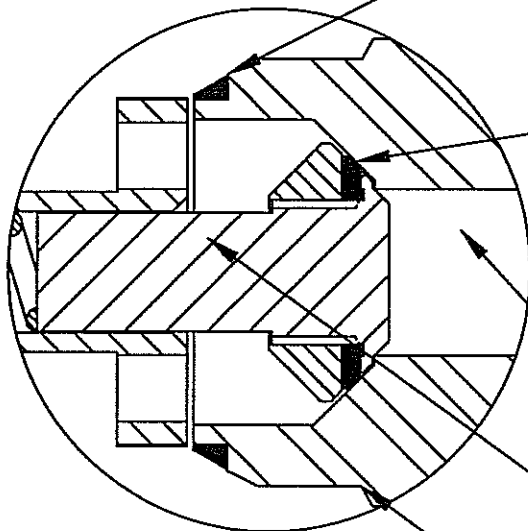
SPECIAL DESIGN FEATURES MAKE THESE VALVES IDEAL FOR CRYOGENIC SERVICE. CRYOGENIC TRIM ON SPECIAL ORDERS ONLY.

MODEL 2000 THRU 2300, SIZE 1/8" - 1/2"



EXTERNAL SEAL

A SPECIAL LIP TYPE METAL BODY SEAL IS USED. THE SEALING FORCE INCREASES WITH AN INCREASE OF BODY PRESSURE. THE VALVE HAS A SECONDARY O-RING TYPE SEAL. THESE SEALS PREVENT FLUID REACHING THE THREADS.



PLASTIC SEAT

THE SOFT SEATED VALVES CONTAIN A SPECIAL CAPTURED PLASTIC SEAT. THIS SEAT IS SPECIALLY MACHINED WITH THE METAL BACK-UP SECTIONS TO ASSURE PERFECT HEIGHT AND WIDTH FOR BUBBLE TIGHT SHUTOFF AND TO PREVENT SEAT BLOWOUT UNDER SONIC VELOCITIES.

FULL FLOW

ALL AREAS THRU VALVES ARE EQUAL TO OR GREATER THAN "MS" TUBING ID.

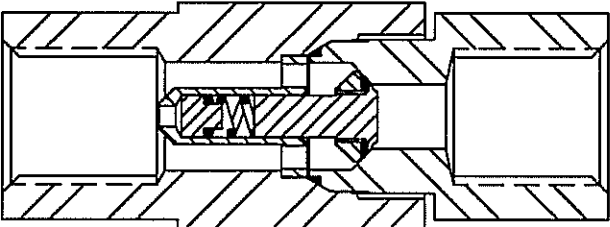
GUIDES

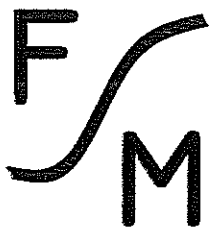
GUIDE AREAS ARE LIQUID HONED TO PREVENT GALLING.

BODY

BODIES ARE MADE FROM ALL BAR STOCK AND REQUIRE NO WELDING FOR GRAYLOC FITTING.

MODEL 2000 THRU 2300, SIZE 3/4" - 4"





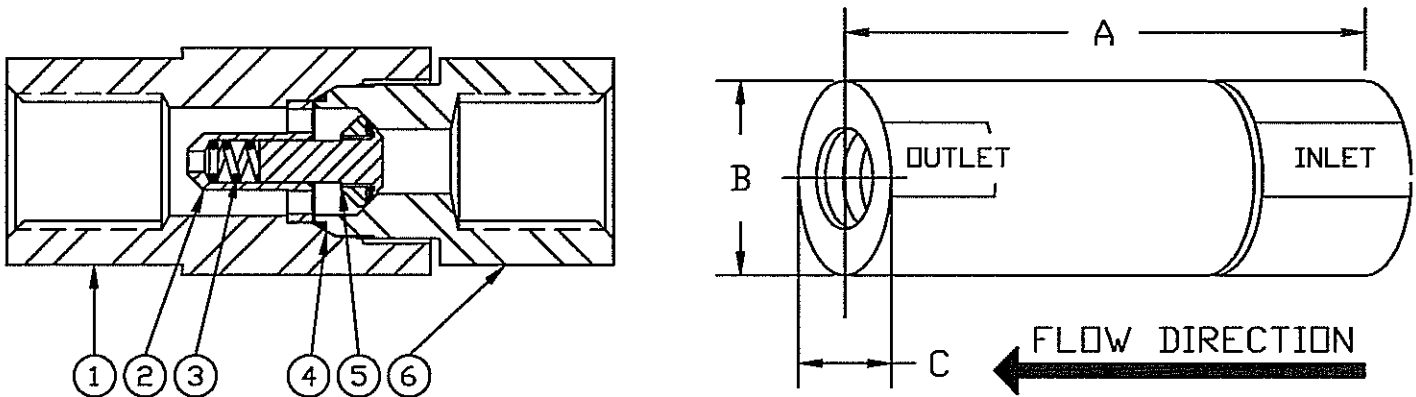
INLINE CHECK VALVE

MODEL 2000 - 2100 - 2200 - 2300

DASH NUMBER	MS SIZE*	NPT SIZE	DIMENSIONS			MINIMUM ORIFICE SIZE	APPROX. WEIGHT
			A ±1/16	B ±1/16	C ±1/16		
-04	1/4	1/8	2-27/32	1"	7/8	.230	1/2#
-05	5/16	1/4	2-27/32	1"	7/8	.230	1/2#
-06	3/8	3/8	3-5/16	1-1/8	1"	.293	3/4#
-08	1/2	1/2	3-11/16	1-3/8	1-1/4	.387	1#

*ALL AREAS EQUAL TO OR GREATER THAN MS33649 TUBING OF SAME SIZE

CHECK VALVES ARE WITH STANDARD 3 PSIG MAX. CRACK SPRING. OTHER CRACKS AVAILABLE UPON REQUEST.



ITEM NUMBER	PART NAME	MATERIAL CLASS
1	BODY	ASTM A479 TYPE 316
2	CAGE	ASTM A479 TYPE 316
3	SPRING	ASTM A313 TYPE 316
4	SEAL	TEFLON, BUNA-N OR VITON
5	DISC ASSEMBLY	§ ASTM A479 TYPE 316
6	BASE	ASTM A479 TYPE 316

§ WITH TEFLON, KEL-F, VESPEL OR METAL SEATS

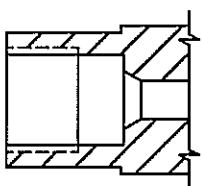
§ ALSO AVAILABLE IN "O" RING DESIGN FOR 3,000 WOG MAX.

OTHER MATERIAL CLASSES AVAILABLE UPON REQUEST.

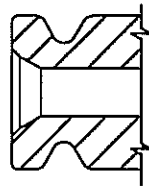
SEE PAGE 86 FOR HEAD LOSS CURVES AND CV CHART.

SEE PAGE 93 & 94 FOR PART NUMBERING SYSTEM.

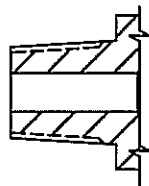
ALTERNATE END CONNECTIONS



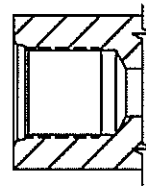
AMINCO



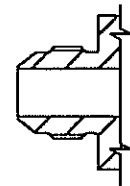
GRAYLOC



MALE NPT



MS33649



MS33656



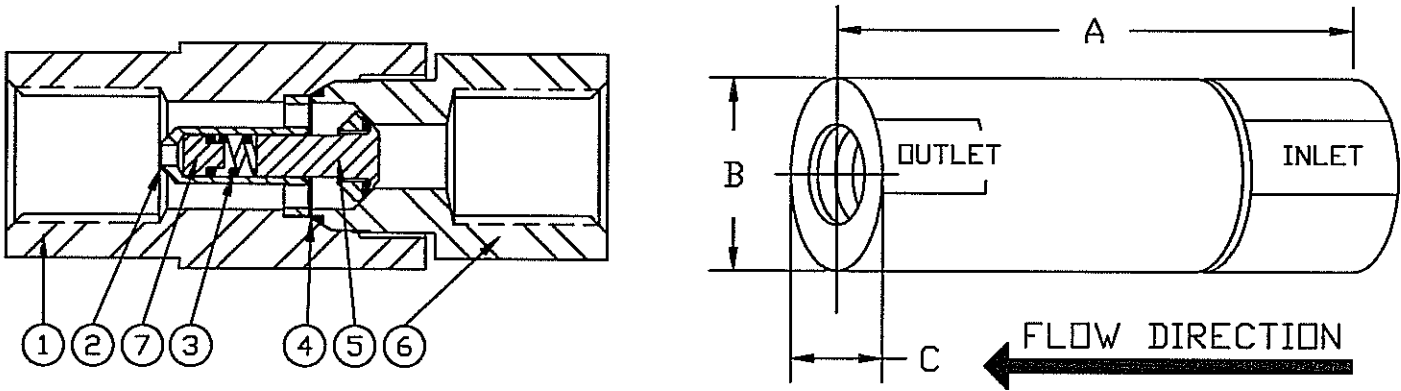
INLINE CHECK VALVE

MODEL 2000 - 2100 - 2200 - 2300

DASH NUMBER	MS SIZE*	NPT SIZE	GRAYLOC SIZE	DIMENSIONS			MINIMUM ORIFICE SIZE	APPROX. WEIGHT
				A ±1/16	B ±1/16	C ±1/16		
-12	3/4	3/4	1/2, 3/4	4-3/4	1-7/8	1-3/4	.604	3#
-16	1"	1"	1" GR-4 & -5	5-15/16	2-5/8	2-3/8	.839	7#
-20	1-1/4	1-1/4	1" GR-11,1-1/4,1-1/2	8-15/32	3-1/2	3-1/4	1.073	17#
-24	1-1/2	1-1/2,2	2"	9-7/16	4-1/4	4"	1.307	30#
-32	2"	2-1/2,3	2-1/2,3	11-11/16	5-15/16	5-1/2	1.776	70#
-48		4"	4"	11-11/16	6-3/8	6-1/8	1.776	84#

*ALL AREAS EQUAL TO OR GREATER THAN MS33649 TUBING OF SAME SIZE

CHECK VALVES ARE WITH STANDARD 3 PSIG MAX. CRACK SPRING. OTHER CRACKS AVAILABLE UPON REQUEST.



ITEM NUMBER	PART NAME	MATERIAL CLASS
1	BODY	ASTM A479 TYPE 316
2	CAGE	ASTM A479 TYPE 316
3	SPRING	ASTM A313,TYPE 316
4	SEAL	TEFLON, BUNA-N OR VITON
5	DISC ASSEMBLY	§ ASTM A479 TYPE 316
6	BASE	ASTM A479 TYPE 316
7	SPRING PLATE	ASTM A479 TYPE 316

§ WITH TEFLON, KEL-F, VESPEL OR METAL SEATS

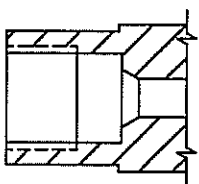
§ ALSO AVAILABLE IN "O" RING DESIGN FOR 3,000 WDG MAX.

OTHER MATERIAL CLASSES AVAILABLE UPON REQUEST.

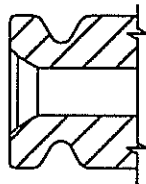
SEE PAGE 86 FOR HEAD LOSS CURVES AND Cv CHART.

SEE PAGE 93 & 94 FOR PART NUMBERING SYSTEM.

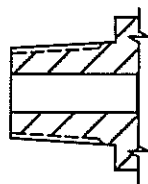
ALTERNATE END CONNECTIONS



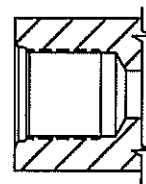
AMINCO



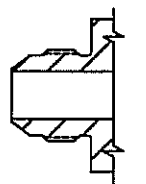
GRAYLOC



MALE NPT



MS33649



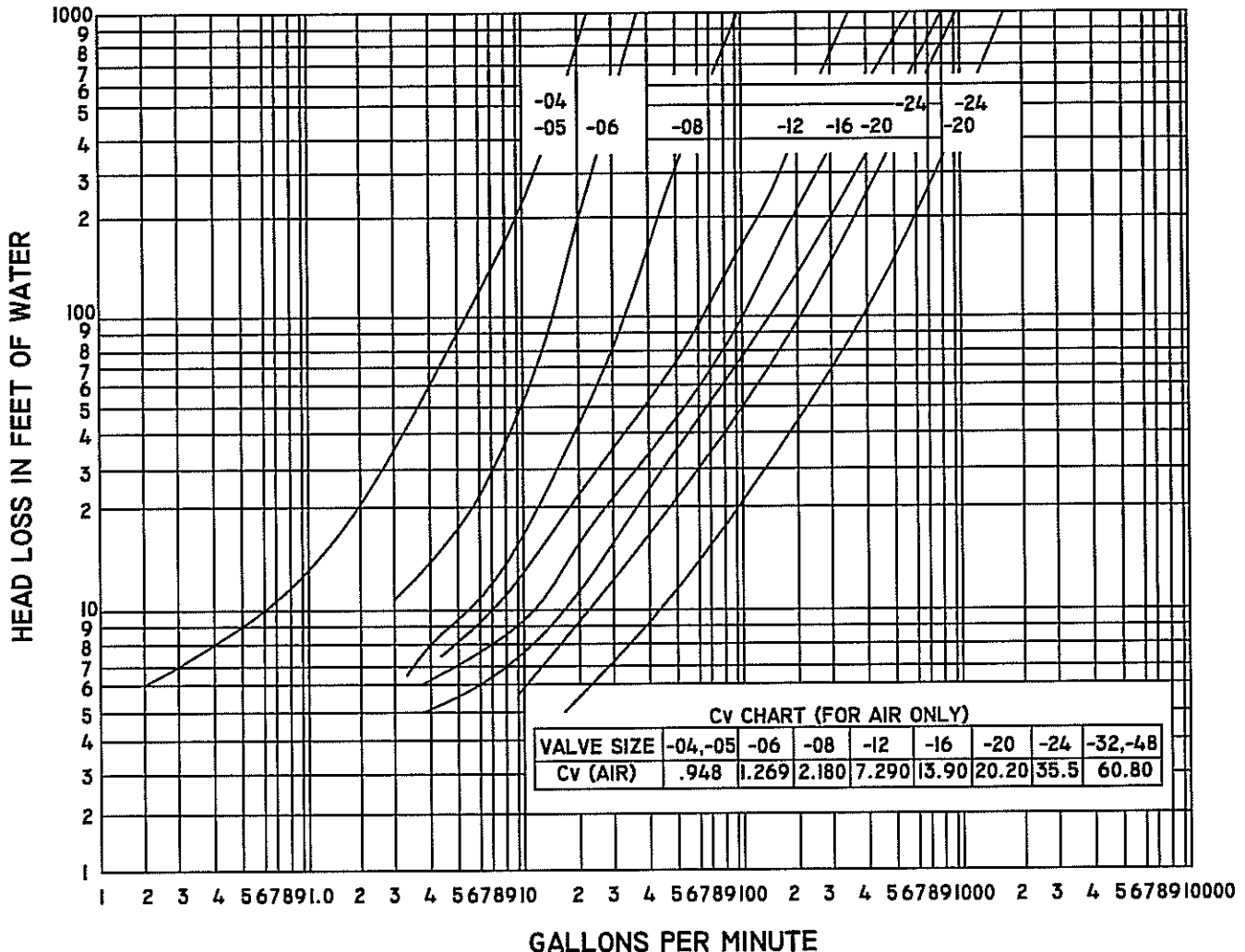
MS33656



INLINE CHECK VALVE

MODEL 2000 - 2100 - 2200 - 2300

HEAD LOSS CURVES AND Cv CHART FOR F/M INLINE CHECK VALVES



THE ABOVE CHART SHOWS HEAD LOSS IN FEET OF WATER VS. VOLUME IN GALLONS PER MINUTE (GPM). THIS SET OF CURVES WAS OBTAINED EXPERIMENTALLY AND THE Cv CHART, FOR WATER ONLY, WAS CALCULATED USING THE SAME TEST DATA THAT WAS USED TO GENERATE THE CURVES.

TO USE THE ABOVE CURVES, YOU MUST KNOW EITHER THE HEAD LOSS OR GPM. IF YOU HAVE THE HEAD LOSS (IN FEET OF WATER), FOLLOW THE HORIZONTAL LINE AT YOUR HEAD LOSS TO THE RIGHT UNTIL YOU CROSS THE CURVE FOR YOUR PARTICULAR VALVE (EXAMPLE -20). AT THE CURVE (-20), FOLLOW A VERTICAL LINE DOWN TO THE GPM SCALE. WHERE THE VERTICAL LINE CROSSES THE GPM SCALE, READ THE GALLONS PER MINUTE FLOWING THRU THE VALVE. IF YOU KNOW THE VOLUME IN GPM, YOU CAN DETERMINE THE HEAD LOSS THRU THE VALVE IN A SIMILAR MANNER. USING THIS DATA YOU CAN CALCULATE THE THREE VARIABLES SHOWN:

THE FORMULAS FOR CALCULATING Cv, Q & P ARE AS FOLLOWS:

$$Cv = Q / \sqrt{\Delta P (62.4/P)}$$

IF P = 62.4 (WEIGHT DENSITY OF WATER) THEN

$$Cv = Q / \sqrt{\Delta P}$$

$$Q = Cv \sqrt{\Delta P (62.4/P)}$$

$$\Delta P = (Q/C^2) (62.4/P)$$

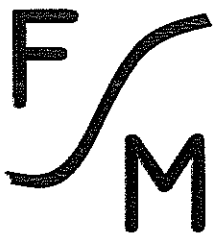
LEGEND

Cv = FLOW COEFFICIENT FOR VALVES

Q = FLOW OF FLUIDS (GPM)

ΔP = PRESSURE LOSS (PSIG)

P = WEIGHT DENSITY OF FLUID (POUNDS PER CUBIC FOOT) (TEMP. 60°F)

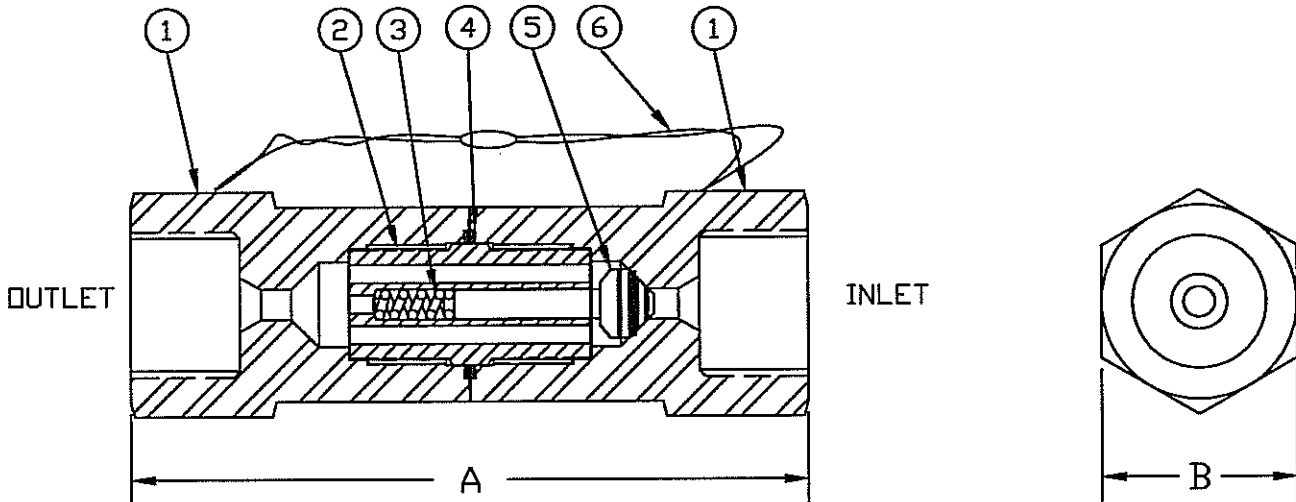


INLINE CHECK VALVE

MODEL 5300

DASH NUMBER	AMINGO PORTS	DIMENSIONS		ORIFICE DIA.	APPROX. WEIGHT
		A $\pm 1/16$	B $\pm 1/16$		
-01	1/4	3-1/2	1"	.125	1#
-02	9/16	4-1/2	1-1/2	.312	2#
-03	3/8	3-1/2	1"	.156	1#

§ WITH TEFLON, KEL-F, VESPEL OR METAL SEATS
SEE PAGE 93 & 94 FOR PART NUMBERING SYSTEM.



FLOW DIRECTION



ITEM NUMBER	PART NAME	MATERIAL CLASS
1	BODY (2 REQ'D)	ASTM A479,TYPE 316
2	CAGE	ASTM A479,TYPE 316
3	SPRING	ASTM A479,TYPE 316
4	SEAL	TEFLON
5	DISC ASSEMBLY	§ ASTM A479,TYPE 316
6	SEAL & WIRE	ASTM A479,TYPE 316



INLINE CHECK VALVE

MODEL 5400

DASH NUMBER	MS SIZE*	NPT SIZE	DIMENSIONS			MINIMUM ORIFICE SIZE	APPROX. WEIGHT
			A ±1/16	B ±1/16	C ±1/16		
-04	1/4	1/8	3-1/4	1-1/8	3-3/4	.172	1#
-05	5/16	1/4	3-1/4	1-1/8	3-3/4	.234	1#
-06	3/8	3/8	3-1/4	1-1/8	3-3/4	.297	1#
-08	1/2	1/2	3-3/8	1-1/4	3-7/8	.391	1#
-12	3/4	3/4	4-1/2	1-3/4	5-1/8	.609	2#
-16	1"	1"	5-3/8	2"	6"	.844	3#

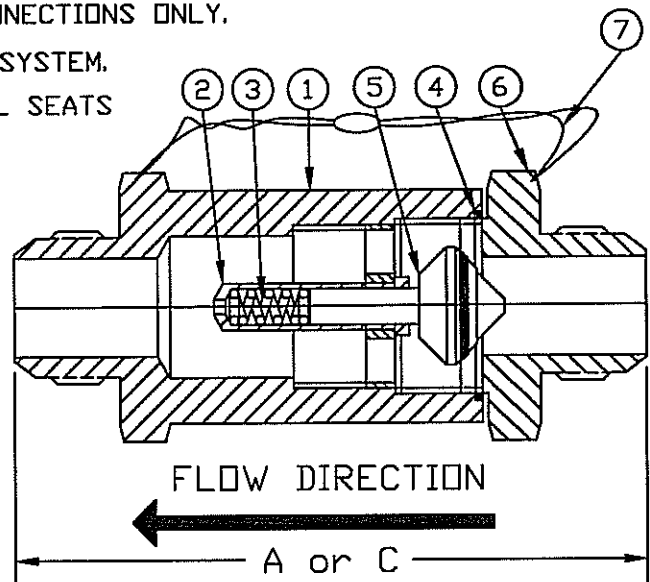
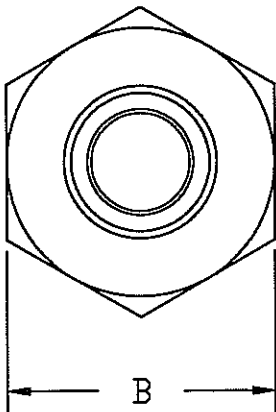
*ALL AREAS EQUAL TO OR GREATER THAN MS33649 TUBING OF SAME SIZE

§ DIMENSIONS ARE FOR MS CONNECTIONS ONLY.

¶ DIMENSIONS ARE FOR FNPT or MNPT CONNECTIONS ONLY.

SEE PAGE 93 & 94 FOR PART NUMBERING SYSTEM.

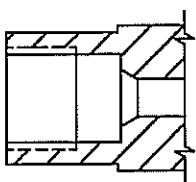
§ WITH TEFLON, KEL-F, VESPEL OR METAL SEATS



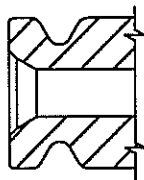
A = MS CONNECTIONS & C = PIPE THREAD CONNECTIONS

ITEM NUMBER	PART NAME	MATERIAL CLASS
1	BODY	ASTM A479,TYPE 316
2	CAGE	ASTM A479,TYPE 316
3	SPRING	ASTM A479,TYPE 316
4	SEAL	TEFLON
5	DISC ASSEMBLY	§ ASTM A479,TYPE 316
6	BASE	ASTM A479,TYPE 316
7	SEAL & WIRE	ASTM A479,TYPE 316

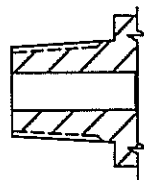
ALTERNATE END CONNECTIONS



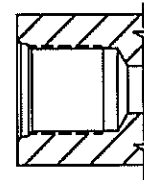
AMINCO



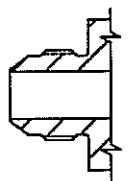
GRAYLOC



MALE NPT



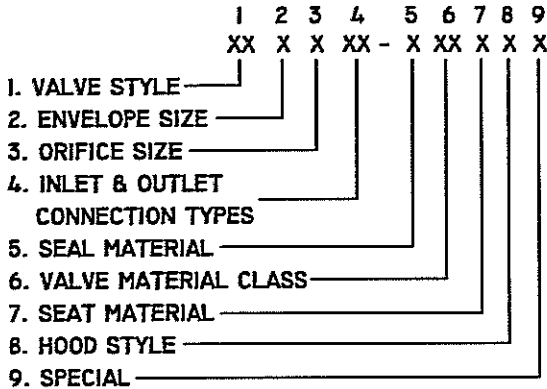
MS33649



MS33656



SAFETY-RELIEF VALVE PART NUMBERING SYSTEM MODEL 1500-1600-1700



(EXAMPLE OF ORDERING INFORMATION:
151102-2110S16 1/2 x 3/4 @ 150 PSIG
GAS SERVICE, ASME UV CODED)

1. VALVE STYLE

15	CAST BONNET, SCREWED CONSTRUCTION
16	CAST BODY AND BONNET, BOLTED CONSTRUCTION FOR FLANGES
17	ALL BAR STOCK VALVES

2. ENVELOPE SIZE

NO.	ORIFICE DIA. MAX.	CONNECTION SIZE MAX.		VALVE MODEL
		INLET	OUTLET	
1	.375	1"	1"	1510
		1-1/2"	2"	1610
		1"	1"	1710
2	.625	1-1/2"	1-1/2"	1520
		2"	2-1/2"	1620
3	1.000	2"	2-1/2"	1530
		3"	3"	1630
4	1.281	3"	3"	1540
	1.281/1.750	4"	4"	1640

3. ORIFICE SIZE

NO.	ORIFICE SIZE
1	.250
2	.312
3	.375
4	.500
5	.625
6	.800
7	1.000
8	1.281
9	.187
12	1.750

4. INLET & OUTLET CONNECTION TYPES

NO.	INLET	OUTLET
00	MNPT	FNPT
01	FNPT	FNPT
02	MS33649	MS33649
03	MS33649	FNPT
04	MS33656	MS33649
05	HP AMINCO	MS33649
06	HP AMINCO	FNPT
07	GRAYLOC	MS33649
08	GRAYLOC	FNPT
09	GRAYLOC	GRAYLOC
10	MS33656	FNPT
11	HP AMINCO	HP AMINCO
12	SOCKET WELD	SOCKET WELD
13	MP AUTOCLAVE	FNPT
14	9/16 AUTOCLAVE	9/16 AUTOCLAVE
15	3/8 AUTOCLAVE	FNPT
16	HP AUTOCLAVE	MP AUTOCLAVE
17	1" AUTOCLAVE	FNPT
18	HP AUTOCLAVE	FNPT
19	UNION	UNION
20	FNPT	MS33649
21	MP AUTOCLAVE	MS33649
22	UNION	MS33649
23	GRAYLOC	FLANGE
24	1502 M	FNPT
25	LPT	FNPT
26	MS16142	MS16142
27	MS33656	MS33656
28	SOCKET WELD	FNPT
29	UNION	FNPT
30	MP AUTOCLAVE	GRAYLOC
31	MP AUTOCLAVE	MP AUTOCLAVE
32	FLANGE	FNPT
33	GRAYLOC	SOCKET WELD
34	BSP	BSP
35	VCR	FNPT
36	FLANGE	MS33649



SAFETY-RELIEF VALVE PART NUMBERING SYSTEM MODEL 1500-1600-1700

4. INLET & OUTLET CONNECTION TYPES (CONT)

NO.	FLANGE CONNECTIONS	
	INLET	OUTLET
80	150	150
81	300	150
82	600	150
83	900	300
84	1500	300
85	2500	300
86	900	150
87	2500	150
88	600	300
89	API 5000	300
90	API 2000	150
91	1500	150
92	300	300
93	600	600
94	1500	600
95	API 10,000	API 10,000
96	1500	1500
97	900	900
98	API 10,000	300
99	API 10,000	600

5. SEAL MATERIAL

NO.	MATERIAL
0	BUNA-N
1	VITON
2	TEFLON
3	METAL
4	KALREZ
5	SOFT COPPER
6	NYLON

6. VALVE MATERIAL CLASS

NO.	MATERIAL
0	304 S/S
1	316 S/S
2	303 S/S
3	BRONZE
4	CARBON STEEL
5	MONEL
6	ALUMINUM
7	S/S WITH MONEL I.V.U.
8	HASTALLOY B
9	HASTALLOY C
10	ALLOY 20
11	347 S/S
12	INCONEL 600

7. SEAT MATERIAL

NO.	MATERIAL
0	GLASS FILLED TEFLON
1	TEFLON
2	KEL-F
3	NYLON
4	METAL
5	VESPEL SP-2I
6	VESPEL SP-I
7	VITON
8	PEEK 450G
9	KALREZ
10	TORLON

8. HOOD STYLE

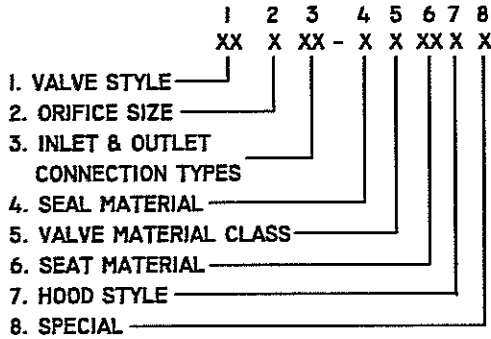
NO.	STYLE
0	NO LIFT LEVER
1	PACKED LIFT LEVER
2	NON-PACKED LIFT LEVER
3	TEST GAG
4	ADJ. PRESSURE SCREW
5	"T" HANDLE

9. SPECIAL

NO.	DESCRIPTION
S	SPECIAL (MODIFIED) SEE PG. 95,96 & 97 FOR CODES



INLINE & SAFETY-RELIEF VALVE PART NUMBERING SYSTEM MODEL 3600 THRU 5200



(EXAMPLE OF ORDERING INFORMATION:
42500-3310S16 3/4 x 1 @ 50 PSIG
GAS SERVICE,ASME UV CODED)

1. VALVE STYLE

38	FORGED BONNET, BAR STOCK BODY SCREWED CONSTRUCTION
42 & 49	CAST BONNET, BAR STOCK BODY SCREWED CONSTRUCTION
40, 47 & 48	CAST BODY & BONNET BOLTED CONSTRUCTION
36, 39, 44 A44 & B44	ALL BAR STOCK RELIEF VALVE SCREWED CONSTRUCTION
50, 51 & 52	ALL BAR STOCK, INLINE RELIEF VALVE, SCREWED CONSTRUCTION

2. ORIFICE SIZE

NO.	ORIFICE SIZE
0	3600, 3800 & 5000 ONLY .156
0	3900 MODEL ONLY .110
0	4200 MODEL ONLY .125
1	.187
2	.250
3	.312
4	.375
5	.437
6	.500
7	.625

3. INLET & OUTLET CONNECTION TYPES

NO.	INLET	OUTLET
00	MNPT	FNPT
01	FNPT	FNPT
02	MS33649	MS33649
03	MS33649	FNPT
04	MS33656	MS33649
05	AMINCO	MS33649
06	AMINCO	FNPT
07	GRAYLOC	MS33649
08	GRAYLOC	FNPT
09	GRAYLOC	GRAYLOC
10	MS33656	FNPT
11	FNPT/FNPT	FNPT
12	MS33649/MS33649	MS33649
13	MS33649	OPEN PORTS
14	MS33656	OPEN PORTS
15	SOCKET WELD	SOCKET WELD
16	MNPT	MS33649
17	SOCKET WELD	FNPT
18	FLANGE	FNPT
19	FNPT	OPEN PORT
20		
21		
22	FNPT	MS33649
23	6" EXT. SCH80	6" EXT. SCH80
24	MNPT	OPEN PORT
25	SOCKET WELD	OPEN PORT
26	AUTOCLAVE	FNPT
27	AMINCO	AMINCO
28	MS33656	MS33656
29	AUTOCLAVE	AUTOCLAVE
30	BUTTWELD	BUTTWELD
31	UNION	UNION
32		
33	MALE AMINCO	MS33656
34	UNION	FNPT
35	MS16142	FNPT
36	GRAYLOC	FLANGE
37	MS16142	MS16142
38	FLANGE	UNION
39	MS33649	MS33656
40	MNPT	MNPT
41	MNPT	FLANGE
42	2 - 1502 M	FNPT
43	AMINCO	OPEN PORT
44	FNPT	MNPT
45	KCI05	KCI05
46	AUTOCLAVE/AUTOCLAVE	FNPT
47	AUTOCLAVE	MS33649
48	BSP OR BSPP	BSP OR BSPP
49	VCR	FNPT
50	BSPP	FNPT
51	FLANGE	SOCKET WELD
52	FNPT	FLANGE
53	RTJ	RF



INLINE & SAFETY-RELIEF VALVE PART NUMBERING SYSTEM MODEL 3600 THRU 5200 CONTINUED

5. INLET & OUTLET CONNECTION TYPES (CONT)

NO.	FLANGE CONNECTIONS	
	INLET	OUTLET
80	150	150
81	300	150
82	600	150
83	900	300
84	1500	300
85	2500	300
86	API 5000	300
87	300	300
88	600	600
89	1500	1500
90	5500 JCL	300

(NOTE: NOT FOR 3600 OR 5000 SERIES)

4. SEAL MATERIAL

NO.	MATERIAL
0	NO SEALS
1	BUNA-N
2	VITON
3	TEFLON
4	METAL
5	ETHYLENE PROPYLENE
6	NEOPRENE
7	KALREZ
8	SILICONE

5. VALVE MATERIAL CLASS

NO.	MATERIAL
0	304 S/S
1	316 S/S
2	303 S/S
3	BRONZE
4	CARBON STEEL
5	MONEL
6	HASTALLOY B
7	S/S WITH MONEL I.V.U.
8	HASTALLOY C
9	ALLOY 20
10	ALUMINUM
11	TITANIUM
12	INCONEL
13	ZERCUNIUM

6. SEAT MATERIAL

NO.	MATERIAL
0	ETHYLENE PROPYLENE
1	TEFLON
2	KEL-F
3	NYLON
4	METAL
5	VESPEL SP-2I
6	VESPEL SP-I
7	KALREZ (LOW PRESS. ONLY)
8	VITON (LOW PRESS. ONLY)
9	DELTRIN
10	BUNA-N (LOW PRESS. ONLY)
11	SILICONE
12	PEEK 450G

7. HOOD STYLE

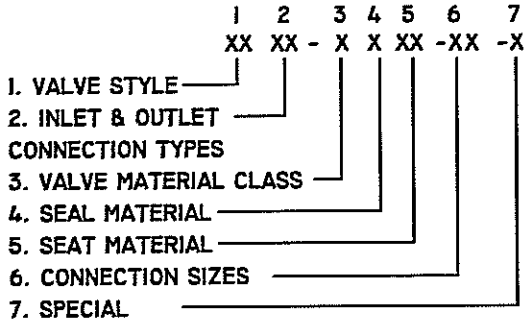
NO.	STYLE
0	STANDARD HOOD
1	PACKED LIFT LEVER
2	NON-PACKED LIFT LEVER
3	"T" HANDLE
4	HOOD & PRESS. SCREW COMB.
5	TEST GAG

8. SPECIAL

NO.	DESCRIPTION
S	SPECIAL (MODIFIED) SEE PAGE 95,96 & 97 FOR CODES



INLINE CHECK VALVE PART NUMBERING SYSTEM MODEL 2000-2100-2200-2300-5300-5400



(EXAMPLE OF ORDERING INFORMATION:
2001-231-16 3 PSIG MAX. CRACK)

I. VALVE STYLE

MODEL NO	CONNECTIONS	WOG (PSIG)	BURST (PSIG)
20	MS, NPT, GRAYLOC	3,000	12,000
20	MS, NPT, GRAYLOC	100	400
21	MS, NPT, GRAYLOC	6,000	24,000
22	MS, NPT, GRAYLOC	10,000	40,000
23	CONSULT FACTORY	15,000	60,000
53	1/4, 3/8, 9/16 AMINCO	15,000	60,000
54	MS, NPT, GRAYLOC & AMINCO UP TO 3/4"	10,000	40,000
54	MS, NPT, GRAYLOC 1" AND ABOVE	2,000	8,000

(ELASTOMER SEATS ONLY)

2. INLET & OUTLET CONNECTION TYPES

NO.	CONNECTION TYPES
00	MNPT
01	FNPT
02	MS33649
03	MS33656
04	AMINCO
05	GRAYLOC
06	R.F. FLANGE (SANDWICH TYPE)
07	MS33656 x MS33649
08	SOCKET WELD
09	MS33649 x MS33656
10	MNPT x FNPT
11	R.T.J. FLANGE (SANDWICH TYPE)
12	SPECIAL (2-5/8" x 3/4")
13	FNPT x MNPT
14	MS33656 x MNPT
15	MC240
16	AUTOCLAVE
17	BUTTWELD
18	SOCKET WELD x FNPT
19	UNION BUTTWELD TYPE
20	MS16142
21	UNION

NO.	CONNECTION TYPES
22	GRAYLOC x 2-1502 F
23	2-1502 M x FNPT
24	LPT (LINE PIPE THREAD)
25	MNPT x MS33656
26	KCI05
27	1502 M x 1502 F
28	1502 F x 1502 M
29	1 MP AUTOCLAVE x 1"-1502F
30	BSPP
31	MP AUTOCLAVE x 1-1/2" 1502 M WING
32	GRAYLOC x 1502F



INLINE CHECK VALVE PART NUMBERING SYSTEM MODEL 2000-2100-2200-5300-5400

3. VALVE MATERIAL CLASS

NO.	MATERIAL CLASS
1	300 S/S
2	316 S/S
3	304 S/S
4	MONEL
5	CARBON STEEL
6	CARPENTER 20
7	BRASS
8	HASTALLOY

6. CONNECTION SIZES

NO.	MS	GRAYLOC	NPT
04	1/4		1/8
05	5/16		1/4
06	3/8		3/8
08	1/2		1/2
12	3/4	1/2 OR 3/4	3/4
16	1"	1"	1"
20	1-1/4	1-1/4, 1-1/2	1-1/4
24	1-1/2	1-1/2, 2"	1-1/2, 2"
32	2"	2-1/2, 3"	2-1/2, 3"
48		4"	4"

4. SEAL MATERIAL

NO.	MATERIAL
1	BUNA-N
2	VITON
3	TEFLON
4	METAL
5	ETHYLENE PROPYLENE
6	KEL-F
7	SP-2II
8	OMNI

5300 MODEL ONLY!

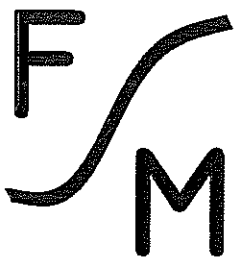
NO.	AMINCO ONLY
01	1/4
02	9/16
03	3/8

5. SEAT MATERIAL CLASS

NO.	MATERIAL
0	COPPER
1	TEFLON
2	KEL-F
3	METAL
4	VESPEL SP-2I
5	VESPEL SP-1
6	NYLON
7	VITON (LOW PRESS. ONLY)
8	KALREZ (LOW PRESS. ONLY)
9	EPR (LOW PRESS. ONLY)
10	BUNA-N (LOW PRESS. ONLY)
11	PEEK 450G

7. SPECIAL

NO.	DESCRIPTION
	LEAVE BLANK IF STANDARD 3 PSIG MAX CRACK SPRING IS REQUIRED. IF DIFFERENT CRACK IS NEEDED, ADD THE PSIG AMOUNT.
S=	SPECIAL MODIFIED SEE PAGE 95,96 & 97 FOR CODES



PART NUMBERING SYSTEM

SPECIAL CODES

- S1 = CRYOGENIC TRIM (316L s/s)
- S2 = NACE CERTIFICATION WITH IX-750 SPRING
- S3 = INCONEL 625 BODY & I.V.U.
- S4 = 316 S/S BODY & TRIM FOR C/S VALVE
- S5 = 316 S/S VALVE WITH IX-750 SPRING
- S6 = HASTALLOY C BODY & I.V.U. OR DISC ASSY & DISC GUIDE
- S7 = BACK PRESSURE SEAL OR (B.P. SEAL)
- S8 = 1# CRACK (CHECK VALVE)
- S9 = 6# CRACK (CHECK VALVE)
- S10 = 10# CRACK (CHECK VALVE)
- S11 = 12# CRACK (CHECK VALVE)
- S12 = 15# CRACK (CHECK VALVE)
- S13 = 280# CRACK (CHECK VALVE)
- S14 = 17/7 PH SPRING & B.P. SEAL
- S15 = CONNECTIONS NOT LISTED IN CATALOGUE
- S16 = ASME UV CODED PER SEC. VIII DIV. I (AIR & GAS SERVICE)
- S17 = INCONEL 625 BODY & I.V.U.-WITH GAG RELIEF AND PACKED
LIFT LEVER, BODY MTR, C OF C, SPEC SHEET, TEST REPORT
WITH HYDRO & SPECIAL TAG (VILLAGE MARINE)
- S18 = 1½" PORTS, MS33649-24 WITH 200# WOG FOR 2000-20 C.V.
- S19 = INCONEL BODY, DISC ASSY & DISC GUIDE WITH PULL RING
- S20 = 316 S/S VALVE WITH MONEL I.V.U.
- S21 = .5# CRACK (CHECK VALVE)
- S22 = IX-750 SPRING & 17-4 PH HEAT TREATED BASE
- S23 = KALREZ SEAT WITHOUT DEFLECTOR CAP
- S24 = 5# CRACK (CHECK VALVE)
- S25 = IX-750 SPRING
- S26 = NACE CERTIFIED WITH IX-750 SPRING & B.P. SEAL
- S27 = 316 S/S I.V.U. IN C/S VALVE
- S28 = 316 S/S TRIM
- S29 = ONE PIECE SPRING POST
- S30 = GASEOUS O2 CLEANED PER OUR P-3
- S31 = 316L S/S MATERIAL (ALL)
- S32 = BLIND PRESSURE SCREW



PART NUMBERING SYSTEM

SPECIAL CODES

- S33 = C/S VALVE WITH MONEL I.V.U., 316 S/S BODY, SPRING POST & SPRING PLATES
- S34 = CHECK VALVE - 3/4" ENVELOPE WITH MS33649-8 CONNECTIONS, ANY CRACK
- S35 = MONEL I.V.U. WITH IX-750 SPRING
- S36 = 1/4" PIPE BLEEDER
- S37 = NO BOTTOM GUIDE
- S38 = HASTALLOY C I.V.U.
- S39 = 100# CRACK (CHECK VALVE)
- S40 = CHECK VALVE - 3/4" ENVELOPE WITH 1/2" MNPT CONNECTIONS, ANY CRACK
- S41 = 17/4 PH BODY
- S42 = LIQUID OXYGEN CLEANED AT A FACILITY OF CUSTOMER'S CHOICE (ASTRO PAK)
- S43 = 50# CRACK (CHECK VALVE)
- S44 = ALLOY 20 BODY, I.V.U., SPRING, SPRING PLATES & SPRING POST
- S45 = MONEL TAIL PIECE
- S46 = 304 VALVE WITH 316 S/S BONNET
- S47 = MONEL TRIM
- S48 = 316 S/S VALVE WITH MONEL DISC ASSY & DISC GUIDE
- S49 = MONEL DISC ASSY, BODY, BONNET & DISC GUIDE
- S50 = 5,000# PSIG
- S51 = HYDRO WITH TEST REPORT
- S52 = 316 S/S VALVE WITH MONEL DISC ASSY, DISC GHUIDE & BASE
- S53 = INCONEL SPRING
- S54 = 17/7 PH SPRING
- S55 = 316 S/S SPRING
- S56 = SPECIAL CLEANING PER CUSTOMER REQUEST
- S57 = 250# CRACK (CHECK VALVE)
- S58 = 25# CRACK (CHECK VALVE)
- S59 = METAL O-RING & GROOVE FOR CHECK VALVE
- S60 = KRYTOX 240 LUBRICANT
- S61 = 8# CRACK (CHECK VALVE)
- S62 = MONEL BODY & I.V.U.



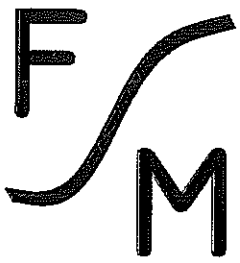
PART NUMBERING SYSTEM

SPECIAL CODES

- S63 = MONEL I.V.U., 316 S/S TRIM & SPRING WITH BATCH TESTED VESPEL
- S64 = ADJUSTABLE PRESSURE SCREW
- S65 = 304 S/S INTERNALS
- S66 = 6" NIPPLES ON SOCKET WELD
- S67 = ELG SPRING
- S68 = .0625 ORIFICE
- S69 = HASTALLOY C DISC ASSY, DISC GUIDE & BODY
- S70 = ASME UV CODED PER SEC VIII DIV I (LIQUID)
- S71 = 316 S/S BONNET
- S72 = 1 7/4 PH INNER VALVE UNIT WITH 25% GLASS FILLED TEFLON
- S73 = 304 S/S BODY
- S74 = C/S VALVE WITH 316 S/S BODY I.V.U., SPRING & SPRING PLATES
- S75 = 316 S/S BODY
- S76 = BODY HAS 2" FROM FACE OF INLET TO CENTER OF OUTLET
SPEC SHEET # 21052
- S77 = 3/4" ENVELOPE WITH .230 ORIFICE (CHECK VALVE)
- S78 = -24 CHECK VALVE WITH MS33649-32 CONNECTIONS
- S79 = 316 S/S VALVE WITH MONEL BODY & TRIM
- S80 = 316 S/S BODY/NOZZLE COMBINATION ON C/S VALVE
- S81 = 11# CRACK (CHECK VALVE)
- S82 = 316 S/S HOOD, PRESSURE SCREW, LOCKNUT, & BONNET
HASTALLOY C BODY, I.V.U., SPRING PLATES, SPRING POST
WITH INCONEL SPRING
- S83 = NYLON 6 SEAT & SEALS
- S84 = HYDRO WITH TEST REPORT
- S85 = MS33649-12 OUTLET ON 5000 SERIES
- S86 = HASTALLOY C BODY, NOZZLE, DISC ASSY & BONNET
- S87 = NYLON 6 SEALS
- S88 = MONEL I.V.U., BRASS SPRING POST & SPRING PLATES
- S89 = C/S BONNET (WCB), HOOD, PRESSURE SCREW AND LOCKNUT
ALLOY 20 SPRING, SPRING PLATES, SPRING POST, BODY & I.V.U.
- S90 = UNION ADAPTER WITH MS33656-16 STUB END NO CONE
- S91 = SPECIAL NAVY TEST REPORT A310 (4,400 PSIG)

F **M** PART NUMBERING SYSTEM SPECIAL CODES

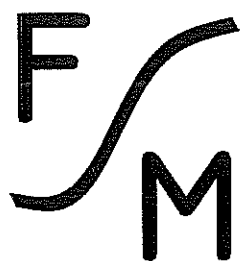
- S92 = SPECIAL NAVY TEST REPORT A303 (3,300 PSIG)**
- S93 = 2# CRACK ON C.V.**
- S94 = 316 S/S BODY/NOZZLE CONFIGURATION**
- S95 = TEST PLUG**
- S96 = 1/4 MP AUTOCLAVE WITH .109 ORIFICE ON C.V.**
- S97 = BATCH TESTED VESPEL SP-21**
- S98 = 316L s/s TRIM & BODY**
- S99 = 1/4" DRAIN HOLE**
- SI00 = NYLON 6 SEAT**
- SI01 = BLEEDER HOLE ON DISCHARGE SIDE OF C.V.**
- SI02 = 303 s/s SPRING PLATE. SPRING POST,
PRESSURE SCREW & LOCKNUT ON 316 s/s VALVE**
- SI03 = 316L s/s BODY & BONNET**
- SI04 = 316 s/s BODY**
- SI05 = NUT SET FOR 2"-I502 MALE**
- SI06 = 9/16" AMINCO WITH .312 ORIFICE & .440 ANGLE**
- SI07 = HASTALLOY C SPRING**
- SI08 = 50# CRACK**
- SI09 = 30# CRACK**
- SI10 = METAL O-RING I4330-07-85, IX-750 SPRING, METAL SEAL AND GROOVE**
- SI11 = 3/4" ENVELOPE WITH .387 ORIFICE**
- SI12 = MONEL I.V.U.**
- SI13 = NUT SET 1-1/2" I502 MALE**
- SI14 = 2-I210-3-38 HAT SHAPED SEAL**
- SI15 = 120# CRACK ON C.V.**
- SI16 = 200# CRACK ON -24 C.V. WITH -20 INTERNALS AND IX-750 SPRING (VITA)**
- SI17 = 3/4" ENVELOPE C.V. WITH MS33649-4 CONNECTION**
- SI18 = 3/4" ENVELOPE C.V. WITH MS33649-6 CONNECTION**
- SI19 = I3395-M-04 BODY WITH 3/4" FNPT THREAD**
- SI20 = VESPEL SP-21 SEAT**
- SI21 = AS-1098 CONNECTION ON C.V.**
- SI22 = SPECIAL EXXON TESTING 250° OVEN THEN RETEST**
- SI23 = 316L S/S TRIM**
- SI24 = METAL O-RING SEAL 20926-24 AND GROOVE AND IX-750 SPRING**



PART NUMBERING SYSTEM

SPECIAL CODES

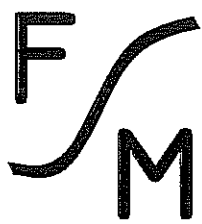
- SI24 = SPECIAL NAVY TEST REPORT A310 (5,500 PSIG)
- SI25 = IN HOUSE SOURCE INSPECTION
- SI26 = 1/2"-6,000# UNION BODY ON 3800 SERIES
- SI27 = 1/4" B.W. ON -08 CV EXTENDED
- SI28 = 2-868-04 NOZZLE SEAL (ALLIED SIGNAL)
- SI29 = 9/16" AUTOCLAVE SPECIAL W/10C-3782(ALLIED SIGNAL)
- SI30 = 1/4" B.W. ON -04 CV EXTENDED SPEC # 21231 & 21232
- SI31 = B444 .375 ORIFICE
- SI32 = 10" LONG CV UNION END
- SI33 = CANADIAN RN NUMBER I500 SERIES 73.00
- SI34 = MONEL BODY
- SI35 = 18675-E6 HOOD SEAL BRONZE
- SI36 = BUTECH FITTING FOR EXXON
- SI37 = MALE MS CONNECTOR CAN NOT HAVE NOSE CONE (THREADS ONLY)
- SI38 = 494 METAL SEAT AND SEAL ON 316 S/S WITH INCONEL SPRING FOR HOT LIQUID....EXXON
- SI39 = 9/16 HP AUTOCLAVE PER NASA SKETCH 32636 (WSTF)
- SI40 = SOFT COPPER SEAL B/W BODY AND BASE
- SI41 = -24 C.V. BOLTED CONSTRUCTION (5-1/2 ROUND MAT'L)
- SI42 = 4800 ALL MONEL TRIM & NOZZLE SEAL
- SI43 = B.P. SEAL W/ 316L BODY AND FLANGE ADAPTERS
- SI44 = 4# CRACK ON C.V.
- SI45 = 303 S/S BODY
- SI46 = MONEL DISC ASSY (SI46 = SAME AS SI37 FOR SPACE X)
- SI47 = MONEL I.V.U., BODY, IX-750 SPRING & B.T. VESPEL ON 316 S/S VALVE
- SI48 = MONEL DISC ASSY, 10# CRACK, KRYTOX 240 & P-3 CLEANING
- SI49 = BODY/NOZZLE ON ALL AIR PRODUCTS
- SI50 = MONEL DISC ASSEMBLY
- SI51 = INCONEL BODY, DISC ASSY, DISC GUIDE & IX-750 SPRING
- SI52 = -20 C.V. WITH -16 FNPT CONN., IX-750 SPRING & DISC ASSY
- SI53 = 316 S/S SPRING IN I500 SERIES R.V.
- SI54 = 316L S/S ALL PARTS
- SI55 = MONEL DISC ASSY, 3# CRACK, KRYTOX 240 & P-3 CLEANING
- SI56 = FLOW RATE TEST PERFORMED



PART NUMBERING SYSTEM

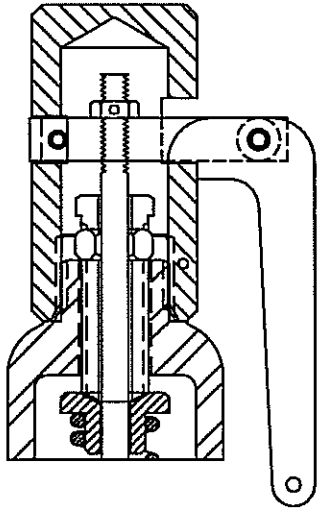
SPECIAL CODES

- SI57 = 100% INSPECTION, KRYTOX 240 (C OF C, SPEC SHEET, HYDRO/TEST REPORT)
- SI58 = LOW PRESSURE CUT DISCC ASSY FOR C.V.
- SI59 = BRAYCOTE 806 LUBE
- SI60 = 100% INSPECTION, BRAYCOTE 806 (C OF C, SPEC SHEET, HYDRO/TEST REPORT, MTR'S)
- SI61 =
- SI62 =
- SI63 =
- SI64 =
- SI65 =
- SI66 =
- SI67 =
- SI68 =
- SI69 =
- SI70 =
- SI71 =
- SI72 =
- SI73 =
- SI74 =
- SI75 =
- SI76 =
- SI77 =
- SI78 =
- SI79 =
- SI80 =
- SI81 =
- SI82 =
- SI83 =
- SI84 =
- SI85 =
- SI86 =
- SI87 =
- SI88 =
- SI89 =
- SI90 =

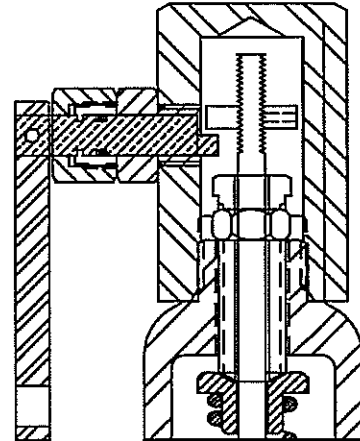


SAFETY-RELIEF VALVE

ACCESSORIES

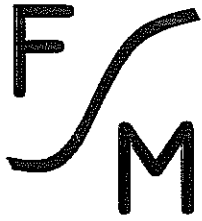


NON-PACKED LIFT LEVER
FOR MODEL 1500, 1600, 1700,
4000, 4200, 4400, A4400,
B4400, 4700, 4800 AND 4900



PACKED LIFT LEVER
FOR MODEL 1500, 1600, 1700,
4000, 4200, 4400, A4400,
B4400, 4700, 4800 AND 4900

ORIFICE	DIAMETER		AREA
	1/8	.125	.0123
	3/16	.187	.028
	1/4	.250	.049
	5/16	.312	.076
D	3/8	.375	.1104
	7/16	.437	.1503
E	1/2	.500	.1963
F	5/8	.625	.3068
G	51/64	.800	.503
H	1'	1.000	.7854
J	1-9/32	1.281	1.289



**SAFETY-RELIEF VALVE
INLINE RELIEF VALVE
CHECK VALVE**

WARRANTY

FLUID MECHANICS VALVE COMPANY

12803 FM 529

HOUSTON, TX. 77041

713-466-6933 / 1-800-529-8575

ALL FLUID MECHANICS PRODUCTS MANUFACTURED BY F/M ARE GUARANTEED AGAINST DEFECTIVE MATERIAL OR WORKMANSHIP FOR ONE YEAR FROM DATE ON VALVE. WE WILL REPAIR OR REPLACE WITHOUT CHARGE, F.O.B. OUR PLANT, VALVE OR PRODUCT MANUFACTURED BY US WHICH OUR EXAMINATION PROVES TO BE DEFECTIVE. LIABILITY IS LIMITED TO REPAIR OR REPLACEMENT, AS STATED ABOVE, OR TO THE REFUNDING OF THE PURCHASE PRICE. NO RESPONSIBILITY IS ASSUMED FOR LABOR OR REPAIRS UNDER TAKEN BY THE PURCHASER WITHOUT AUTHORIZATION BY F/M, NOR FOR ANY CONSEQUENCES OF USE OR MISUSE OF PRODUCTS COVERED BY THIS WARRANTY. WARRANTY IS VOIDED WHEN VALVE IS USED IN A DIRTY SYSTEM. THE WARRANTY IS ALSO VOIDED IF SEAL WIRE IS BROKEN AND VALVE HAS BEEN TAMPERED WITH.

FLUID MECHANICS VALVE COMPANY RECOMMENDS THAT F/M VALVES FOR REPAIR BE SENT BACK TO OUR FACILITY. ANY QUESTIONS PLEASE FEEL FREE TO CONTACT US.