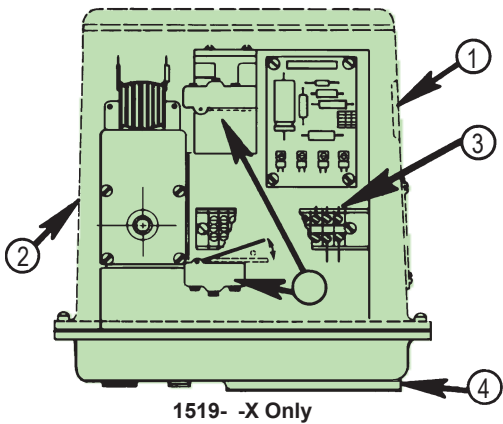
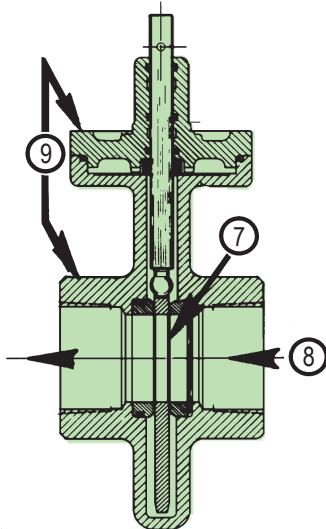


All 1518 & 1519  
(Except 1519- -X)



1519- -X Only



**DESIGN DETAILS**

**Top Assembly**

Large, two-color OPEN/SHUT indicator ① provides easy identification of valve position. Built-in wiring compartment ③ and terminal block ⑥ eliminates need for external junction box.

Terminal block ⑥ includes 12 number-coded positions.

Auxiliary switches ⑤ provide DPDT proof-of-open and SPDT "proof-of-closure" to meet insurance and approval requirements.

Good practice dictates that auxiliary switches used in main automatic shutoff valves normally be used for signal duty only.

In a block-and-vent system, blocking valve and normally open vent valve may be powered through the "proof-of-closure" switch of the main automatic shutoff valve; but all three valves must be powered through the appropriate normally open flame relay contact.

Enclosure ② meets NEMA 1, 3, 3S, 4 and 12, and CSA 2, 3 and 4 standards (when suitable electrical connections are made).

Lubrication-free design means minimal maintenance requirements. Field-rotatable top assembly ④ provides four positions for complete piping convenience.

Valves feature solenoid-actuated internal latching mechanism, except 1519- -X or 1519U- -X, which have rack-and-pinion/solid state/magnetic clutch design.

When a motorized valve is energized, drive motor opens valve in 6 to 12 seconds, dependent on valve size.

**Valve Body**

Metal-to-metal seating doesn't wear out; it "wears in." Disc wipes valve seat clean during each operation ⑦.

Rising stem design with straight-through flow ⑧ reduces pressure drop. Cast iron or cast steel body ⑨ to meet application requirement.

Built-in over-travel at closed position for positive shut-off.

Test connections provided both upstream and downstream of valve disc.

**Accessories**

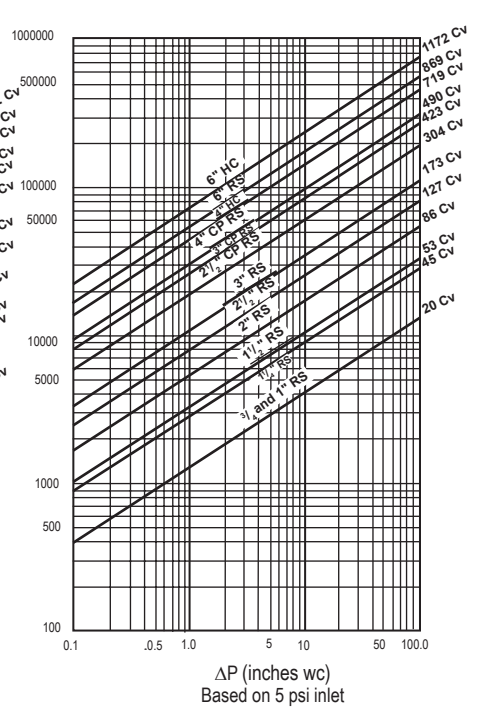
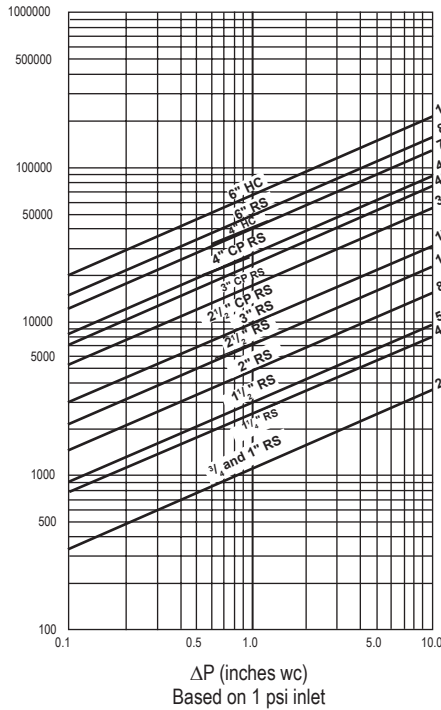
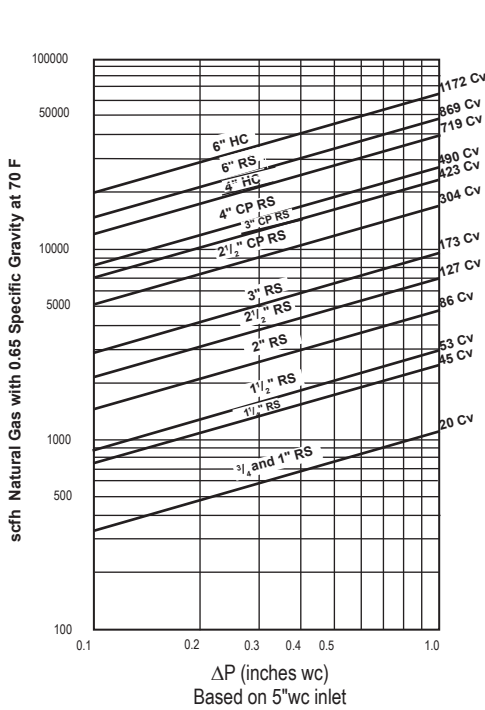
**Companion Flange Sets** (flat-faced) facilitate installation of flanged valves. Order separately.

**Wheel and Chain** assemblies allow operation of manual valves in otherwise inaccessible overhead locations. To order, specify valve with remote reset wheel and chain (2-8628-1 through -5).

**Every valve is operationally tested and meets requirements of ANSI B16.104 Class VI seat leakage when it leaves our plant.**

**WARNING:** Valve leak test should be performed on a quarterly basis to assure continued safe and reliable operation. Each valve should be checked with available line pressure. Absolute zero leakage may not be obtained in the field. Any valve that exceeds the allowable leakage, as set forth by your local codes or insurance requirements (15 bubbles per minute), should be removed from service and your North American representative should be contacted.

# CAPACITIES and VALVE SELECTION CHARTS



To calculate gas flow at other pressures:  $Q = 1360 Cv \left[ \frac{(P_1^2 - P_2^2)}{2 GT} \right]^{1/2}$

- Q = scfh
- G = specific gravity
- P<sub>1</sub> = inlet psia
- P<sub>2</sub> = outlet psia
- T = temp. (460 + F)

### APPROXIMATE OIL CAPACITY

Based on #2 Fuel Oil (60 F, 30°API) at ΔP = 1 psig

Valve	gph
1518/19-0	1200
1518/19-1	1300
1518/19-2	2900

**NOTE** — For quick sizing: Q = 140 (Cv) for 3 osig ΔP at 3 psig inlet.  
Q = 165 (Cv) for 3 osig ΔP at 10 psig inlet.

Q = 145 (Cv) for 3 osig ΔP at 5 psig inlet.  
Q = 482 (Cv) for 1 psig ΔP at 25 psig inlet.

Valve Size	Cv	scfh Nat'l Gas at 1 osig ΔP w/2 psig inlet	UL/FM/CGA SANCTIONED			NON-SANCTIONED SERIES		
			Manual Reset	Motorized	Max. psi at Inlet†	Manual Reset	Motorized	Max. psi at Inlet††
-0 (3/4")	20	1 460	1518-0	1519-0	125	1518U-0	1519U-0	30
-1 (1")	20	1 540	1518-1 1518-1-S	1519-1 1519-1-S	125	1518U-1 1518U-1-S	1519U-1 1519U-1-S	30
-2 (1 1/4")	45	3 390	1518-2	1519-2	100	1518U-2	1519U-2	30
-3 (1 1/2")	53	4 080	1518-3 1518-3-S	1519-3 1519-3-S	70	1518U-3 1518U-3-S	1519U-3 1519U-3-S	20
-4 (2")	86	6 600	1518-4 1518-4-S	1519-4 1519-4-S	70	1518U-4 1518U-4-S	1519U-4 1519U-4-S	15
-5 (2 1/2")	127	9 800	1518-5(F)	1519-5(F)	40	—	—	—
	304	23 400	1518-5-E(F) 1518-5-EFS	1519-5-E(F) 1519-5-EFS	50	1518U-5-E(F) 1518U-5-EFS	1519U-5-E(F) 1519U-5-EFS	15
-6 (3")	173	13 300	1518-6	1519-6	30	—	—	—
	423	33 300	1518-6-E(F) 1518-6-EFS	1519-6-E(F) 1519-6-EFS	40	1518U-6-E(F) 1518U-6-EFS	1519U-6-E(F) 1519U-6-EFS	10
-7 (4")	490	38 600	1518-7-EF 1518-7-EFS	1519-7-EF 1519-7-EFS	40	1518U-7-EF 1518U-7-EFS	1519U-7-EF 1519U-7-EFS	10
	719	56 600	—	1519-7-XF 1519-7-XFS	60	—	1519U-7-XF 1519U-7-XFS	10
-8 (6")	869	68 400	1518-8-F 1518-8-FS	—	20	1518U-8-F 1518U-8-FS	—	5
	1172	92 300	—	1519-8-XF 1519-8-XFS	50	—	1519U-8-XF 1519U-8-XFS	10

† May be higher depending on fluid analysis: Contact North American.

‡ Maximum operating pressure differential must not exceed the maximum inlet pressure.

(F) = Optional Flanged      S = Steel Body      E = Extra Capacity  
 F = Standard Flanged      U = Non-sanctioned      X = Rack and Pinion Operator

# ELECTRICAL DATA

## General

All standard shutoff valves are designed for operation on 115 V 60 Hz power supply. Optional voltages, Hz, direct current, or special switches, involve extra cost and extended delivery. Specify power characteristics when ordering.

A solenoid or circuit board is energized whenever valve is powered. Holding current volt-amperes are continuous once energized. Motor on any 1519 Valve is powered only during the opening stroke. The normally closed contact of a limit switch breaks motor circuit when full-open position is reached.

Flow begins within 1 second of powering. Full closure is complete within 1 second after de-energizing.

### Series 1519- -X only

Standard 120 V power input is converted by a circuit board (no solenoid) to 90 V dc output to a magnetic clutch that is energized whenever valve is powered.

Circuit board components also act as a time delay, allowing  $\frac{1}{10}$  second response lag after main power interruption (this helps avoid nuisance shutdowns).

### Valve Opening Times

1519-7-X (4")	12 seconds on 60 Hz
1519-8-X (6")	12 seconds on 60 Hz
All other 1519's	6 seconds on 60 Hz

**WARNING:** Do not attempt field repair of valve body, top assembly, or motor drive unit. Any alterations could be dangerous, and will void all warranties.

## Volt-ampere (VA) ratings

All solenoid, circuit board, and motor ratings are shown in Table I. Total connected load on any valve should not exceed 2000 VA. This limitation includes the maximum consumption shown in Table I plus the VA consumption of external equipment powered by the auxiliary switches at any one time.

TABLE I

Type	Valve Size (inches)	Series	VA Ratings (ac operation)	
			Opening	Holding
Manual Reset	$\frac{3}{4}$ -3	1518	22	22
	6	1518	34	34
	$2\frac{1}{2}$ -4	1518- -E	34	34
Motorized	$\frac{3}{4}$ -3	1519	220	22
	$2\frac{1}{2}$ -4	1519- -E	232	34
	4-6	1519- -X	376	8

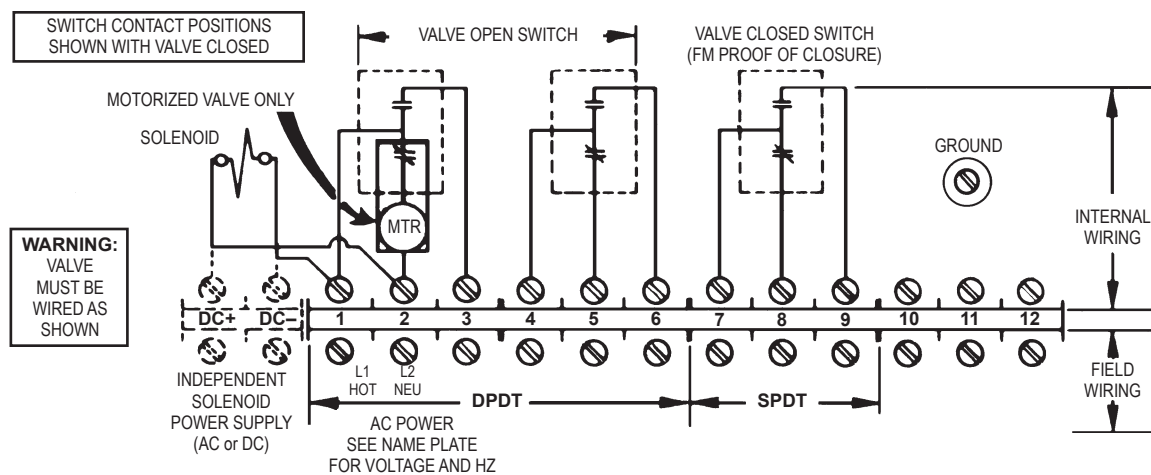
## Wiring Diagrams

Each automatic shutoff valve includes one of the wiring diagrams shown below and on Page 4. Switch contacts are shown with the valve shut, unpowered.

Wiring shown above the terminal strip is internal. Wiring below terminal strip is external (field), as required.

All wires are number-coded as shown to match terminals. Terminals "2" and "DC" are neutral; all others are hot.

## TYPICAL WIRING FOR ALL VALVES EXCEPT 1519- -X



**WARNING:** VALVE MUST BE WIRED AS SHOWN

### SWITCH RATINGS

Total connected load not to exceed 1700 VA including values from Table I

SPDT		DPDT	
125 V ac-	15 amp	125 V ac-	10 amp
250 V ac-	15 amp	250 V ac-	10 amp
125 V dc-	0.5 amp	125 V dc-	0.3 amp
250 V dc-	0.25 amp	250 V dc-	0.15 amp

### TYPICAL SWITCH ACTION

(O = Open contacts; X = Closed contacts between indicated terminals.)

Valve Position	Valve Open Switch			Valve Closed Switch	
	1-3	4-5	4-6	7-8	7-9
Fully Closed	O	X	O	X	O
Intermediate	O	X	O	O	X
Fully Open	X	O	X	O	X

## VALVE BODY AND TRIM

Standard 1518 Manual Reset and 1519 Motorized Valves have cast iron bodies with internal materials listed in table below under "Standard Trim." Cast steel bodies are available. They are specified by adding an "S" after the code number for pipe size. *Example:* 1518-4-S.

Specific internals are required for special gases such as coke oven, refinery, digester, and off gases. These are specified by adding "U" after the 1518 or 1519 number. *Example:* 1518U-4. Steel bodies may also be required.

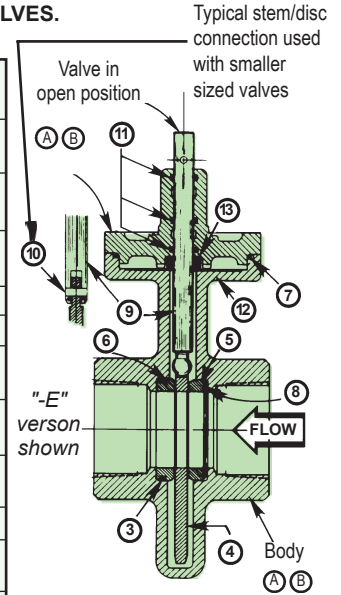
Note: The "U" versions of 1518 or 1519 Valves in -5, -5-F, and -6 sizes are not suitable for use with coke oven gas.

Body and Bonnet Specifications		Standard Body and Bonnet	"S" Body and Bonnet
A	Material	Cl, G3000, CL30	Cast Steel
B	ASTM Spec	A159	A216-WCB

**VALVES WITH "U" TRIM (INTERNALS) WILL NOT BEAR UL, FM, OR CGA LABELS. A FUEL ANALYSIS MUST BE SUBMITTED TO NORTH AMERICAN'S CLEVELAND HOME OFFICE TO DETERMINE SUITABILITY OF "U" VALVES.**

### Valve Internals

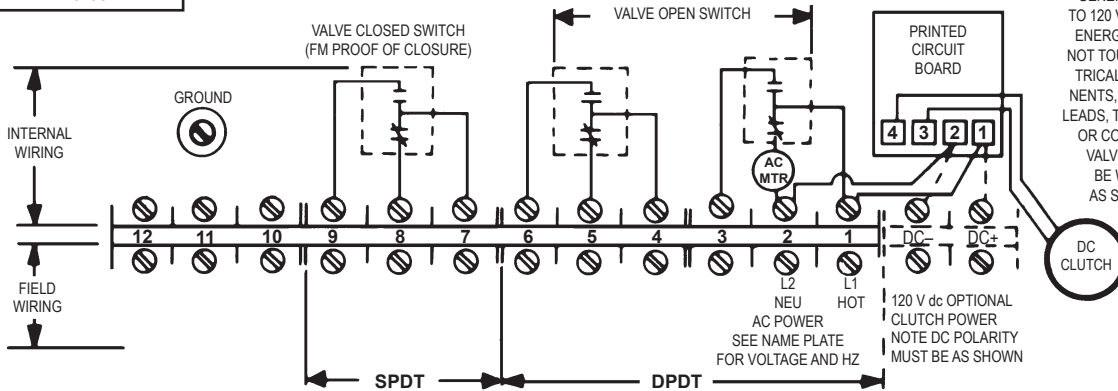
Item No.	Description	Standard Trim				"U" Trim		
		3/4-2"	2 1/2, 3" and U	4", 6"	(-E) 2 1/2-4"	3/4-2"	4", 6"	(-E) 2 1/2-4"
3	Seat	440-F SS	416 SS	303 SS	440-F SS	303 SS Hard Faced	303 SS Hard Faced	303 SS Hard Faced
4	Disc	80-55-06 DI	80-55-06 DI	80-55-06 DI	80-55-06 DI	80-55-06 DI (chr. pltd.)	80-55-06 DI (chr. pltd.)	80-55-06 DI (chr. pltd.)
5	Follow Ring	Lead alloy (ni. pltd.)	DI (ni. pltd.)	Low-C Stl (ni. pltd.)	Low-C Stl (ni. pltd.)	303 SS (chr. pltd.)	303 SS (chr. pltd.)	303 SS (chr. pltd.)
6	Seat O-Ring	Buna N	Buna N	Buna N	Buna N	Viton	Viton	Viton
7	Gasket	Buna N	Buna N	Steel	Buna N	Viton	Steel	Viton
8	Wavy-Spring Washer	302 SS	302 SS	302 SS <sup>ⓐ</sup>	302 SS	302 SS	302 SS	302 SS
9	Stem	Steel (chr. pltd.)	Steel (chr. pltd.)	Steel (chr. pltd.)	Steel (chr. pltd.)	Steel (chr. pltd.)	Steel (chr. pltd.)	Steel (chr. pltd.)
10	Stem/disc pins	High Carbon Steel (hardened)	High Carbon Steel (hardened)	shear-proof steel	—	420 SS	shear-proof steel	—
11	Stem O-Ring (3)	Buna N	Buna N	Buna N	Buna N	Viton	Viton	Viton
12	Striker Plate	17-7 SS	17-7 SS	CS (6" 1518 only)	17-7 SS	17-7 SS	CS (6" 1518 only)	17-7 SS
13	Bumper	Buna N	Buna N	Buna N	Viton	Viton	Viton	Viton
-	Clevis <sup>ⓑ</sup>	-	-	-	Ductile Iron			



- ⓐ Compression Ring
- ⓑ For 6" 808, and 4" & 6" 7000 valves only; not shown in illustration

### WIRING FOR 1519- -X ONLY

SWITCH CONTACT POSITIONS SHOWN WITH VALVE CLOSED



**WARNING:** CIRCUIT BOARD GENERATES 90 TO 120 V dc WHEN ENERGIZED. DO NOT TOUCH ELECTRICAL COMPONENTS, EXPOSED LEADS, TERMINALS, OR CONTACTS. VALVE MUST BE WIRED AS SHOWN.

#### SWITCH RATINGS

Total connected load not to exceed 1600 VA including values from Table I

SPDT		DPDT	
125 V ac-	20 amp	125 V ac-	10 amp
250 V ac-	20 amp	250 V ac-	10 amp
125 V dc-	0.5 amp	125 V dc-	0.3 amp
250 V dc-	0.25 amp	250 V dc-	0.15 amp

#### TYPICAL SWITCH ACTION

(O = Open contacts; X = Closed contacts between indicated terminals.)

Valve Position	Valve Open Switch			Valve Closed Switch	
	1-3	4-5	4-6	7-8	7-9
Fully Closed	O	X	O	X	O
Intermediate	O	X	O	O	X
Fully Open	X	O	X	O	X

**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

Fives North American Combustion, Inc., 4455 East 71st Street, Cleveland, OH 44105 USA, Phone 216.271.6000  
Fax 216.641.7852 email: fna.sales@fivesgroup.com • www.fivesgroup.com/fivesna