EMERSON Type E5 Main Valve Instruction Manual

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EMERSON Type E5 Main Valve

Spence Type E5 Main Valve

WARNING
Failure to follow these instructions or to properly install and maintain thisequipment could result property damage and personal injury or death.
Type E5 main valve must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson instructions.
If the valve vents gas or a leak develops in the system, service to the unit may be required. Failure to correct issue could result in a hazardous condition.
Installation, operation and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Only a qualified person shall install or service the Type E5 main valve.Introduction

Scope of the Manual
This manual provides instructions for the installation,troubleshooting, maintenance, valve setting and parts ordering for Type E5 main valve regulator.

Figure 1. *Type E5 Main Valve*

Product Description

The Spence Type E5 Main Valve is pilot-operated, single seated, normally closed design. The valve functions quickly and shuts tight on dead end service.
The diaphragm is a balanced Hycar material designed for high lift but low differential pressure.
An external condensation chamber is included in the product. There are no springs in the steam flow path and no stuffing box.

Specifications

This section lists the specifications for the Type E5 main valve. Factory specifications are stamped on the nameplate fastened on the regulator at the factory.

Valve Sizes

- NPS 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10 and 12 / DN 20, 25, 32, 40, 50, 65, 80, 100, 125,150, 200, 250 and 300

End Connection Styles

- NPT, CL125, CL150, CL250 and CL300

Pressure Rating(1)

- See Table 1

MInimum Differential Pressure(1)

- 5 psi / 0.34 bar

Temperature Rating(1)

- See Table 1

Rated Flow Coefficient

- See Table 2

Material of Constructions

- Body: Cast Iron or Cast Steel
- Stem, Disk and Seat: Stainless steel
- Gasket: Graphite
- Diaphragm: Nitrile (NBR)
- Spring: Steel

Approximate Weight

- See Table 3

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

Table 1. Type E5 Main Valve Pressure and Temperature Rating

SEAT FACTOR	REGULATOR SIZE, NPS / DN												
	3/4 / 20	1 / 25	1-1/4 / 32	1-1/2 / 40	2 / 50	2-1/2 / 65	3 / 80	4 / 100	5 / 125	6 / 150	8 / 200	10 / 250	12 / 300
Full	7.6	11.7	18.9	27.4	43	67	95	159	258	350	665	1018	1611
Normal	5.7	10.0	13.4	19.8	25	35	59	120	176	228	366	525	952

Table 2. Type E5 Main Valve Rated Flow Coefficients

VALVE SIZE		CAST IRON						CAST STEEL			
		NPT		CL125		CL250		CL150		CL300	
NPS	DN	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg
3/4	20	23	10	– – – –	– – – –	– – – –	– – – –	– – – –	– – – –	– – – –	– – – –
1	25	24	11	30	14	33	15	35	16	39	18
1-1/4	32	49	22	46	21	49	22	58	26	63	29
1-1/2	40	53	24	58	26	68	31	67	30	74	34
2	50	84	38	90	41	97	44	113	51	120	55
2-1/2	65	– – – –	– – – –	97	44	112	51	130	59	135	61
3	80	– – – –	– – – –	148	67	170	77	210	95	226	103
4	100	– – – –	– – – –	208	95	293	133	307	139	330	150
5	125	– – – –	– – – –	240	109	333	151	335	152	366	166
6	150	– – – –	– – – –	348	158	616	280	560	254	503	274
8	200	– – – –	– – – –	650	295	814	370	795	361	862	392
10	250	– – – –	– – – –	910	414	1130	513	1345	611	1420	645
12	300	– – – –	– – – –	1580	718	1920	872	1990	904	2160	982

Principle of Operation

Regulator
The regulator is operated by initial steam or fluid pressure. It is normally closed, being held so by initial pressure on the disk and by an internal main spring, see Figure 3. When the pilot is opened (see pilot instructions), initial pressure flows through the pilot to the 8B tee. 4A bleed port restricts the flow and pressure builds under the diaphragm and opens the main valve.

Delivery pressure feeds back through the control pipe to the pilot diaphragm. As this pressure approaches a balance with the thrust of the adjusting spring, the pilot throttles the loading pressure. In turn, the main valve takes a position established by the loading pressure where just enough steam flows to maintain the set delivery pressure.

Condensate Chamber
Main valves with large internal volumes, or valves used in relatively high pressure or superheat, may require more water than can be condensed from radiation alone. Live steam will rapidly degrade the rubber diaphragm of a Type E5 and generally yield poor control in other main valves. To prevent this from happening, the Condensation Chamber and the base are primed with water before start-up. As the pilot opens, medium pressure steam flows to the Condensation Chamber condensing the vapor in the presence of the prime and larger radiational area.
The condensate exits the chamber through a No. 5B Open Elbow directed to the No. 5A Restriction Elbow in the hood. This condensate collecting under the diaphragm creates a loading pressure which forces the valve open.

Installation

WARNING
Personal injury or system damage may result if this regulator is installed, without appropriate overpressure protection, where service conditions could exceed the limits given in the Specifications section and/or regulator

nameplate.
Additionally, physical damage to the regulator may result in personal injury or property damage due to escaping of accumulated gas. To avoid such injury and damage, install the regulator in asafe location.
Under enclosed conditions or indoors, escaping gas may accumulate and be an explosion hazard. In this case, the vent should be piped outdoors.
For regulator constructions with a spring case vent, the vent should be kept open to permit free flow of gas to the atmosphere. Protect openings against entrance of rain, snow, insects or any other foreign material that may plug the spring case vent or vent line.
All pressure equipment should be installed in a non-seismic area; should not be exposed to fire; and should be protected from thunderbolt (lightning) strikes.

Planning

- Locate the valve in a straight run of horizontal pipe.
- Allow headroom above the valve for access through the blind flange.
- Provide clearance for stem withdrawal underneath.
- Prevent water hammer and erratic operation by installing traps to provide proper drainage before and after the valve and before secondary pressure relief valve or control valve.
- Avoid damaging effects of scale and dirt in the pipe lines by using a strainer as shown in Figure 2.
- Provide a three-valve by-pass to facilitate inspection without interrupting service.
- To eliminate excessive noise and erratic regulation with steam and other compressible fluids, enlarge the delivery pipe size to effect a reasonable flow velocity at the reduced pressure. A tapered transition is recommended.
- If possible, avoid a sharp turn close to the regulator outlet and a bull-headed tee connection to the low pressure main.
- Install initial and delivery pressure gages to indicate performance.
- If the pressure rating of the delivery system or connected equipment is less than the initial steam pressure, provide a safety valve.

Main Valve

- Flush the piping system thoroughly to clear it of welding beads, scale, sand, etc.
- Mount the main valve with diaphragm chamber down and arrow on body pointing in the direction of flow. Screwed end valves should be mounted in unions.

Pilot
For Side Mount Construction

1. Mount the pilot on either side of the main valve by means of 1/4 in. nipple and union provided.
2. Make this connection on the 1/4 in. pipe tap at the inlet of the main valve as shown in Figure 2.

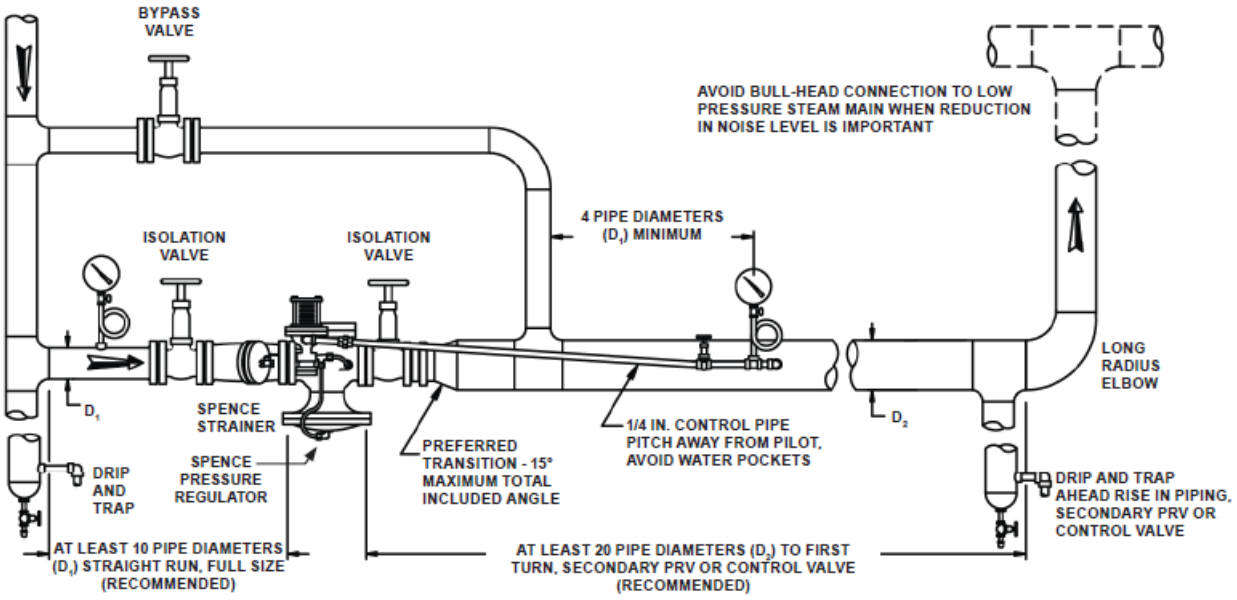

Figure 2. Type E5 Main Valve Installation

For Integral Mount Construction

1. Remove blind flange on pilot and mount on blind flange of main valve using provided bolt.
2. Screw 4A bleed port fitting into the 1/8 in. pipe tap at the outlet of the main valve body. Note bleed orifice in this fitting is vital to operation of regulator.
3. Screw 8B tee into 1/8 in. pipe tap in pilot. Select tap facing downstream.
4. Screw No. 5B elbow into 1/8″ pipe tap on underside of main valve diaphragm chamber.
5. Connect tubing bends as illustrated in Figure 3.

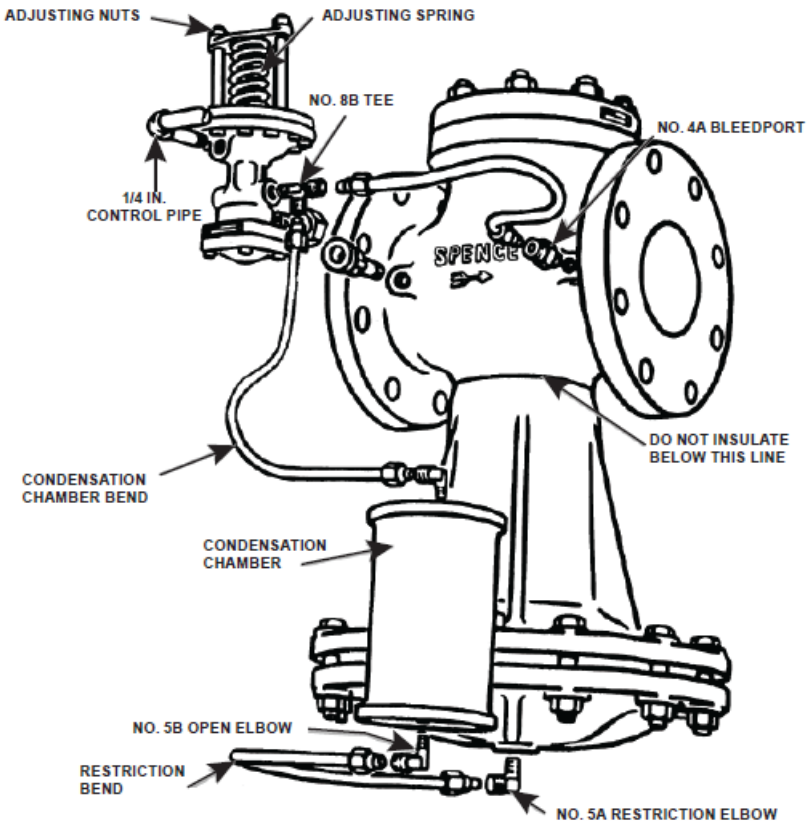

Figure 3. Regulator Assembly for Type E5 Main Valve with Condensation Chamber

Control Pipe (Not required with Types T14 and T52)

1. Use 1/4 in. pipe for this line which connect the pilot diaphragm chamber to the desired point of pressure control.
2. Take the control at a point of minimum turbulence.
   Avoid control immediately at the valve outlet or after a turn.
3. When the delivery pipe expands in size, select a spot at least 4 pipe diameters beyond the point of enlargement.
4. Pitch away from pilot to avoid erratic operation and excessive fouling.
5. Eliminate water pockets.
6. Locate delivery pressure gage in control pipe to show pressure actually reaching pilot diaphragm

Start-up and Setting

CAUTION
Never open a reducing valve without positive indication that the high side is clear of condensate.

1. On pressure reducing valves like Type E5, use by-pass to fill the delivery system and raise pressure to slightly below normal required.
2. Close pilot by releasing compression on adjusting spring. See Figure 3.
3. Open 1/4 in. control pipe valve.
4. Crack outlet stop valve.
5. Crack inlet stop valve.

6. Blow down strainer.
7. Open inlet stop valve and gradually compress adjusting spring until the valve opens and takes control at desired pressure.
8. Alternately choke down on the by-pass and open outlet stop valve until the regulator is on the line. See individual instructions for other pilots.

Valve Setting
Valve setting is gaged at K to establish correct stem length and diaphragm position. Dimension K is supplied with each replacement stem. See Table 5 for K values.

1. To install new stem (key 13), fasten disk (key 8) firmly on stem with stem nut.
2. Insert stem and disk assembly in valve and screw on pressure plate (key 16). Omit spring (key 14) for this operation.
3. Hold disk on seat and adjust position of pressure plate until valve setting K is reached.
4. Push pressure plate against stops in base (key 18).
5. Remove disc, drop out pressure plate and stem, drill and insert dowel pin (key 15) to lock the joint.
6. Grind off stem projection flush with face of pressure plate.

Troubleshooting

Failure to Open
If the main valve failed to open check the following possible causes to properly correct the problem.

- Adjusting spring on pilot may have been tampered with.
- Initial pressure may be down due to partially closed supply valve, clogged strainer or other obstruction.
- No. 4A bleed port fitting may have been omitted and an open coupling substituted.
- Control pipe may be plugged. Most likely points of obstruction are at shutoff valve and entrance to delivery main.
- Main diaphragm may be broken. Test with air or water before dismantling.

Failure to Close
If the main valve failed to close check the following possible causes to properly correct the problem.

- Adjusting spring on pilot may have been tampered with.
- Orifice in bleed port No. 4A may be plugged.
- By-pass valve may be leaking.
- On pressure regulators like Type E5, the main valve or pilot may be held open by foreign matter in seat.

To determine which valve leaks, follow these steps.
Close stop valve and 1/4 in. control pipe valve.

1. Remove bleed port bend so pilot will exhaust to atmosphere.
2. Crack inlet stop valve. Steam will issue from 8B tee.
3. Release compression on adjusting spring to see if pilot closes tight.
4. Open and close several times to wash seat. Steam blowing back from bleed port means main valve disk is held

open by foreign matter.

Steam may wash the obstruction from the seat if the valve is made to open wide. This can be accomplished, even at light loads, if the control point is beyond the outlet stop valve.

5. Reassemble bleed port bend and place regulator in operation.
6. Slowly open and close outlet stop valve.

Maintenance

WARNING

To avoid personal injury or property damage from sudden release of pressure, isolate the regulator from the pressure system and release all pressure from the pilot and main valve before performing maintenance operations.

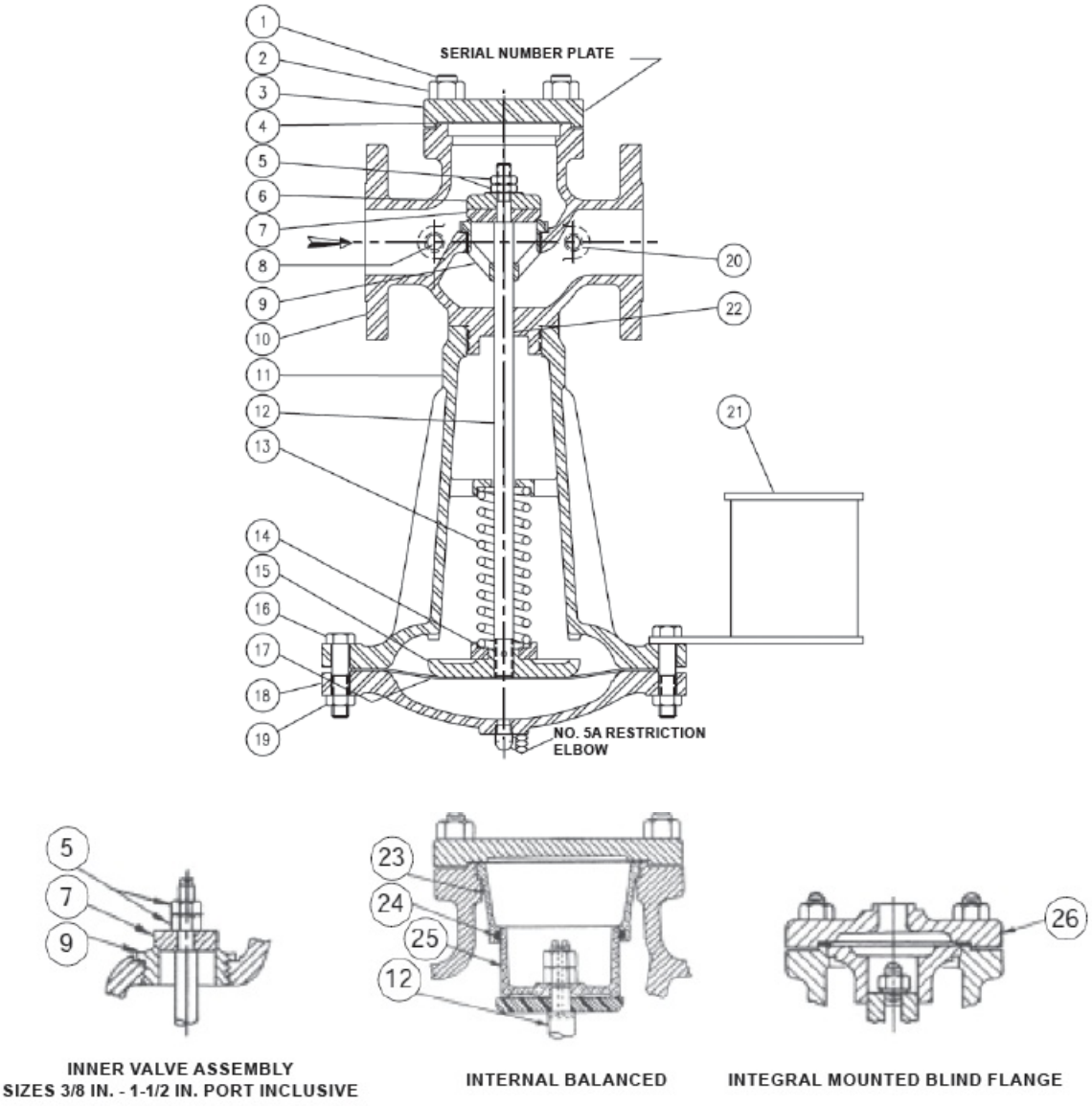

Figure 4. Type E5 Assembly Drawing

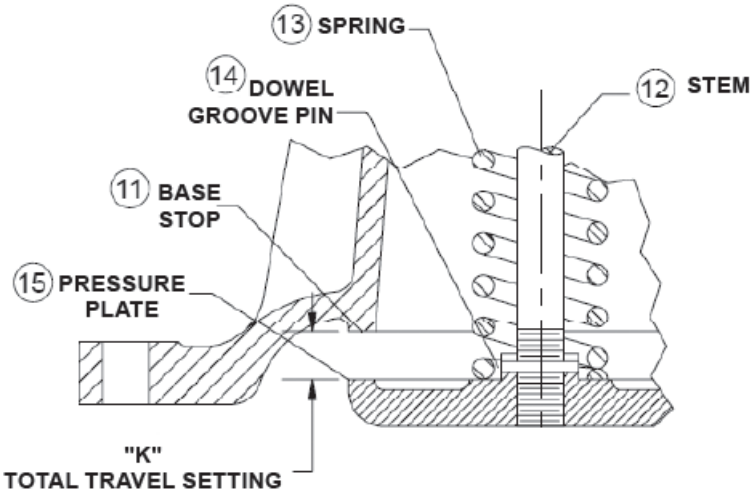

***Figure 4**. Type E5 Assembly Drawing (continued)*

Inspection
Under normal conditions, complete dismantling is not recommended.
Check the following after operation. Then, schedule an inspection as required.

1. Inspect for dirt collected at 4A bleed port.
2. Inspect all joints for leakage. Keep bolts tight to avoid any leaks

Main Valve Maintenance (See Figure 5)

1. Connect a source of air or water pressure which can be adjusted by hand to the No. 5B elbow.
2. Apply 30 psi / 2.07 bar to jack valve open and prevent stem from turning while removing stem nuts.
3. Use penetrating oil on the threads.

Seat Ring Maintenance

Note
These joints should be made up with high temperature gasket compound.

1. Remove old compound from body and seat ring with a wire brush.
2. Apply new compound sparingly to both parts, threads and shoulders. Let stand until tacky before assembling.
   CAUTION
   Seats and discs should never require more than the lightest touch up with very fine (400 grit) grinding compound. Heavy grinding will produce galling, wider seating surface and a groove in the disc, all of which tend to cause leakage.
3. Reface a damaged surface before attempting to grind it in.
4. Grind sparingly.
5. Main stem (key 13, Figure 4) is slotted for rotation with a screwdriver, valve spring (key 14) is omitted from the assembly during grinding.
6. Slip the stem into its normal position.

7. Apply compound to the disc. Place it on the stem and guide plug, tighten with stem nut.
8. After grinding, disassemble and clean all parts.

Parts Ordering
When corresponding with your local Sales Office about Type E5 Main Valve, always reference the assembly number. When ordering replacement parts, specify the complete character part number from the following parts list.

Parts List

Key	**Description**	**Part Number**
Type E5		
	NPS 3/4 to 3 / DN 20 to 80	See Table 4
	NPS 4 to 12 / DN 100 to 300	See Table 5

Table 4. Type E5, NPS 3/4 to 3 / DN 20 to 80 Parts List

ITEM	**PART NAME**	**MATERIAL**	**NPS 3/4 / DN 20**	**NPS 1 / DN 25**	**NPS 1-1/4 / DN 32**	**NPS 1-1/2 / DN 40**	**NPS 2 / DN 50**	**NPS 2-1/2 / DN 65**	**NPS 3 / DN 80**
1	Blind Flg Stud 125 lb Blind Flg Stud 250 lb	Steel Steel	–––––––––– WAL04-05516-00	WAL04-10118-00 WAL04-10118-00	WAL04-05442-00 WAL04-05442-00	WAL04-05443-00 WAL04-05443-00	WAL04-10119-00 WAL04-10119-00	WAL04-10119-00 WAL04-05447-00	WAL04-05443-00 WAL04-10119-00
2	Blind Flg Nut 125 lb Blind Flg Nut 250 lb	Steel Steel	–––––––––– WAL05-02847-00	WAL05-02851-00 WAL05-02851-00	WAL05-02854-00 WAL05-02854-00	WAL05-02854-00 WAL05-02854-00	WAL05-02860-00 WAL05-02860-00	WAL05-02860-00 WAL05-02862-00	WAL05-02856-00 WAL05-02860-00
3	Blind Flg 125 lb Blind Flg 250 lb Blind Flg 250 lb	Cast iron Cast iron Bronze	–––––––––– WAL04-02171-00 WAL04-02172-00	WAL04-02173-00 WAL04-02173-00 WAL04-02174-00	WAL04-02176-00 WAL04-02176-00 WAL04-02177-00	WAL04-02178-00 WAL04-02178-00 WAL04-02179-00	WAL04-02180-00 WAL04-02180-00 WAL04-02181-00	WAL04-02185-00 WAL04-02183-00 –––––––––––	WAL04-02157-00 WAL04-02186-00 –––––––––––
4	Blind Flg Gasket	Graphite	WAL05-02381-01	WAL05-02362-01	WAL05-02382-01	WAL05-02365-01	WAL05-02366-01	WAL05-02367-01	WAL05-02369-01
5	Stem Nut “F” port	Steel	WAL05-02969-00	WAL05-02970-00	WAL05-02970-00	WAL05-02971-00	WAL05-02971-00	WAL05-02971-00	WAL05-02973-00

6	Muffling Plate “F” port	Cast iron	– – – – – – – – – – –	– – – – – – – – – – –	– – – – – – – – – – –	– – – – – – – – – – –	WAL04-03550-01	WAL04-03515-00	WAL04-03516-00
7	Integral Disk “ F” port Integral Disk “F” port	Stainless Steel Stellite	WAL04-01813-02 WAL04-01814-02	WAL04-01832-02 WAL04-01833-02	WAL04-01850-02 WAL04-01851-03	WAL04-01870-02 WAL04-01871-02	WAL04-01888-02 WAL04-01889-02	WAL04-01906-01 WAL04-01907-00	WAL04-01918-00 WAL04-01919-00
8	Pipe Plug 1/4 NPT	Steel	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00
9	Seat Ring “F” port Seat Ring “F” port	Stainless Steel Stellite	WAL04-04075-01 WAL04-04076-01	WAL04-04084-01 WAL04-04085-01	WAL04-04092-01 WAL04-04093-01	WAL04-04096-01 WAL04-04097-01	WAL07-40405-05 WAL07-40404-01	WAL07-40412-00 WAL07-40410-00	WAL07-40422-00 WAL07-40423-00
10	Body 250 lb Scr Body 125 lb Flg Body 250 lb Flg	Cast iron Cast iron Cast iron	WAL04-00639-00 –	WAL04-00640-00 WAL04-00641-00 WAL04-00642-00	WAL04-00643-00 WAL04-00644-00 WAL04-00645-00	WAL04-00646-00 WAL04-00647-00 WAL04-00648-00	WAL04-00649-00 WAL04-00650-00 WAL04-00651-00	– – – – – – – – – – – WAL04-00653-00 WAL04-00652-00	– – – – – – – – – – – WAL04-00655-00 WAL04-00654-00
11	Base 125 lb Base 250 lb	Cast iron Cast iron	– – – – – – – – – – – WAL04-00546-00	WAL04-00546-00 WAL04-00546-00	WAL04-00518-00 WAL04-00518-00	WAL04-00518-00 WAL04-00518-00	WAL04-00521-00 WAL04-00521-00	WAL04-00548-00 WAL04-00548-00	WAL04-00520-00 WAL04-00520-00
12	Stem 125 lb Stem 250 lb Steam Internal balance	Stainless Steel Stainless Steel Stainless Steel	– – – – – – – – – – – WAL04-05232-01 WAL04-05643-00	WAL04-05242-01 WAL04-05242-01 WAL04-11180-00	WAL04-05246-01 WAL04-05246-01 WAL04-05645-00	WAL04-05383-01 WAL04-05383-01 WAL04-03132-00	WAL04-05265-01 WAL04-05265-01 WAL04-05647-00	WAL04-05391-01 WAL04-05391-01 WAL04-11182-00	WAL04-05382-01 WAL04-05382-01 WAL04-07194-00
13	Main spring	Steel	WAL05-05072-01	WAL05-05072-01	WAL05-05071-01	WAL05-05071-01	WAL05-05073-01	WAL05-05073-01	WAL05-05047-00
14	Groove Pin	Steel	WAL05-03245-00	WAL05-03245-00	WAL05-03248-00	WAL05-03248-00	WAL05-03249-00	WAL05-03252-00	WAL05-03253-00
15	Pressure Plate	Cast iron	WAL04-03697-00	WAL04-03680-00	WAL04-03698-00	WAL04-03688-00	WAL04-03673-00	WAL04-03633-00	WAL04-03681-00
16	Diaphragm Bolt 125 lb Diaphragm Bolt 250 lb	Steel Steel	– – – – – – – – – – – WAL05-04774-00	WAL05-04774-00 WAL05-04774-00	WAL05-04780-00 WAL05-04780-00	WAL05-04780-00 WAL05-04780-00	WAL05-04780-00 WAL05-04780-00	WAL05-04780-00 WAL05-04780-00	WAL05-04785-00 WAL05-04785-00

17	Diaphragm	Hycar	WAL05-01600-00	WAL05-01600-00	WAL05-01601-00	WAL05-01601-00	WAL05-01602-00	WAL05-01602-00	WAL05-01603-00
18	Hood 125 lb Hood 250 lb	Steel Steel	–––––––––– WAL04-02630-00	WAL04-02630-00 WAL04-02630-00	WAL04-02629-00 WAL04-02629-00	WAL04-02629-00 WAL04-02629-00	WAL04-02638-00 WAL04-02638-00	WAL04-02638-00 WAL04-02638-00	WAL04-02634-00 WAL04-02634-00
19	Diaphragm Nut 125 lb Diaphragm Nut 250 lb	Steel Steel	–––––––––– WAL05-02874-00	WAL05-02874-00 WAL05-02874-00	WAL05-02877-00 WAL05-02877-00	WAL05-02877-00 WAL05-02877-00	WAL05-02877-00 WAL05-02877-00	WAL05-02877-00 WAL05-02877-00	WAL05-02881-00 WAL05-02881-00
20	Pipe Plug 1/8 NPT	Steel	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00
21	Condensation Chamber 125 lb Condensation Chamber 250 lb	Steel Steel	–––––––––– –––––––––––	WAL08-02154-00 –––––––––––	WAL08-02157-00 WAL08-02157-00	WAL08-02157-00 WAL08-02157-00	WAL08-02160-00 WAL08-02160-00	WAL08-02160-00 WAL08-02160-00	WAL08-02165-00 WAL08-02165-00
22	Stem bushing	Steel	–––––––––– –––––––––––	–––––––––– –––––––––––	–––––––––– –––––––––––	–––––––––– –––––––––––	–––––––––– –––––––––––	–––––––––– –––––––––––	–––––––––– –––––––––––
23	Bal Cylinder	Bronze	WAL04-01569-01	WAL04-01570-01	WAL04-01571-01	WAL04-01572-01	WAL04-01573-01	WAL04-01574-01	WAL04-07500-00
24	Sealing Ring	EPT	WAL05-04020-00	WAL05-04027-00	WAL05-04030-00	WAL05-04036-00	WAL05-04041-00	WAL05-04049-00	WAL05-04596-00
25	Bal Piston	Bronze	WAL04-03336-00	WAL04-03337-00	WAL04-03338-00	WAL04-03339-00	WAL04-03340-00	WAL04-03341-00	WAL04-04594-00
26	Top Flange	Cast Iron	WAL04-02246-00	WAL04-02248-00	WAL04-02250-00	WAL04-02252-00	WAL04-02233-00	WAL04-02259-00	WAL04-02261-00

Table 5. Type E5, NPS 4 to 12 / DN 100 to 300 Parts List

ITEM	PART NAME	MATERIAL	NPS 4 / DN 100	NPS 5 / DN 125	NPS 6 / DN 150	NPS 8/ DN 200	NPS 10 / DN 250	NPS 12 / DN 300
1	Blind Flg Stud 125 lb	Steel	WAL04-10119-00	WAL04-10120-00	WAL04-10120-00	WAL04-10120-00	WAL04-05453-00	WAL04-05451-00
	Blind Flg Stud 250 lb	Steel	WAL04-05447-00	WAL04-05448-00	WAL04-05449-00	WAL04-05455-00	WAL04-05451-00	WAL04-05451-00
2	Blind Flg Nut 125 lb	Steel	WAL05-02860-00	WAL05-02860-00	WAL05-02860-00	WAL05-02860-00	WAL05-02860-00	WAL05-02864-00
	Blind Flg Nut 250 lb	Steel	WAL05-02862-00	WAL05-02862-00	WAL05-02862-00	WAL05-02862-00	WAL05-02864-00	WAL05-02864-00
	Blind Flg 125 lb	Cast iron	WAL04-02158-00	WAL04-02160-00	WAL04-02165-00	WAL04-02167-00	WAL04-02294-00	WAL04-02168-00
3	Blind Flg 250 lb	Cast iron	WAL04-02159-00	WAL04-02161-00	WAL04-02163-00	WAL04-02166-00	WAL04-02164-00	WAL04-02168-00
	Blind Flg 250 lb	Bronze	–––––––––––	–––––––––––	–––––––––––	–––––––––––	–––––––––––	–––––––––––
4	Blind Flg Gasket	Graphite	WAL05-02371-01	WAL05-02372-01	WAL05-02374-01	WAL05-02375-01	WAL05-02376-01	WAL04-02377-01
5	Stem Nut “F” port	Steel	WAL05-02974-00	WAL05-02975-00	WAL04-02976-00	WAL04-02977-00	WAL04-02977-00	WAL04-02978-00
6	Muffling Plate “F” port	Cast iron	WAL04-03518-00	WAL04-03519-00	WAL04-03520-00	WAL04-03524-00	WAL04-03538-00	WAL04-03539-00
7	Integral Disk “F” port	Stainless Steel	WAL04-01931-00	WAL04-01938-00	WAL04-01995-00	WAL04-01691-00	WAL04-01953-00	WAL04-01957-00
	Integral Disk “F” port	Stellite	WAL04-01932-00	WAL04-01939-00	WAL04-01996-00	WAL04-07707-00	WAL04-08268-00	WAL04-08269-00
8	Pipe Plug 1/4 NPT	Steel	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00	WAL04-03772-00
9	Seat Ring “F” port	Stainless Steel	WAL07-40441-00	WAL07-40450-00	WAL07-40470-00	WAL07-40483-00	WAL07-44463-00	WAL07-44465-00
	Seat Ring “F” port	Stellite	WAL07-40449-00	WAL07-40458-00	WAL07-40469-00	WAL07-40482-00	WAL0A-04464-00	WAL0A-04466-00
	Body 250 lb Scr	Cast iron	–––––––––––	–––––––––––	–––––––––––	–––––––––––	–––––––––––	–––––––––––
10	Body 125 lb Flg	Cast iron	WAL04-00659-01	WAL04-00661-01	WAL04-00662-00	WAL04-00665-00	WAL04-01273-00	WAL04-06618-00
	Body 250 lb Flg	Cast iron	WAL04-00658-01	WAL04-00660-01	WAL04-00663-00	WAL04-00664-00	WAL04-00666-00	WAL04-00667-00
	Base 125 lb	Cast iron	WAL04-00515-00	WAL04-00515-00	WAL04-00519-01	WAL04-00519-01	WAL04-00516-01	WAL04-00524-02

11	Base 250 lb	Cast iron	WAL04-00522-01	WAL04-00522-01	WAL04-00523-00	WAL04-00523-00	WAL04-00517-01	WAL04-00524-02
	Stem 125 lb	Stainless Steel	WAL04-05281-00	WAL04-05287-01	WAL04-05374-00	WAL04-05290-00	WAL04-05296-00	WAL04-05398-00
12	Stem 250 lb	Stainless Steel	WAL04-05384-01	WAL04-05386-01	WAL04-05385-01	WAL04-05388-01	WAL04-05277-00	WAL04-05398-00
	Steam Internal balance	Stainless Steel	WAL04-08233-00	WAL04-05831-00	WAL04-10709-00	WAL04-07564-00	–––––––––––	–––––––––––
13	Main spring	Steel	WAL05-05062-00	WAL05-05062-00	WAL05-05039-00	WAL05-05039-00	WAL05-05040-01	WAL05-05079-00
14	Groove Pin	Steel	WAL05-03255-00	WAL05-04686-00	WAL05-03258-00	WAL05-03302-00	WAL05-03261-00	WAL05-03263-00
15	Pressure Plate	Cast iron	WAL04-03689-00	WAL04-03683-00	WAL04-03685-00	WAL04-03682-00	WAL04-03611-00	WAL04-03690-00
16	Diaphragm Bolt 125 lb	Steel	WAL05-04786-00	WAL05-04786-00	WAL05-04787-00	WAL05-04787-00	WAL05-04794-00	WAL05-04798-00
	Diaphragm Bolt 250 lb	Steel	WAL05-04787-00	WAL05-04787-00	WAL05-04791-00	WAL05-04791-00	WAL05-04796-00	WAL05-04798-00
17	Diaphragm	Hycar	WAL05-01604-00	WAL05-01604-00	WAL05-01605-00	WAL05-01605-00	WAL05-01606-00	WAL05-01607-00
18	Hood 125 lb	Steel	WAL04-02626-00	WAL04-02626-00	WAL04-02626-00	WAL04-02627-00	WAL04-02661-00	WAL04-02637-00
	Hood 250 lb	Steel	WAL04-02633-00	WAL04-02633-00	WAL04-02632-00	WAL04-02632-00	WAL04-02628-00	WAL04-02637-00
19	Diaphragm Nut 125 lb	Steel	WAL05-02881-00	WAL05-02881-00	WAL05-02881-00	WAL05-02881-00	WAL05-02883-00	WAL05-02883-00
	Diaphragm Nut 250 lb	Steel	WAL05-02881-00	WAL05-02881-00	WAL05-02881-00	WAL05-02881-00	WAL05-02883-00	WAL05-02883-00
20	Pipe Plug 1/8 NPT	Steel	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00	WAL04-03769-00
21	Condensation Chamber 125 lb	Steel	WAL08-02165-00	WAL08-02165-00	WAL08-02167-00	WAL08-02175-00	WAL08-02177-00	WAL08-02812-00
	Condensation Chamber 250 lb	Steel	WAL08-02165-00	WAL08-02165-00	WAL08-02168-00	WAL08-02175-00	WAL08-02177-00	WAL08-02812-00
22	Stem bushing	Steel	–––––––––––	–––––––––––	–––––––––––	–––––––––––	WAL04-02307-00	WAL04-06528-00
23	Bal Cylinder	Bronze	WAL04-07248-00	WAL04-07307-00	WAL04-09568-00	WAL04-07199-00	–––––––––––	–––––––––––
24	Sealing Ring	EPT	WAL05-04528-00	WAL05-04528-00	WAL05-04530-00	WAL05-04530-00	–––––––––––	–––––––––––
25	Bal Piston	Bronze	WAL04-07249-00	WAL04-07301-00	WAL04-09567-00	WAL04-07198-00	–––––––––––	–––––––––––

26	Top Flange	Cast Iron	WAL04-02263-00	WAL04-02264-00	WAL04-02266-00	–––––––––––	–––––––––––	–––––––––––

Table 6. Type E5 Main Valve K Values

VALVE SIZE		**TYPE E5 TRAVEL SETTING (IN.)**		
NPS	**DN**	**Total Travel (K)**	**Groove Pin**	**Drill Size**
3/4	20	1/4	1/8 x 11/16	1/8
1	25	5/16	1/8 x 11/16	1/8
1-1/4	32	3/8	5/32 x 13/16	5/32
1-1/2	40	7/16	5/32 x 13/16	5/32
2	50	9/16	5/32 x 15/16	5/32
2-1/2	65	1-1/16	3/16 x 15/16	3/16
3	80	1-3/16	3/16 X 1-3⁄8	3/16
4	100	1-1/16	1/4 X 1-3⁄4	1/4
5	125	1-5/16	5/16 X 1-3⁄4	5/16
6	150	1-9/16	5/16 X 2	5/16
8	200	2-1/16	3/8 X 2	3/8
10	250	2-9/16	3/8 X 2-1⁄2	3/8
12	300	3-1/16	1/2 X 2-3⁄4	1/2

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Documents / Resources

	EMERSON Type E5 Main Valve [pdf] Instruction Manual Type E5 Main Valve, Type E5, Main Valve