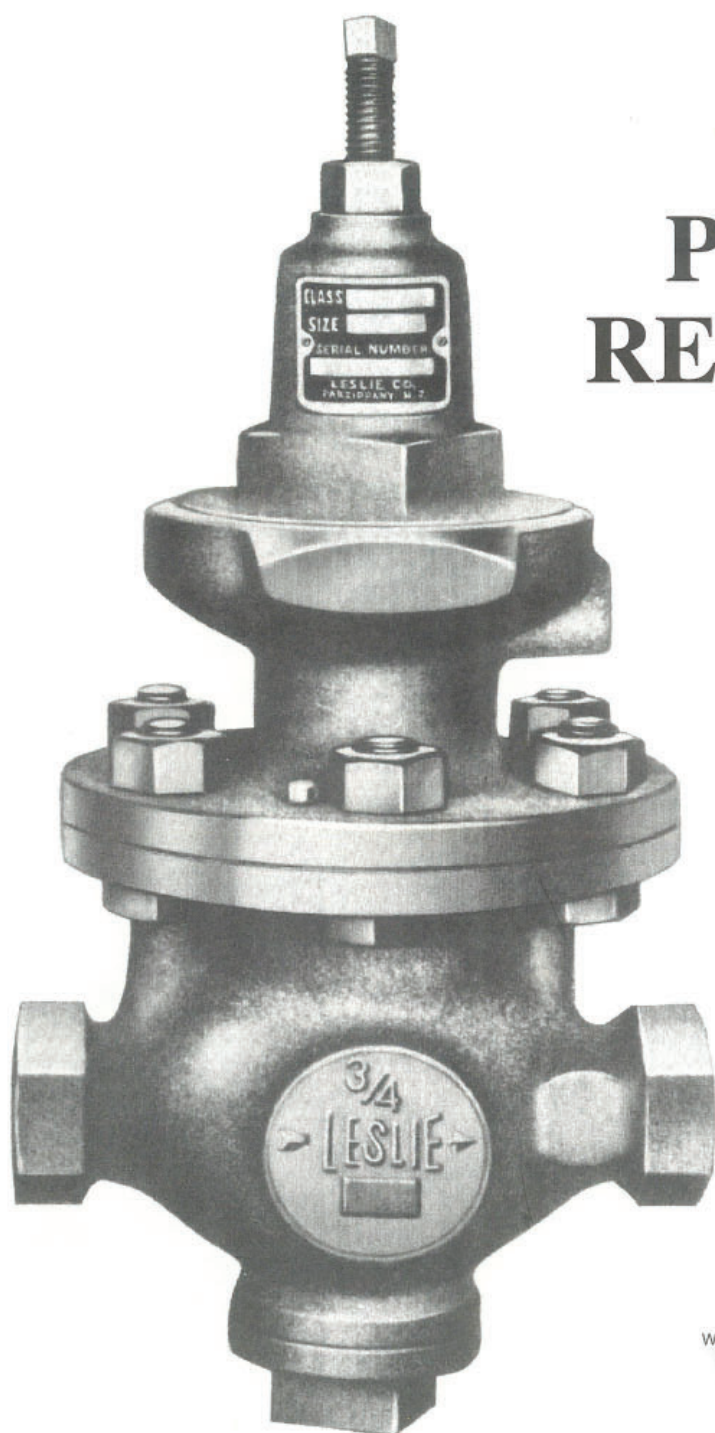


PRODUCT DATA BULLETIN

Series "L"
**REDUCING
VALVES**
and
**PRESSURE
REGULATORS**



WATTS INDUSTRIES, INC.



LESLIE
CONTROLS, INC.

SELF-CONTAINED REDUCING VALVES

The Leslie reducing valves and regulators described in this bulletin are the result of over 80 years of experience and leadership in producing equipment for industrial, marine and railroad service.

Developed to provide an accuracy of regulation comparable to instrument control, this equipment provides long, trouble-free service, and maximum resistance to corrosion and wear. Ease of maintenance, by design, has resulted in wide recognition that Leslie quality means:

“Lowest overall annual operating cost.”

WHAT IS A REDUCING VALVE?

A pressure reducing valve is an automatic fluid pressure regulating device which maintains downstream pressure at a preset value which is lower than the upstream pressure source.

The Reducing valves described here are self-contained. This means that the valve may be operated without the use of additional equipment or an external power source.

Spring loaded, direct operated, and internal pilot, piston operated reducing valves are described in this bulletin. They are designed for steam, air, gas, and small flow liquid service for initial pressures up to 1000 psi, temperatures up to 750°F, and reduced pressures from 2 to 400 psi.

WHERE TO USE REDUCING VALVES

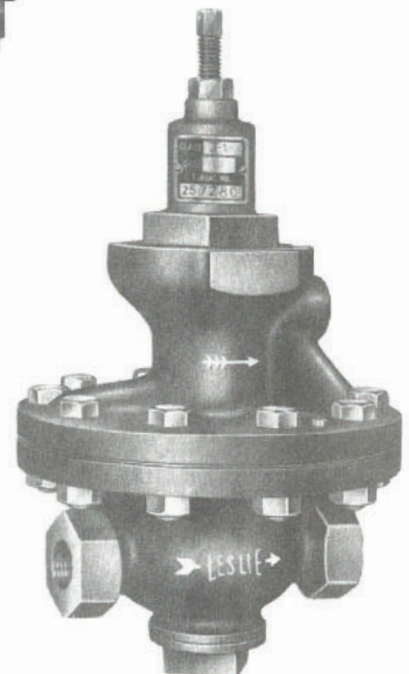
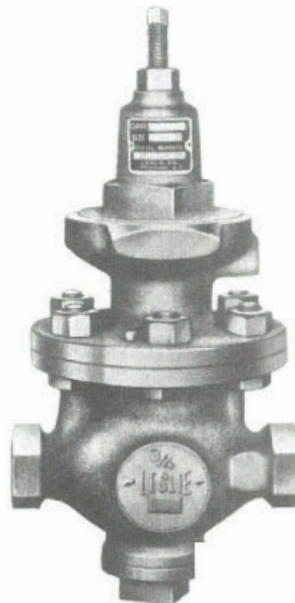
Leslie reducing valves are designed for accurate regulation under one or more of the following conditions:

- Small flow service, steam, air, gas and liquids
- Positive dead-end service
- Frequent load changes from minimum to rated flow
- Sudden load changes requiring fast valve action

Other Leslie regulators described in this bulletin are:

REMOTELY ADJUSTED REDUCING VALVES for convenient resetting of controlled pressure.

DIFFERENTIAL PRESSURE REGULATORS to respond to pressure variations of a fluid other than the one passing through the body and to maintain a differential pressure between the two fluids.



SELF-CONTAINED REDUCING VALVES

QUICK REFERENCE TABLES

Use the Quick Reference Tables below to determine which valve or regulator class is designed to handle your specific operating conditions. Locate the red box under the Inlet Pressure Range you desire. Moving to the right you will find another red box in the Adjustable Reduced

Pressure Range area which indicates the reduced pressure range available for the inlet pressure range you chose. Continue moving to the right to determine valve class and size. Page numbers are given for the location of detailed data.

SMALL FLOW REDUCING VALVES (Direct and Pilot Operated)

Inlet Pressure Range (psi)							Adjustable Reduced Press Range psi								CLASS	SIZE (IN.)	PAGE REF.
Steam			Air & Gas				1-50	2-35	5-95	5-290	10-50	10-285	5-175 [†]	25-400			
20-300	15-300	20-600	10-200	20-400	15-400	20-1000									JL	1/2	8
															J-1	1/2	8
															LCL(*)	1/2	7
															LC(*)	1/2	7
															LCL(*)S	1/2	7
															LC(*)S	1/2	7
															AW, AWG	3/4	9
															AWR, AWRG	3/4	9
															JAL-2	1/2	8
															JA-2	1/2	8
															JT [†]	1/2	10
															JAT [†]	1/2	10
															LCLA	1/2	7
															LCA	1/2	7

[†] Remotely adjusted type.

* (B), (C), (D), denoting controlling valve size.

REDUCING VALVES (Pilot Operated)

Inlet Pressure Range (psi)					Adjustable Reduced Press Range (psi)								CLASS	SIZE (INCHES)	PAGE REF.
Steam		Air & Gas													
25-250	25-300	40-1000	25-400	40-1000	2-35	5-385	10-50	5-175†	10-235	10-285	5-175†	25-400			
													LKY, LEKY	1/2-4	4
													LLKY	1/2-4	4
													LLY, LL-3	1/2-3	5
													LY, LEY	1/2-3	5
													LLS-5, LLYS-1	1/2-3	5
													LS-5, LYS-1, LES-5, LEYS-1	1/2-3	6
													LKTY†	1/2-4	10
													LTY†	1/2-3	10
													LTS-5†	1/2-3	10
													LAK, LAEK	1/2-4	5
													LA-5, LAE-5	1/2-3	5
													LAKT†	1/2-4	10
													LAT†	1/2-3	10
													LAAS-1	1/2-2	6

[†] Remotely adjusted type.

DIFFERENTIAL PRESSURE REGULATORS

Differential Pressure Range: 5-40 psi
Min. Inlet/Outlet Differential: 30 psi

Inlet Pressure Range psi							
Steam			Air & Gas		CLASS	SIZE	PAGE REF.
40-250	40-300	40-600	40-200	40-400			
					LXKY	½-3"	11
					LXY	½-3"	11
					LXS-5	½-3"	11

Series L (Cast Iron)**INTERNAL PILOT, PISTON OPERATED REDUCING VALVES**

**Class LKY, LEKY, LLKY Iron Body, for Steam Service;
LAK, LAEK Iron Body for Air, Gas Service**

FEATURES

SINGLE SEATED - closing with inlet pressure for positive dead-end shut-off.³

ACCURACY OF REGULATION - comparable to instrument control with full flow for equivalent pipe size.

WIDE ADJUSTABLE RANGE - from minimum to maximum of reduced pressure range with easy adjusting screw. No springs or diaphragms to change.

FULLY GUIDED MAIN VALVE - prevents rubbing or binding of internal parts.

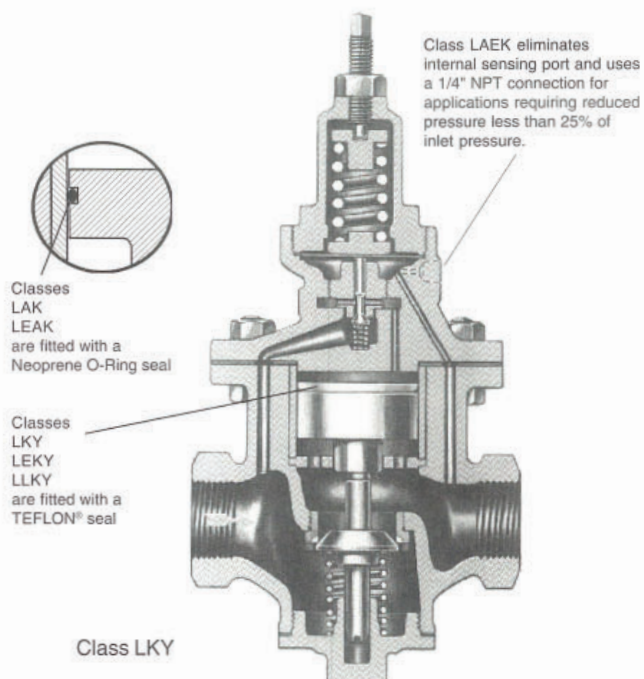
PISTON WITH TEFLON® SEAL - for temperatures up to 450°F gives continuous wiping action, keeping liner clean, improving reliability and reducing maintenance.

SENSITIVE STAINLESS STEEL DIAPHRAGM responds instantly to any flow change and eliminates stuffing boxes and bellows seals. Full travel less than its own thickness minimizes stress.

RENEWABLE, INTERCHANGEABLE PARTS - machined to close tolerances; complete overhaul without machining or removing valve body from the line.

REMOTE ADJUSTMENT SUPERSTRUCTURE for convenient adjustment by air loading. See page 10 for details.

GRADUAL OPENING PORTED MAIN VALVE - in sizes 2 1/2" and larger for improved throttling control under low flow conditions.

**PRESSURE RANGES AND CONSTRUCTION**

Capacity Data see page 12

BODY MAT'L	CLASS	SIZE	INLET PRESSURE & TEMPERATURE	REDUCED PRESSURE RANGE-PSI ¹		END CONNECTIONS	TRIM PARTS AND MATERIALS					
				MIN. ²	MAX.		SEAT RING	MAIN VALVE ³	CON-TROLLING VALVE	CYLINDER LINER	CON-TROLLING VALVE SEAT	LOWER DIA-PHRAGM
Cast Iron	LKY LEKY	1/2-4"	25-250 psi 450°F Max.	10*	235	1/2-2" 250 lb. Threaded 1/2-4" 125 or 250 lb. Flanged	400 Series Stainless Steel, STELLITE®	400 Series Stainless Steel, Hardened	400 Series Stainless Steel, Hardened	Cast Bronze with TEFLON® Seal	18-8® Stainless Steel	Cast Bronze with TEFLON® Seal
	LLKY			2**	35							
	LAK LAEK	1/2-4"	25-400 psi 150°F Max.	5*	385	1/2-4" 125 & 250 lb. Flanged	Cast Bronze	18-8® Stainless Steel Stem Neoprene Seating Disc	Phosphor Bronze and MONEL®	Bronze	Phosphor Bronze with Plastic Seating Surface	Cast Bronze with Neoprene O-Ring

* 5% of inlet pressure over 200 psi

** 5% of inlet pressure over 100 psi

¹ Minimum differential between inlet and outlet pressures is 15 psi.

² Models with external sensing line required for reduced pressure less than 25% of inlet pressure.

³ Soft seat configuration required for dead end service.

® See page 15 for listing of trademarks and their owners.

Series L (Bronze)**INTERNAL PILOT, PISTON OPERATED REDUCING VALVES****Classes LY, LEY, LLY, L-3, LE-3, LL-3 Bronze Body for Steam Service;
LA-5, LAE-5 Bronze Body For Air Service****FEATURES**

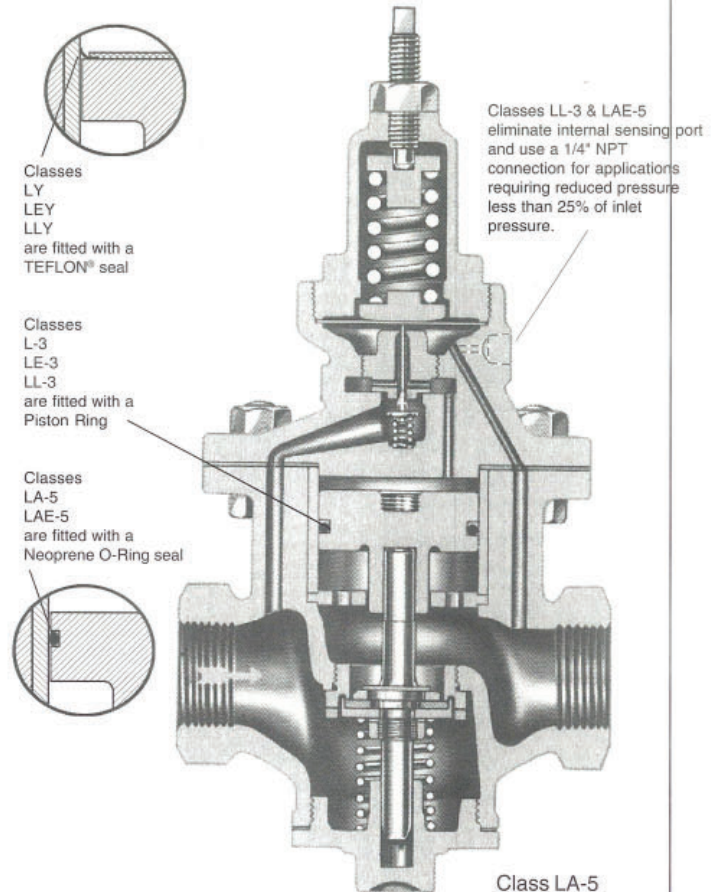
Features for Classes LY, LEY, LLY, L-3, LE-3, LA-5, and LAE-5 are the same as those of Class LKY.

INTERNAL SPRINGS - of INCONEL® are non-corroding and heat resistant.

OPTIONAL FEATURES

FOR LOW REDUCED PRESSURES OR EXPANDED OUTLET PIPING - Use Class LLY (2-35 psi) or LEY (10-285 psi) similar to LY except fitted with 1/4" external control pipe connection (no internal control port). External control pipe eliminates effect of turbulence at outlet body throat due to high pressure drop, increasing capacity under heavy flow conditions. Effective only if outlet piping is expanded. Expand to twice valve size when reducing to 25% or less of the inlet pressure. Use taper expander if possible.

REMOTE ADJUSTMENT SUPERSTRUCTURE for convenient adjustment by air loading. See page 10 for details.



Class LA-5

PRESSURE RANGES AND CONSTRUCTION

Capacity Data see page 12

BODY MAT'L	CLASS ²	SIZE	INLET PRESSURE & TEMPERATURE	REDUCED PRESSURE RANGE-PSI ¹		END CONNECTIONS	TRIM PARTS AND MATERIALS					
				MIN.	MAX.		SEAT RING	MAIN VALVE ³	CON-TROLLING VALVE	CYLINDER LINER	CON-TROLLING VALVE SEAT	PISTON
Bronze	LY LEY L-3	1/2-3"	20-300 psi 500°F Max. ²	10*	285	1/2-2" 300 lb. Threaded	400 Series Stainless Steel, STELLITE®	400 Series Stainless Steel, Hardened	400 Series Stainless Steel, Hardened	18-8" Stainless Steel	Bronze	Cast Bronze w/ TEFLON® Seal
	LE-3 LL-3 LLY			2***	35	1/2-4" 150 & 300 lb. Flanged						Cast Bronze w/ Steel Piston Ring
	LA-5 LAE-5		25-400 psi 150°F Max.	5**	385	1/2-2" 300 lb. Threaded 1/2-4" 150 & 300 lb. Flanged	Cast Bronze	18-8" Stainless Steel Stem Neoprene Seating Disc	Phosphor Bronze and MONEL®	Bronze	Phosphor Bronze with Plastic Seating Surface	Cast Bronze with Neoprene O-Ring

* 5% of inlet pressure over 200 psi

** 5% of inlet pressure over 100 psi

*** 2% of inlet pressure over 100 psi

¹ Minimum differential between inlet and outlet pressures is 15 psi.

² Classes L-3, LE-3, LL-3, are fitted with a piston ring instead of TEFLON® seal and are suitable for max. temp of 550°F.

³ Soft seat configuration required for dead end service.

© See page 15 for listing of trademarks and their owners.

Series L (Steel)**INTERNAL PILOT, PISTON OPERATED, REDUCING VALVES****Classes LS-5*, LYS-1, LES-5, LEYS-1*, LLS-5, LLYS-1, LAAS-1
Steel Body for Steam, Air or Gas Service****FEATURES**

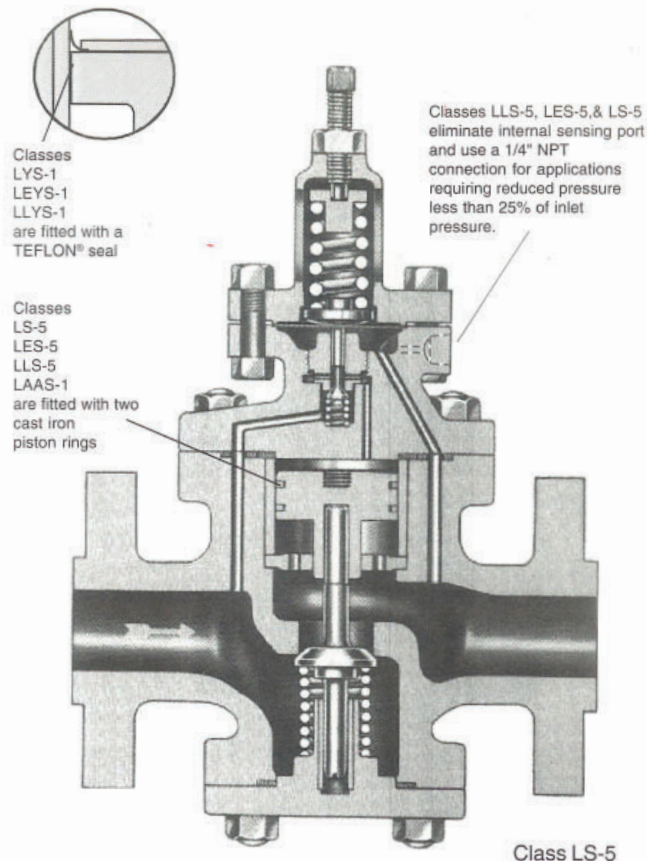
Features for Classes LS-5, LYS-1, LES-5, LEYS-1, LLS-5, LLYS-1, and LAAS-1 are the same as those of Class LKY (see page 4) except for the following features.

INTERNAL SPRINGS of INCONEL® are noncorroding and heat resistant.

OPTIONAL FEATURES

FOR LOW REDUCED PRESSURES OR EXPANDED OUTLET PIPING - Use Class LLS-5 (10-50 psi) or LES-5 (25-400 psi) similar to LS-5 except fitted with 1/4" external control pipe connection (no internal control port). External control pipe eliminates effect of turbulence at outlet body throat due to high pressure drop, increasing capacity under heavy flow conditions. Effective only if outlet piping is expanded. Expand to twice valve size whenever reducing to 25% or less of the inlet pressure. Use taper expander if possible.

REMOTE ADJUSTMENT SUPERSTRUCTURE may be supplied for convenient adjustment by air loading device including pressure limit control if desired. See page 10 for details.



Class LS-5

PRESSURE RANGES AND CONSTRUCTION

Capacity Data see page 12

BODY MAT'L	CLASS	SIZE	INLET PRESSURE & TEMPERA- TURE ²	REDUCED PRESSURE RANGE-PSI ¹		END CONNECTION	TRIM PARTS AND MATERIALS			
				MIN.	MAX.		SEATING SURFACE	MAIN & CONTROLLING VALVES; CONTROLLING VALVE SEAT & CYLINDER LINER	PISTON	
Cast	LS-5	1/2-3"	40-1000 PSI 750°F max.†	25*	400	1/2-2" 600 lb. Threaded	Integral STELLITE®	400 Series stainless steel, hardened	400 Series Stainless Steel with Cast Iron Piston Rings†	
	LYS-1†					1/2-3" 150, 300,				
	LEYS-1†			10**	50	& 600 lb. Flanged				
	LLS-5									
Steel	LAAS-1	1/2 - 2"	25-500 psi 180°F max.	5***	385	1/2-2" SWE, THD 150, 300, & 600 lb. Flanged W/ TEFLON® insert	416 St. Steel/ TEFLON®	300 Series St. St. except MAIN VALVE: 420 St. St. CYL. LINER: Bronze	Bronze w/ Cast Iron Piston Rings	

* 8% of inlet pressure over 300 psi

** 4% of inlet pressure over 250 psi

*** 5% of inlet pressure over 100 psi

† LYS-1, LEYS-1, LLYS-1 are fitted with a TEFLON® piston cup washer for steam service up to 500°F.

1 Minimum differential between inlet and outlet pressures is 15 psi.

2 1000 psi, 665°F maximums in air and gas service

® See page 15 for listing of trademarks and their owners.

Series LC

DIRECT OPERATED REDUCING VALVES

Classes LC(*), LCL(*) Bronze Body; LC()S, LCL(**)S Steel Body
LC(**)SS, LCL(**)SS Stainless Steel Body**

FEATURES

COMPACT DESIGN - Simple, direct operated design has screwed or bolted adjusting spring assembly, providing easy access to controlling valve and seat. No stuffing boxes or bellows seals.

FOUR SIZES OF CONTROLLING VALVES - 3/32" (A), 1/4" (B), 5/16" (C), and 1/8" (D). (A) is bronze with resilient seat for air and gas service. Available in bronze body only. (B), (C), and (D) are hardened stainless steel machined and ground to a high finish for smooth action and reduced wear.

CORROSION RESISTANT METAL DIAPHRAGM for long service. Provides simple gasketless seal.

WIDE RANGE OF ADJUSTMENT - Minimum to maximum reduced pressure accomplished by simple handwheel adjustment. No need to change springs.

INTERNAL SPRINGS of INCONEL® are non-corroding, heat resistant.

PRECISION MACHINED INTERCHANGEABLE PARTS - no further machining of body or replacement parts is necessary. New parts always fit perfectly.

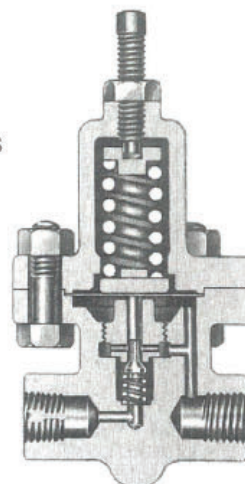
APPLICATIONS

Leslie small flow reducing valves are used in pilot plant operations, plastic molding presses, laboratory units, gland sealing, steam sterilization and atomizer units and wherever control of small flows of steam, air, gas or non-corrosive liquids are a problem.

HOW THEY OPERATE

The handwheel compresses the adjusting spring against a metallic diaphragm, opening the controlling valve and admitting pressure to the reduced pressure system. Reduced pressure acting on the underside of the diaphragm increases until it balances compression of the adjusting spring at the set value. Load or flow change results in an immediate pressure change under the diaphragm, instantly repositioning controlling valve. Flow increase creates a slight drop in reduced pressure permitting the controlling valve to open more. Flow decrease acts to raise the reduced pressure closing the controlling valve. Reduced pressure is proportional to the flow change.

Class LCBS



PRESSURE RANGES AND CONSTRUCTION

Capacity Data see pages 12 - 14

BODY MATERIALS and CONSTRUCTION	CLASS	MAX. INLET PRESS (PSI)		MAX. TEMP. °F	MIN. PRESS. DROP PSI	REDUCED PRESS. RANGE PSI	TRIM PARTS AND MATERIALS			
		STEAM	COLD LIQUID AIR OR GAS				ORIFICE SIZE AND DESIGNATION	CONTROLLING VALVE MATERIAL	VALVE SEAT ³	VALVE SPRING
BRONZE Screwed Bonnet 1/2" Threaded	LCA	—	400	150	10	5-285	3/32" (A) 1/4" (B) 5/16" (C) 1/8" (D)	Bronze	Resilient	Bronze
	LCC	300	400	550	10	10-285		17-4-PH® Stainless, (hardened)	18-8® Stainless	INCONEL®
	LCLA	—	400	150	10	2-35		Bronze	Resilient	Bronze
	LCLB LCLC LCLD	300	400	550	10	2-35		17-4-PH® Stainless (hardened)	18-8® Stainless	INCONEL®
STEEL* Thru bolted Bonnet 1/2" bolted	LCBS LCCS LCDS	600	1000	750	10	25-400	1/4" (B) 5/16" (C) 1/8" (D)	17-4-PH® Stainless (hardened)	18-8® Stainless	INCONEL®
	LCLBS LCLCS LCLDS	600	1000	750	10	10-50				

* Also available in 316 stainless steel. Add "S" to class designation - LCBS, etc.

³ Soft seat configuration required for dead end service.

® See page 15 for listing of trademarks and their owners.

Series J

PILOT OPERATED REDUCING VALVES

Classes J-1, JL Bronze Body for Steam Service; JA-2, JAL-2, Bronze Body for Air or Gas Service

FEATURES

SINGLE-SEATED - closing with inlet pressure for positive dead-end service.

ACCURACY OF REGULATION - comparable to instrument control with full flow for equivalent pipe size. See page 14 for capacity data.

WIDE SPRING RANGE - minimum to maximum reduced pressure, 5-290 psi or 1-50 psi, with easy handwheel adjustment. No springs or diaphragms to change.

LONG GUIDING SURFACES - with high finishes on all moving parts to assure true alignment, prevent cocking or binding.

CORROSION RESISTANT MATERIALS - move freely even after prolonged tight shut-off. Internal springs are non-corroding, heat resistant INCONEL®.

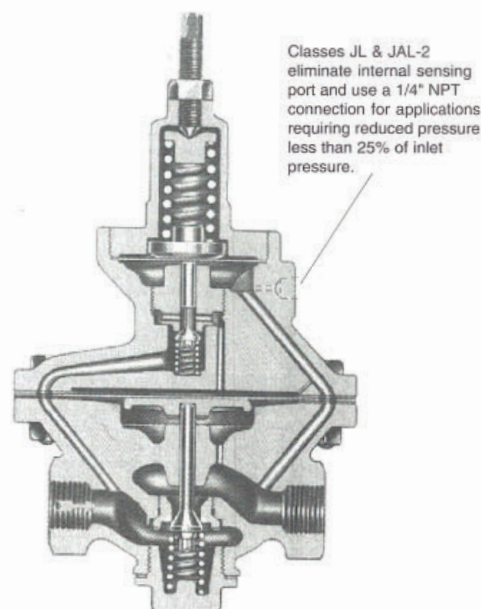
RENEWABLE, INTERCHANGEABLE PARTS are machined to close tolerances. Overhaul completely, without machining or removing valve body from the line.

OPTIONAL FEATURES

FOR LOW REDUCED PRESSURES, 1-50 psi - Use Class JL similar to J-1, and JAL-2 similar to JA-2, except fitted with 1/4" external control pipe connection (no internal port for reduced pressure).

External control pipe eliminates the effect of turbulence at outlet body throat, increasing capacity under heavy flow conditions. Effective if outlet piping has been expanded.

REMOTE ADJUSTMENT SUPERSTRUCTURE may be supplied for convenient remote adjustment by air loading device including pressure limit control if desired. See page 10 for details.



CLASS J-1

PRESSURE RANGES AND CONSTRUCTION

Capacity Data - See page 14

BODY MAT'L	CLASS	SIZE	INLET PRESSURE & TEMPERATURE	REDUCED PRESSURE RANGE-PSI ¹		TRIM PARTS AND MATERIALS				
				MIN.	MAX.	SEAT RING ³	MAIN VALVE	CON-TROLLING VALVE	CON-TROLLING VALVE SEAT	LOWER DIA-PHRAGM
Bronze	J-1	1/2" Threaded Ends	20-300 psi 550°F Max. Steam	5*	290	400 Series Stainless Steel, STELLITE®	400 Series Stainless Steel, Hardened	400 Series Stainless Steel, Hardened	Type 302 Stainless Steel	Phosphor Bronze
	JL			1**	50					
	JA-2		20-400 psi 150°F Max. Air	5*	290	Bronze with Plastic Insert	400 Series Stainless Steel, Hardened	Bronze and MONEL®	Bronze with Plastic Seating Surface	Synthetic Rubber
	JAL-2			1**	50					

* 5% of inlet pressure over 100 psi.

** 1% of inlet pressure over 100 psi

¹ Minimum differential between inlet and outlet pressures-10 psi

³ Soft seat configuration required for dead end service.

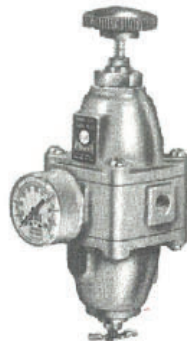
© See page 15 for listing of trademarks and their owners.

SMALL FLOW REDUCING VALVES AND LOADERS

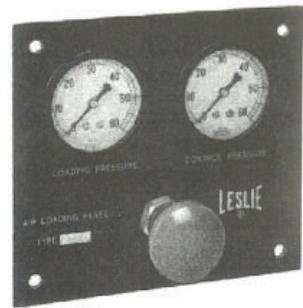
Leslie Airmate for Air Pressure Reducing Valves

The Leslie-Airmate is an extremely stable, high capacity air loader/regulator which is ideal for instrument air control and for a variety of small flow (up to 32 SCFM) air systems. Patented aspirator in the valve provides exceptional accuracy over the entire flow range.

Maximum inlet pressure, 200 psi, temperatures to 150°F; reduced pressure ranges, 2-30, 3-60, 30-150; continuous bleed .04 SCFM; die cast aluminum body and spring case.



Leslie-Airmate
Class AFG



Air Loading Panel
Class 60-PPF-1

Complete data available in Leslie Bulletin 30/1.1.1

Classes AW, AWG, for Pressure Reducing; Air or Water AWR, AWRG for Pressure Reducing and Relief; Air

FEATURES

RUGGED QUALITY CONSTRUCTION - 200 lb. cast bronze body. Corrosion and wear resistant parts, renewable and fully interchangeable in the field. Rubber diaphragm and seat insert. Adjusting spring has square-ground ends to assure straightline valve travel.

COMPACT DESIGN - Simple, direct operated design has screwed adjusting spring assembly for easy access to internal parts.

QUIET OPERATION - even at minimum pressure drops and low reduced pressures.

FOR PRESSURE REDUCING OR RELIEF - Classes AW and AWG (G for Gage) for pressure reducing only. Classes AWR and AWRG (R for Relief) for combined pressure reduction and relief (supplied with handwheel).

APPLICATIONS

Air, gas, water, and light oil service for controllers instruments, loading and pilot devices, machine tools, testing and laboratory equipment, process machinery and many others. Suitable for panel mounting.

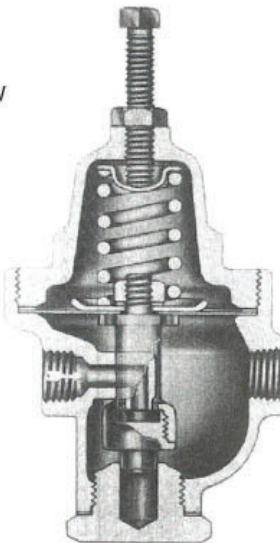
Capacity Data - See pages 13

PRESSURE RANGES* AND TRIM MATERIAL

CLASS	BODY MAT'L & SIZE	INLET PRESS. & TEMP	REDUCED PRESS. PSI	BODY & SEAT	MAIN VALVE	MAIN VALVE SPRING	DIA- PHAGM
AW AWG	Bronze 1/4"	10-200 psi 150°F	5-95	Bronze	Bronze with rubber disc	—	Rubber
AWR AWRG	Thd. Ends	10-200 psi 150°F	5-95			INCONEL®	

* Minimum differential inlet and outlet pressure 5 psi.
 @ See page 15 for listing of trademarks and their owners.

Class AW



REMOTELY ADJUSTED REDUCING VALVES

Classes JT, JAT, LKTY, LTY, LAKT, LAT, LTS-5, LTYS-1

Leslie remotely adjusted reducing valves are similar in construction and characteristics to corresponding classes of handwheel adjusted reducing valves. See table below. Remote adjustment is accomplished by air loading the upper diaphragm that replaces the spring case and handwheel assembly, and is designated by adding "T" to reducing valve class. See illustration.

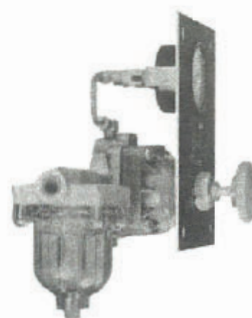
EASY CONVERSION IN THE FIELD

Most Leslie manually adjusted reducing valves of the general types previously described may be easily converted in the field to a remotely operated valve. See table below for conversion class designations.

PRINCIPLE OF OPERATION

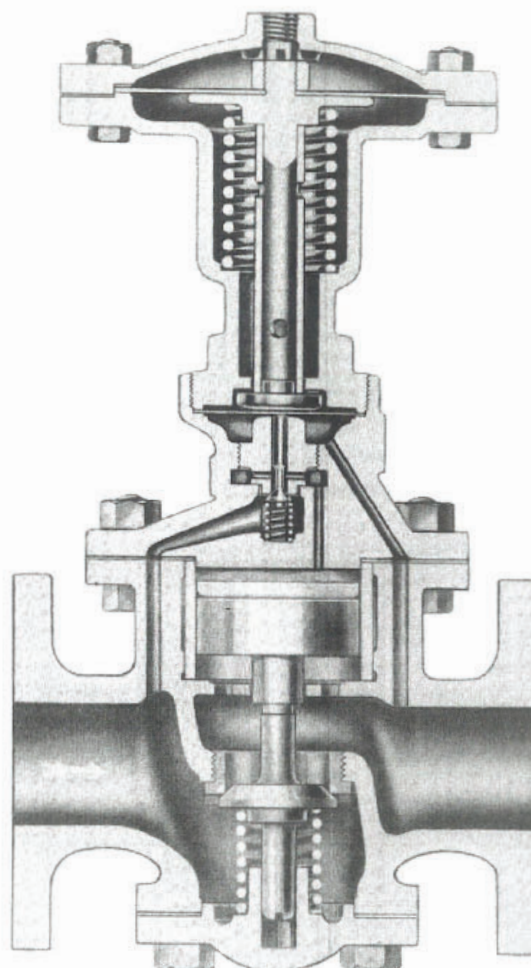
The reducing valve is adjusted to the desired pressure setting by air pressure from a Type P-1 air loading panel. The constant loading force on the upper diaphragm opens the pilot valve and is balanced by a constant reduced pressure proportional to the loading force.

The air loading panel eliminates hazardous or inconvenient adjustments and also provides a fast way to readjust reduced pressure to meet changing requirements.



Air Loading Panel
Class 60-PF-1

Type "T" Superstructure mounted on Class LKY reducing valve body becomes Class LKTY remotely adjusted reducing valve.



Conversion Class Designations for Remotely Operated Valves

CORRESPONDING CLASS OF MANUALLY ADJUSTED VALVE	PAGE REFERENCE	CLASS OF REMOTELY ADJUSTED VALVE	REDUCED PRESSURE RANGE PSI
LKY	4	LKTY	10-175*
J-1	8	JT	5-175**
JA-2	8	JAT	5-175**
LY	5	LTY	10-175*
LA-5	6	LAT	5-175**
LAK	4	LAKT	5-175**
LS-5	6	LTS-5	25-175***
LYS-1	6	LTYS-1	25-175***

* 5% of inlet pressure over 200 psi

** 5% of inlet pressure over 100 psi

*** 8% of inlet pressure over 300 psi

NOTE: Ratio of increase in reduced pressure to increase in loading pressure is 7:1. 8-10 psi loading pressure required to open valve. Maximum allowable loading pressure is 35 psi.

Series LX

PILOT OPERATED DIFFERENTIAL PRESSURE REGULATORS

Classes LXY, LXY, LXS-5 Cast Iron, Bronze and Cast Steel Regulators

FEATURES

SINGLE-SEATED - closing with inlet pressure for positive dead-end shut-off.

ACCURACY OF REGULATION - comparable to instrument control with full flow for equivalent pipe size.

WIDE ADJUSTABLE RANGE - from minimum to maximum reduced pressure range with easy handwheel adjustment. No springs or diaphragms to change.

NEW TYPE PISTON WITH TEFLON® SEAL - for temperatures up to 500°F (450°F for cast iron regulators) gives continuous wiping action, keeping liner clean, improving operating reliability and reducing maintenance. Piston rings can be furnished for temperatures over 500°F in bronze and steel regulators.

FULLY GUIDED MAIN VALVE - prevents rubbing or binding of internal parts.

GRADUAL OPENING PORTED MAIN VALVE (Classes LXY, LXY, LXS-5 Cast Iron, Bronze and Cast Steel Regulators ONLY) - in sizes 2 1/2" and larger for improved throttling control under low flow conditions.

SENSITIVE STAINLESS STEEL DIAPHRAGM responds instantly to any flow change and eliminates stuffing boxes and bellow seals. Full travel less than its own thickness reduces stress to a minimum.

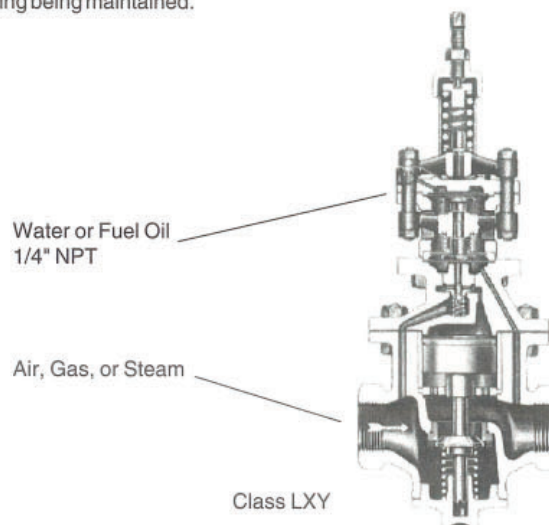
INTERNAL SPRINGS of INCONEL® are non-corroding, heat resistant.

RENEWABLE INTERCHANGEABLE PARTS - machined to close tolerances; complete overhaul without machining or removing valve body from the line.

HOW THEY OPERATE

Differential Pressure Regulators maintain a constant differential between the air, gas or steam pressure passing through the regulator and any other liquid or gas pressure whose relationship to the regulator outlet pressure should be a constant, regardless of operating variations.

External fluid pressure acts on upper diaphragm and yoke to open controlling valve and main valve. Regulator outlet pressure increases and balances external pressure by acting upward under the lower diaphragm. By adding or subtracting adjusting spring force with the handwheel to the external fluid pressure, a higher or lower regulator outlet pressure is created. Changes in either pressure due to flow result in the constant differential setting being maintained.



NOTE: Do not reverse water or fuel oil with air, gas, or steam connection.

PRESSURE RANGES AND CONSTRUCTION

Capacity Data - See page 12

BODY MAT'L	CLASS	SIZE	INLET PRESSURE & TEMPERATURE	DIFFERENTIAL PRESSURE RANGE-PSI ¹		END CONNECTION	TRIM PARTS AND MATERIALS			
				MIN.	MAX.		SEAT RING	MAIN & CONTROLLING VALVES	CONTROLLING VALVE SEAT	CYLINDER LINER AND PISTON
Bronze	LXY	1/2-3" 500°F Max.	40-300 psi	5	40	1/2-2" 300 lb. threaded 1/2-3" 150 & 300 lb. flanged	400 Series Stainless Steel, STELLITE®	400 Series Stainless Steel, Hardened	Type 302 Stainless Steel	Bronze with TEFLON® Piston Seal
Cast Iron	LXKY	1/2-3" 450°F Max.	40-250 psi	5	40	1/2-2" 250 lb. threaded 1 1/2-3" 125 lb. flanged 1 1/2-3" 250 lb. flanged				
Cast Steel	LXS-5	1/2-3" 750°F Max.	40-600 psi	5	40	1/2-3" 150,300,400 & 600 lb. flanged	Integral STELLITE® Seating Surface		400 Series Stainless Steel	400 Series Stainless Steel

* Ratings for air or clean gas (150°F) 40-400 psi 250 lb. cast iron and 300 lb. bronze regulators, 40-1000 psi at 665°F for cast steel.

¹ Minimum differential between inlet and outlet pressures is 30 psi

® See page 15 for listing of trademarks and their owners.

Internal Pilot, Piston Operated, Reducing Valves & Pressure Regulators

SIZING AND CAPACITY DATA

Reliability in a service and maintenance expense are greatly dependent on correct sizing and installation.

Maximum steam flow must be calculated with full information and based on accurate data for each steam consumer including condensation losses. See Leslie Bulletin 5/0.1.1 for helpful information in figuring flows for steam, air and gas equipment or estimating steam flow. Use caution in making allowances in your maximum flow for overloads or future requirements.

Reducing Valves should be sized to operate as closely as possible to their rated capacities and in no case to operate continuously at less than 10% of their rated capacity although they will throttle accurately to no flow during load changes.

To properly size a reducing valve the following information should be available:

- Maximum and minimum inlet pressures
- Superheat, if any
- Reduced pressure or range
- Maximum and minimum continuous flow in lbs. of steam per hour or cu. ft. of free air or gas per minute to be delivered

In the table find Inlet Pressure corresponding to your minimum inlet pressure. Select outlet pressure column closest to your reduced pressure requirements. Find capacity figure equal to your estimated maximum or slightly greater. The reducing valve size is shown in the left hand column horizontally opposite this figure.

CORRECTIONS FOR SUPERHEAT: Multiply figure from capacity table by proper factor below:

INLET PRESSURE	°F SUPERHEAT					
	50	100	150	200	300	400
To 600 psi	0.92	0.85	0.80	0.75	0.65	0.59
600 to 1500 psi	0.85	0.79	0.73	0.69	0.62	0.56
1500 to 2000 psi	0.78	0.72	0.66	0.61	0.54	0.49

CONVERSION TO AIR CAPACITIES:

$$\#/\text{hr.} / 2.9 = \text{SCFM @ } 60^{\circ}\text{F}$$

CONVERSION TO GAS CAPACITIES:

$$\text{SCFM} \times 2.9 / \text{SG} = \#/\text{hr.}$$

Capacities in lbs. of saturated steam per hour (#/hr.)

Press.	Inlet	25	50	75	100			125		• All pressures are in pounds per square inch (psig).										
		(267°F)	(298°F)	(320°F)	(338°F)			(353°F)												
Valve size, inches	Outlet	0-14	0-27	0-40	0-55	75	85	0-70	100	• Rated capacities do not increase for lower reduced pressures than shown for each inlet pressure.										
	1/2	102	160	220	275	250	210	330	280											
	3/4	190	300	400	510	460	385	620	520											
	1	316	500	675	850	765	640	1020	860											
	1 1/4	560	885	1200	1520	1365	1150	1825	1530											
	1 1/2	770	1215	1650	2100	1875	1600	2500	2100											
	2	1290	2035	2770	3500	3100	2650	4200	3500											
	2 1/2	1850	2915	3960	5000	4500	3800	6000	5000											
	3	2880	4550	6180	7800	7000	5920	9400	8000											
	3 1/2	3880	6125	8325	10500	9500	7980	12600	10800											
4	5000	7900	10800	13500	12200	10300	16300	13700	• Rated capacities are based on 99% Accuracy of Regulation.											
Press.	Inlet	150 (366°F)				175 (378°F)				200 (388°F)				225 (397°F)						
	Outlet	0-80	100	125	0-95	125	150	1-110		125	150	175	0-125	150	175					
Valve size, inches	1/2	390	375	300	450	415	330	500		490	450	350	560	540	485					
	3/4	725	700	560	825	775	620	925		910	835	650	1050	1000	900					
	1	1200	1150	930	1360	1280	1025	1540		1460	1335	1075	1715	1700	1500					
	1 1/4	2150	2075	1610	2440	2300	1800	2750		2700	2475	1925	3060	2960	2650					
	1 1/2	3000	2800	2300	3350	3150	2500	3780		3700	3400	2650	4215	4075	3600					
	2	4900	4800	3800	5600	5300	4200	6300		6200	5700	4400	7000	6800	6100					
	2 1/2	7000	6800	5500	8000	7600	6000	9100		13900	12200	9400	10100	9800	8800					
	3	11000	10700	8600	12500	11800	9400	14200	18700	16700	13000	15800	15200	13600						
	3 1/2	15000	14400	11500	17000	16000	13000	19000	27100	24100	19000	21200	20500	18300						
	4	19000	18500	15000	22000	20000	16000	24600	32100	28100	22000	27400	26500	23800						
Press.	Inlet	250 (406°F)				300 (421°F)			400 (448°F)			450 (459°F)			500 (469°F)			600 (490°F)		
	Outlet	0-135	150	200	0-165	200	250	0-220	300	0-250	300	0-300	0-350	400						
Valve size, inches	1/2	610	600	515	725	700	565	955	860	1070	1030	1190	1430	1380						
	3/4	1135	1120	950	1340	1300	1050	1760	1580	1980	1910	2190	2630	2530						
	1	1880	1850	1580	2225	2160	1750	2900	2600	3300	3175	3610	4330	4175						
	1 1/4	3350	3300	2800	3975	3850	3100	5200	4700	5900	5700	6475	7770	7490						
	1 1/2	4625	4550	3885	5470	5300	4270	7200	6500	8000	7800	8960	10800	10400						
	2	7700	7600	6500	9100	8900	7200	12000	11000	13500	13000	14950	17900	17250						
	2 1/2	11100	11000	9300	13100	12700	10200	17200	15500	19500	18700	21500	25700	24750						
	3	17300	17000	14500	20500	19800	16000	26900	23300	30000	29000	33500	40200	38700						
	3 1/2	23300	23000	19500	27500	26700	21500	36000	32500	41000	39000	44800	53800	51800						
	4	30100	29600	25300	36000	34000	28000	47000	41300	53000	51000	58500	70200	67700						
Press.	Inlet	700 (505°F)				800 (520°F)			900 (534°F)			1000 (548°F)								
	Outlet	0-390	450	560	0-440	500	600	0-500	600	0-550	600									
Valve size, inches Classes HS 6, IS-4	1/2	2200	2160	1850	2550	2510	2285	2870	2750	3200	3170									
	3/4	4180	4110	3510	4800	4725	4300	5400	5175	6000	5940									
	1	6775	6650	5700	7825	7700	7000	8875	8500	10000	9800									
	1 1/4	12300	12100	10650	14000	13800	12550	16000	15320	17800	17600									
	1 1/2	20500	20150	17200	23600	23200	21150	27000	25850	30000	29700									
	2	27100	26600	22800	31300	30800	28200	35400	34000	40000	39600									
	2 1/2	38900	38200	32700	44900	44200	40500	50800	48800	57400	56800									
	3	60500	59400	50900	69900	68800	63000	79000	75900	89300	88400									
	3 1/2	82100	80500	68500	94500	92000	83000	106000	102000	121000	118000									
	4	108000	106000	90000	124000	121000	108000	138000	134000	158000	155000									

Shaded Areas Discontinued - For Reference Only

Small Flow Reducing Valves

SIZING AND CAPACITY DATA

Capacity and Accuracy of Regulation

To correctly and accurately give the capacity of this type of reducing valve, it is required that capacity be stated in terms of accuracy of regulation. Self-operated, spring loaded reducing valves obtain opening force from a drop in reduced pressure and should be adjusted while passing a minimum flow (not dead-end). The reduced pressure obtained by slowly increasing the flow to rated capacity is a measure of Accuracy of Regulation. Therefore, a reducing valve set to deliver 20 psi pressure at minimum flow has a 75% accuracy of regulation if it delivers 15 psi at rated capacity. For example:

Inlet Pressure = 100 psi Accuracy of Regulation = 75%		
Reduced Pressure Setting at Minimum Flow psi	10	50
Reduced Pressure Maintained at rated flow capacity psi	7.5	37.5
Drop in reduced pressure psi (which is opening force)	2.5	12.5

Even though the total pressure differential across the reducing valve is less in the second case, which would appear to reduce the capacity, the greater opening force obtained at 75% of the 50 psi reduced pressure produces a greater valve opening, therefore, a greater capacity than at 75% of 10 psi.

CLASSES AW, AWR, AWG, AWRG (Capacities based on 75% Accuracy of Regulation)

		AIR CAPACITIES (CFM)									
		INLET PRESSURE (psig)									
OUTLET PRESSURE (PSIG)		10	15	20	30	50	75	100	125	150	200
5	2.8	4.3	5.0	6.0	8.3	10.8	11.2	11.5	12.0	12.5	
10	—	5.0	6.2	7.7	10.5	13.3	14.2	15.3	16.7	17.5	
15	—	—	6.8	9.2	12.5	15.8	17.5	18.8	20.2	21.3	
20	—	—	—	9.7	14.3	18.3	20.3	22.0	23.8	25.0	
25	—	—	—	10.2	16.2	20.6	23.3	25.5	27.5	29.2	
30	—	—	—	—	17.5	22.0	25.8	28.3	31.0	33.0	
35	—	—	—	—	18.0	23.3	28.8	31.3	34.3	37.0	
45	—	—	—	—	18.3	25.5	32.3	37.3	41.4	44.6	
50	—	—	—	—	—	26.5	33.8	39.8	44.6	48.4	
65	—	—	—	—	—	26.0	34.5	42.4	49.0	57.2	
70	—	—	—	—	—	25.3	34.6	43.2	50.0	59.0	
75	—	—	—	—	—	—	34.6	44.0	51.2	60.6	

		WATER CAPACITIES (GPM)									
		INLET PRESSURE (psig)									
OUTLET PRESSURE (PSIG)		10	15	20	30	50	75	100	125	150	200
5	0.6	0.9	1.0	1.4	1.4	1.5	1.5	1.5	1.5	1.5	
10	—	1.1	1.2	1.7	1.7	1.8	1.8	1.8	1.8	1.9	
15	—	—	1.3	1.8	2.0	2.1	2.2	2.2	2.3	2.3	
20	—	—	—	1.8	2.3	2.5	2.6	2.7	2.8	2.8	
25	—	—	—	1.8	2.4	2.8	3.0	3.1	3.2	3.3	
30	—	—	—	—	2.5	3.0	3.3	3.5	3.5	3.6	
35	—	—	—	—	2.5	3.1	3.6	3.8	3.8	4.0	
45	—	—	—	—	2.2	3.3	4.0	4.3	4.4	4.6	
50	—	—	—	—	—	3.2	4.1	4.5	4.6	4.9	
65	—	—	—	—	—	2.9	3.8	4.6	4.8	5.5	
70	—	—	—	—	—	2.8	3.7	4.4	4.8	5.7	
75	—	—	—	—	—	—	3.5	4.3	4.7	5.9	

LIQUID CAPACITIES — SMALL FLOW REDUCING VALVES

GPM — (SpG = 1; 31.5 SSU) — CLASSES LCB, LCLB, LCBS, LCLBS, etc.*

CLASS	REDUCED PRESSURE SETTING	25	50	75	100	125	150	175	200	250	300	400	500	600
LCB*	10	—	0.24	0.29	0.32	0.38	0.40	0.42	0.46	0.50	0.54	—	—	—
	20	—	0.38	0.47	0.54	0.60	0.65	0.70	0.75	0.85	0.82	—	—	—
	30	—	0.58	0.71	0.82	0.92	1.00	1.10	1.20	1.30	1.40	—	—	—
	40	—	0.70	0.86	1.00	1.10	1.25	1.40	1.50	1.60	1.80	—	—	—
	50	—	1.00	1.20	1.40	1.60	1.80	2.00	2.10	2.40	2.60	—	—	—
	75	—	—	1.30	1.50	1.70	1.90	2.10	2.20	2.50	2.80	—	—	—
	100	—	—	—	1.60	1.80	2.00	2.20	2.30	2.60	2.90	—	—	—
	125	—	—	—	—	2.00	2.20	2.40	2.60	2.90	3.30	—	—	—
	150	—	—	—	—	—	2.40	2.60	2.80	3.20	3.50	—	—	—
	175	—	—	—	—	—	—	2.30	2.40	2.70	3.00	—	—	—
LCLB*	200	—	—	—	—	—	—	2.20	2.50	2.80	—	—	—	—
	250	—	—	—	—	—	—	—	1.80	2.00	—	—	—	—
	285	—	—	—	—	—	—	—	—	1.10	—	—	—	—
	2	0.08	0.11	0.13	0.15	0.17	0.19	0.20	0.21	0.23	0.25	—	—	—
	5	0.13	0.17	0.21	0.24	0.26	0.29	0.30	0.32	0.36	0.38	—	—	—
	10	0.52	0.71	0.80	1.00	1.10	1.20	1.30	1.40	1.50	1.70	—	—	—
	15	0.64	0.92	1.10	1.30	1.50	1.70	1.80	1.90	2.20	2.40	—	—	—
	20	0.75	1.10	1.30	1.60	1.80	2.00	2.20	2.40	2.70	2.90	—	—	—
	25	—	1.30	1.50	1.90	2.20	2.40	2.60	2.80	3.20	3.50	—	—	—
	30	—	1.50	1.80	2.20	2.60	2.80	3.00	3.30	3.70	4.10	—	—	—
LCBS*	35	—	1.50	1.80	2.20	2.60	2.80	3.00	3.30	3.70	4.10	—	—	—
	25	—	0.29	0.38	0.43	0.48	0.52	0.56	0.60	0.66	0.72	0.82	0.90	1.00
	50	—	0.56	0.74	0.84	0.92	1.00	1.10	1.20	1.30	1.40	1.60	1.70	1.90
	75	—	—	1.00	1.20	1.30	1.40	1.50	1.60	1.70	1.90	2.20	2.40	2.60
	100	—	—	—	1.40	1.50	1.70	1.80	1.90	2.10	2.30	2.60	2.90	3.20
	150	—	—	—	—	—	1.80	1.90	2.00	2.30	2.50	2.90	3.20	3.50
	200	—	—	—	—	—	—	2.10	2.40	2.60	3.00	3.30	3.60	3.60
	250	—	—	—	—	—	—	—	2.50	2.70	3.10	3.40	3.80	3.80
	300	—	—	—	—	—	—	—	—	2.60	3.00	3.30	3.60	3.60
	400	—	—	—	—	—	—	—	—	—	2.90	3.20	3.50	3.50
LCLBS*	10	—	0.32	0.38	0.43	0.48	0.52	0.55	0.58	0.65	0.70	0.80	0.86	0.93
	20	—	0.36	0.43	0.49	0.54	0.59	0.63	0.67	0.73	0.80	0.91	0.98	1.10
	30	—	—	0.50	0.57	0.63	0.68	0.73	0.78	0.86	0.94	1.10	1.20	1.30
	40	—	—	0.64	0.73	0.80	0.86	0.93	1.00	1.10	1.20	1.30	1.50	1.60
	50	—	—	0.75	0.85	0.93	1.00	1.10	1.20	1.30	1.40	1.60	1.80	1.90
	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Capacities for classes with "B" (1/4") orifice are shown. For other classes, multiply capacity given by the correction factor for controlling valve size from table at right.

FIGURING LIQUID CAPACITIES

Capacity data is based on the 1/4" controlling valve and is the result of actual tests based on an accuracy of regulation of 75%. For capacities of other controlling valves or other accuracies of regulation follow these steps:

1. Enter the liquid capacity table for applicable conditions.
2. Select the controlling valve size for desired capacity.

Controlling Valve Size	Multiply By
A 3/32"	0.19
B 1/4"	1.00
C 5/16"	1.22
D 1/8"	0.22

3. If accuracy above 75% is required, use correction factor below.

Accuracy of Regulation %	Multiply By
75	1.00
80	0.85
85	0.70
90	0.55
95	0.40

Small Flow Reducing Valves

SIZING AND CAPACITY DATA

FIGURING STEAM CAPACITIES

Table 14-4

SATURATED STEAM CAPACITIES — lbs. steam per hr.
CLASSES LCB, LCLB, LCBS, LCLBS*

Capacity data is based on the 1/4" controlling valve and is the result of actual tests based on an accuracy of regulation of 75%. For capacities of other controlling valves, other accuracies of regulation or superheat, follow these steps:

1. Enter steam capacity table for applicable conditions.
2. Select controlling valve size for desired capacity.

Controlling Valve Size	Multiply By
* A 3/32"	0.19
B 1/4"	1.0
C 5/16"	1.22
D 1/8"	0.22

* For air, gas, or liquid service in Bronze body only.

3. If accuracy above 75% is required, use correction factor below.

Accuracy of Regulation %	Multiply By
75	1.0
80	.85
85	.70
90	.55
95	.40

4. If superheated, correct for superheat as shown below.

Degrees Superheat	Multiply By
50°F	.96
100°F	.93
150°F	.90
200°F	.87
200°F	.80

SIZING FOR AIR OR GAS

Size for air or gas by multiplying required air or gas flow in SCFM @ 600°F by 2.9 times the square root of the specific gravity to obtain equivalent flow of saturated steam; then size directly from steam tables. Correct by applicable factors for controlling valve size and Accuracy of Regulation.

CLASS	REDUCED PRESSURE SETTING	Inlet Pressure — PSI (black figures)										Steam Saturation — °F (red figures)				
		25	50	75	100	125	150	175	200	250	300	400	500	600		
		267	298	320	338	353	366	378	388	406	421	448	469	490		
LCB*	5	—	5	6	7	8	9	10	11	12	13	—	—	—		
	10	—	9	11	13	14	16	17	18	20	22	—	—	—		
	20	—	15	18	22	25	27	29	31	34	41	—	—	—		
	30	—	20	24	28	33	36	38	42	46	49	—	—	—		
	40	—	24	30	36	41	46	48	54	59	64	—	—	—		
	50	—	28	36	42	49	54	58	64	70	86	—	—	—		
	75	—	—	45	55	64	71	75	85	95	105	—	—	—		
	100	—	—	—	63	74	85	90	104	116	127	—	—	—		
	125	—	—	—	—	83	95	102	118	131	143	—	—	—		
	150	—	—	—	—	—	103	115	127	142	154	—	—	—		
	175	—	—	—	—	—	—	125	133	147	160	—	—	—		
	200	—	—	—	—	—	—	—	133	148	163	—	—	—		
LCLB*	2	10	13	15	17	19	20	21	22	24	25	—	—	—		
	5	15	19	23	25	27	29	31	33	36	38	—	—	—		
	10	20	26	30	34	37	40	42	44	48	52	—	—	—		
	15	23	30	36	40	45	47	50	52	57	61	—	—	—		
	20	25	34	40	44	50	52	56	58	64	69	—	—	—		
	25	—	36	46	52	59	65	70	75	85	94	—	—	—		
	30	—	39	50	58	65	72	78	84	95	105	—	—	—		
	35	—	42	54	63	70	77	83	90	100	110	—	—	—		
	25	—	10	13	15	18	20	22	24	28	32	38	44	50		
	50	—	15	19	23	27	30	33	36	42	46	57	65	73		
	75	—	—	25	30	35	40	44	48	54	62	74	86	96		
	100	—	—	—	36	42	46	52	56	65	72	86	100	115		
LCBS*	150	—	—	—	—	—	58	64	68	80	90	108	121	138		
	200	—	—	—	—	—	—	—	78	90	101	120	140	158		
	250	—	—	—	—	—	—	—	—	99	112	129	150	170		
	300	—	—	—	—	—	—	—	—	—	124	150	169	180		
	400	—	—	—	—	—	—	—	—	—	—	155	178	200		
	5	—	4	5	6	7	8	9	10	11	12	14	16	17		
	10	—	8	10	12	13	15	17	18	21	23	27	32	34		
	20	—	13	16	19	21	23	26	28	31	34	40	46	50		
	30	—	17	21	25	29	32	35	38	40	44	50	56	62		
	40	—	21	26	31	36	40	43	47	51	55	63	71	78		
	50	—	24	30	36	42	47	51	55	60	66	76	85	93		
	20	—	13	16	19	21	23	26	28	31	34	40	46	50		

* Capacities for classes with "B" (1/4") orifice are shown. For other classes, multiply capacity given by the correction factor for controlling valve size.

CLASS J-1, JL,
SATURATED STEAM CAPACITIES — lbs. steam per hr.

Valve Size	Inlet	25	50	75	100	150	200	250	300
	Outlet	0-14	0-27	0-40	0-55	0-80	0-110	0-135	0-165
1/4"	25	35	50	65	85	110	135	160	
3/8"	50	75	100	125	175	225	275	325	
1/2"	75	120	160	200	290	365	450	530	

* Reducing bushing supplied by customer

Capacities are based on the following accuracies of regulation:

STEAM (Classes J-1, JL) — 85%
AIR (Classes JA-2, JAL-2) — 90%

For air capacities, divide figures in table by 2 to obtain cubic feet of air per minute at 60°F.

SELECTING, SPECIFYING, ORDERING

WRITING SPECIFICATIONS

CAST IRON AND BRONZE REDUCING VALVES shall be of the self-contained, internal pilot, piston operated type. Internal pilot valve and pilot valve seat shall be interchangeable in all sizes and contained wholly within the valve and entirely self draining. The main valve shall be made of stainless steel hardened to at least 500 Brinell. No stuffing boxes or bellows will be permitted. All valve seats shall be renewable. Main valve seat ring to be stainless with STELLITE® seating surface. Pistons in steam pressure regulating service shall be of bronze with a TEFLON® seal. All regulators for over 500°F service shall have cylinder liners of stainless steel hardened to 500 Brinell, and bronze pistons with cast iron rings. In air service piston and liner shall be of bronze with a rubber "O" ring seal. Internal pilot valve to be stainless steel, hardened to at least 500 Brinell, with ground finish. Adjusting spring shall cover 2-35 psi or 10-285 psi range.

STEEL REDUCING VALVES - shall be of the self*contained, internal pilot, piston operated type. Internal pilot valve and pilot valve seat shall be interchangeable in all sizes and for all pressure conditions, contained wholly within the valve and entirely self-draining. The main valve shall be made of stainless steel hardened to at least 500 Brinell. No stuffing boxes, rubber diaphragms or bellows will be permitted. Main valve seat to be STELLITE® welded integral with body. Main valve, internal pilot valve and renewable piston cylinder shall be made of stainless steel hardened to at least 500 Brinell. The pilot valve and piston cylinder shall have ground finish. Wide range adjusting spring (10-50 psi or 25-400 psi) shall be contained within a steel spring case bolted to valve top cap.

SMALL FLOW VALVES - shall be the direct operated, spring loaded type with three sizes of inner valve for steam or liquid service and one size for air or gas service. Inner valve and seat shall be corrosion resistant stainless steel for steam or liquid service. Metal diaphragm and adjusting spring shall cover wide range, 10-285 psi, 25-400 psi, 5-290 psi or 2-35 psi. Steel valves to have bolted spring case.

HOW TO ORDER

The following data is essential when ordering and should accompany each order to insure getting the best valve for the job. For reducing valves give:

1. Maximum and minimum inlet pressure.
2. Superheat, if any.
3. Reduced pressure or range desired.
4. Kind of service (steam, air or gas).
5. Maximum and minimum flow in lbs. of steam per hour, cu. ft. of free air or gas per minute to be delivered, or information leading to same.
6. Threaded or flanged connections. Flanges are furnished drilled when flange standard is specified. Bronze flanged bodies will be undrilled if flange standard is not specified.

For differential pressure regulators state pressure of second fluid and differential to be maintained.

For remotely adjusted reducing valves state air pressure available for loading and order air loading panel if required.

ORDERING PARTS

When ordering parts, submit the following information:

1. Part name and part reference number from parts list on applicable drawing.
2. Quantity of each part.

or

1. Serial number, class and size of valve.
2. Part name. (See parts list on applicable drawing).
3. Quantity of each part.

For all Navy valves, in addition, give Navy drawing number from which parts are ordered.

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