



# ZERO GOVERNOR

Air/Gas Ratio Pressure Regulators



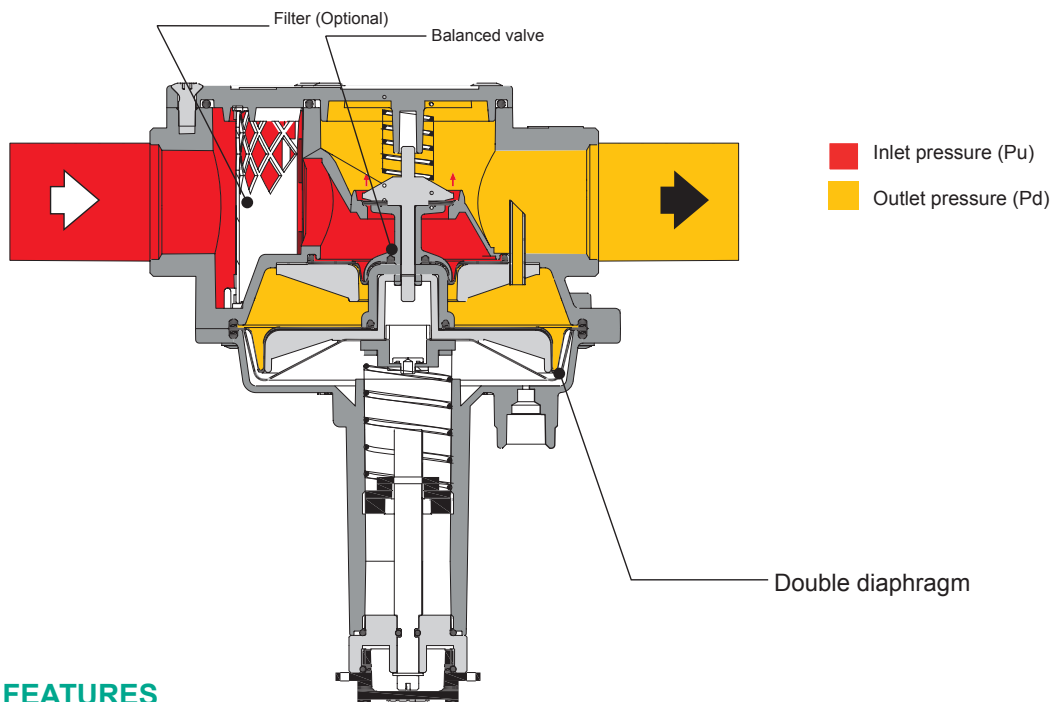
CSA 6.22a-2019 - ANSI Z21.80A 2019 Class I  
ANSI Z21.18-2019 / CSA 6.3-2019 Appliance approved  
No. 5.01 Gas/Air Ratio Controls For Gas Burning Appliances

## F3Z ZERO GOVERNOR AIR/GAS RATIO PRESSURE REGULATORS

Pietro Fiorentini's **ZERO GOVERNOR F3Z** series, are designed to comply with the ANSI Z21.8 standard.

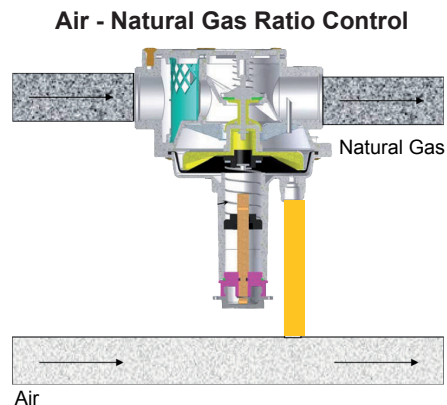
The **F3Z** family of regulators are ideal for all burner installations, nozzle mixers, mixing tees, and proportional pre-mixers. Their function is to regulate the pressure and to maintain constant the air/gas ratio. The materials and soft parts used in the construction of the **ZERO GOVERNOR** regulators make them suitable for use with natural gas, LPG, city gas and all other non corrosive gases.

All the **F3Z** regulators are equipped with balanced device design for high outlet pressure accuracy regardless of any inlet pressure variation. The double diaphragm provides added security in case of primary diaphragm failure.



### MAIN FEATURES

- **Air/Gas Ratio:** 1:1
- **Design Pressure:** 14.5 PSIG
- **Max Outlet Pressure:** 7.25 PSIG
- **Outlet Pressure:** 0.2 - 60.2" W.C.
- **Air Pressure Control:** 0.2 - 60.2" W.C.
- **Minimum  $\Delta P$  between  $P_u$  and  $P_d$ :** 8" WC
- **Ambient Temperature Range:** 14°F - 140°F
- **Filter:** Yes (Optional)
- **Air Connection:** 1/4" NPT
- **Connections:** 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2" - 2" NPT  
2 1/2" - 3" - 4" ANSI 150RF

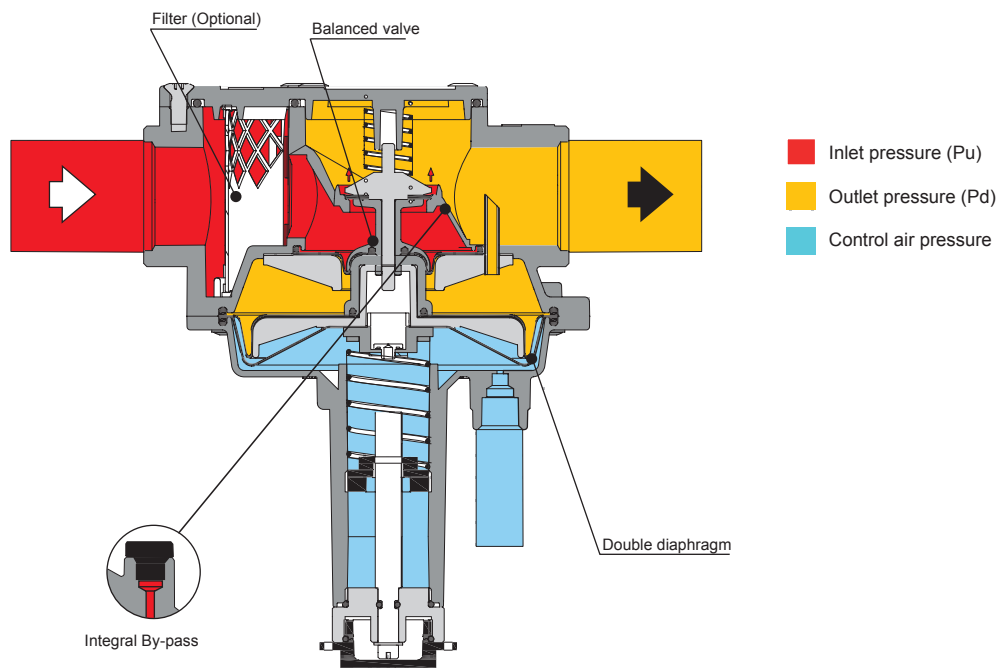


## F3S RATIO GOVERNOR AIR/GAS RATIO PRESSURE REGULATORS

Pietro Fiorentini's **RATIO GOVERNOR F3S** series, are designed to comply with the ANSI Z21.8 standard.

The **F3S** family of regulators are ideal for all burner installations, nozzle mixers, mixing tees, and proportional pre-mixers. Their function is to regulate the pressure and to maintain constant the air/gas ratio. The materials and soft parts used in the construction of the **RATIO GOVERNOR** regulators make them suitable for use with natural gas, LPG, city gas and all other non corrosive gases.

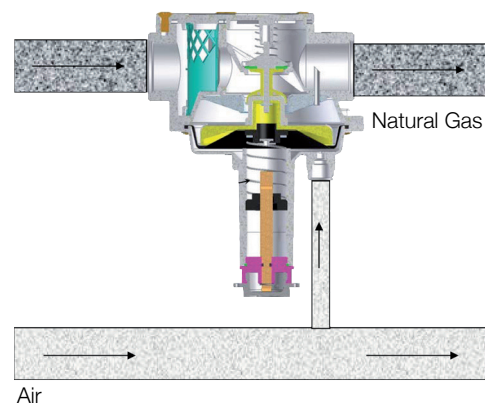
All the **F3S** regulators are equipped with balanced valve design for high outlet pressure accuracy regardless of any inlet pressure variation. The double diaphragm provides added security in case of primary diaphragm failure.



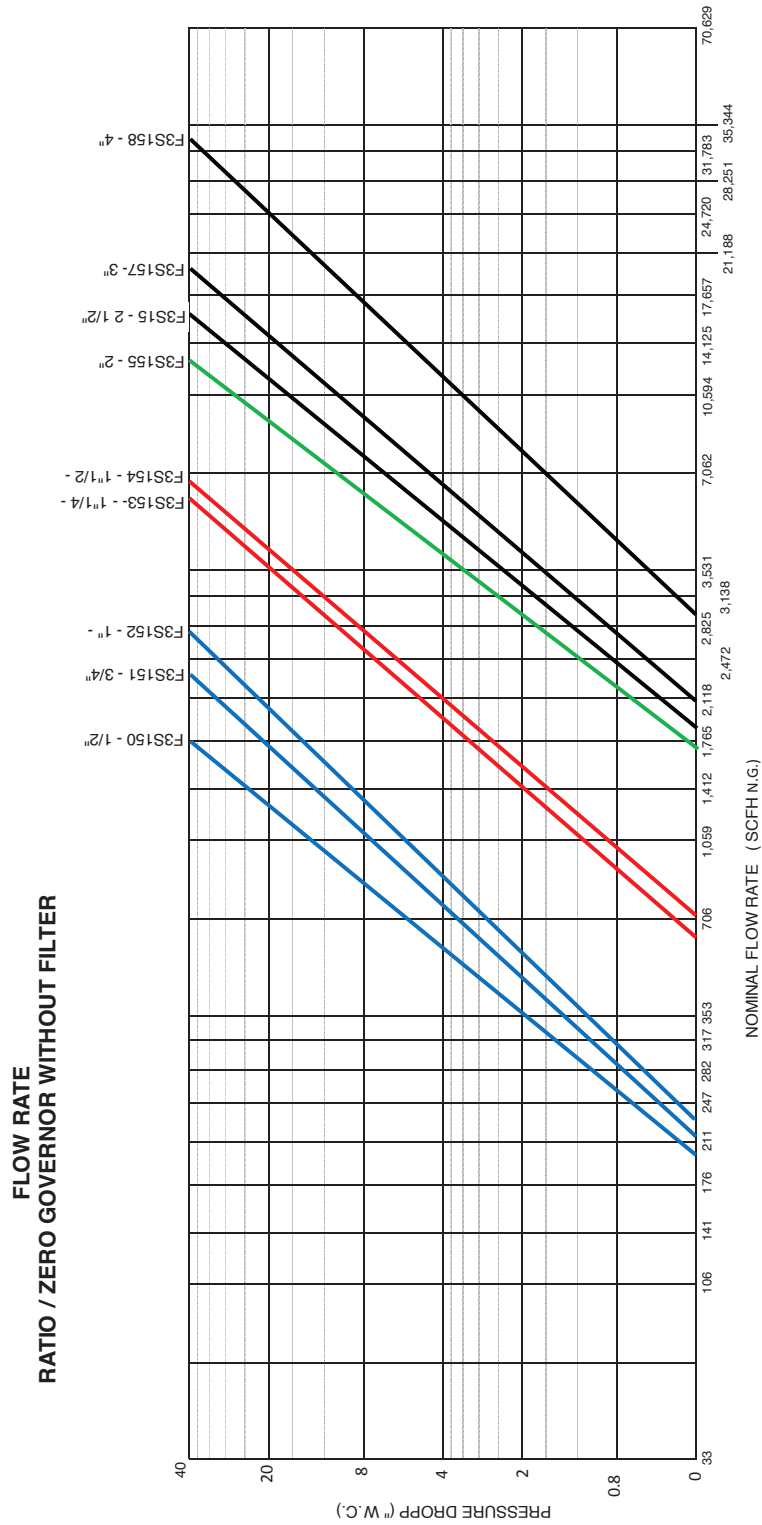
### MAIN FEATURES

- **Air/Gas Ratio:** 1:1
- **Design Pressure:** 14.5 PSIG
- **Max Outlet Pressure:** 7.25 PSIG
- **Outlet Pressure:** 0.2 - 60.2" W.C.
- **Air Pressure Control:** .8 - 60.2" W.C.
- **Minimum  $\Delta P$  between Pu and Pd:** 8" WC
- **Ambient Temperature Range:** 14°F - 140°F
- **Filter:** Yes (Optional)
- **Air Connection:** 1/4" NPT
- **Connections:** 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2" - 2" NPT  
2 1/2" - 3" - 4" ANSI 150RF

### Air - Natural Gas Ratio Control

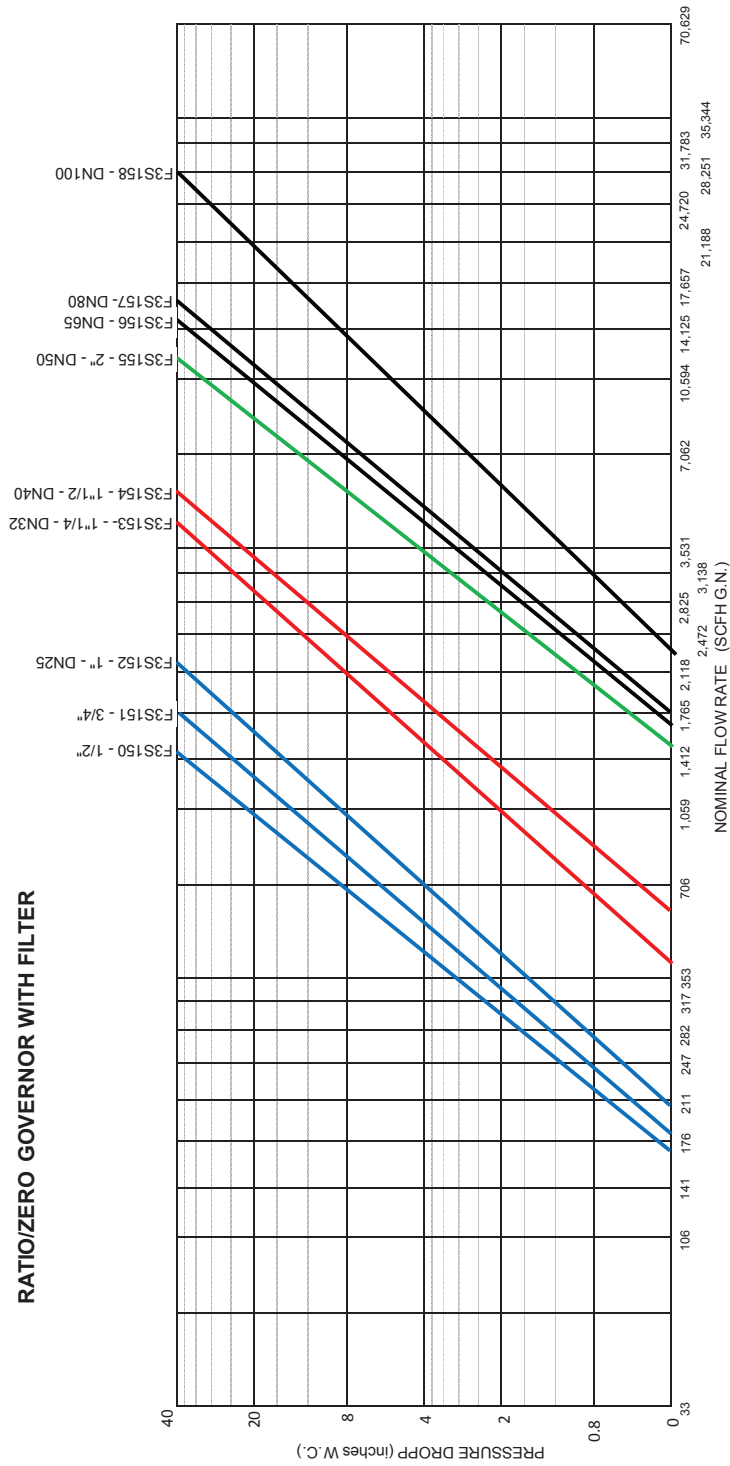


# AIR/GAS RATIO PRESSURE REGULATORS



Never choose a regulator capacity based on more than 1 PSI drop or 70% of  $\Delta P$  (even if more is available).

## AIR/GAS RATIO PRESSURE REGULATORS



# AIR/GAS RATIO PRESSURE REGULATORS

## CAPACITIES IN SCFH RATIO AND ZERO GOVERNORS VERSION WITOUT FILTER

Pressure Drop - inches w.c.

Model	Size	0.2	0.4	0.6	0.8	1	.5	2	2.5	3	3.5	4
F30150	1/2"	130	185	228	260	295	360	415	465	510	550	590
F30151	3/4"	170	240	290	335	375	460	530	595	655	705	755
F30152	1"	200	220	340	395	440	535	625	695	765	825	885
F30153	1 1/4"	475	675	825	950	1,070	1,300	1,510	1,680	1,850	1,990	2,135
F30154	1 1/2"	500	710	870	1,000	1,120	1,365	1,590	1,770	1,945	2,095	2,245
F30155	2"	900	1,280	1,570	1,810	2,020	2,465	2,865	3,190	3,500	3,775	4,050
F30156	2 1/2"	1,150	1,630	2,000	2,300	2,580	3,135	3,645	4,060	4,465	4,810	5,150
F30157	3"	1,400	1,980	2,420	2,800	3,130	3,810	4,430	4,930	5,420	5,840	6,260
F30158	4"	2,450	3,470	4,250	4,910	5,490	6,680	7,760	8,640	9,500	10,235	10,970

The Governor F3 holds a constant gas/air ratio by varying gas flow to the burner in proportion to the combustion air flow. Regulator outlet pressure then equals air impulse pressure, and gas flow remains proportional to air flow at all firing rates. The regulator is also adjustable for excess air or gas.

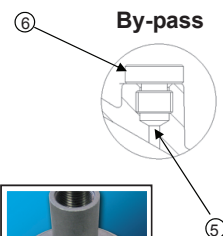
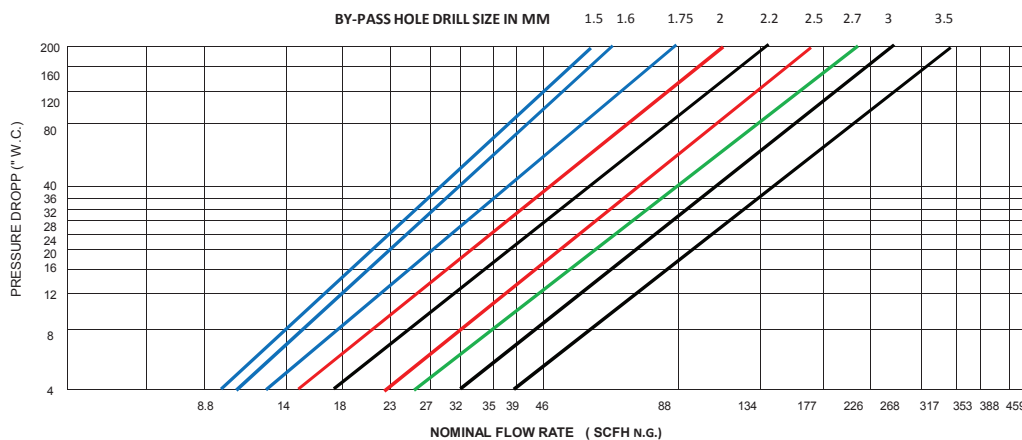
### RATIO GOVERNOR SELECTION

When selecting the F3S Governor and burner for proper ratio at all firing rates, follow the burner manufacturer's instructions. The following procedure contains recommended guidelines only, and they do not supersede the burner manufacturer's procedures. CAUTION: One regulator can be used for several burners controlled by the same air valve, but often it is better to have a separate regulator for each burner.

To size a regulator, determine required cfm of gas and pressure drop available at high fire. Divide required Select smallest regulator with Table 1 capacity above this adjusted capacity. CAUTION: never choose a regulator capacity based on more than 1PSI drop or 70% of  $\Delta P$  (even if more is available).

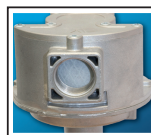
**EXAMPLE:** A nozzle-mix system requires 3,000 cfm of natural gas. Gas inlet pressure is 21" w.c ; maximum air pressure at the burner is 14" w.c. When cross-connected, outlet gas pressure is 14" W.C.. At high fire; pressure drop across regulator required is  $21 - 14 = 7"$  W.C., so chose a F30154 regulator.

### BY-PASS FLOW RATE RATIO/ZERO GOVERNOR WITHOUT FILTER

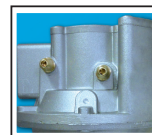


### OPTIONS

To activate bypass remove the top cover screws. Remove cover plate, remove plug (pos.6) with 2.5 mm allen wrench, the passage (pos.5) diameter is 1.5 mm. If a larger hole is required, drill to the correct diameter per table above. Then replace the over plate and the screws, then check for leaks.



Inlet filter

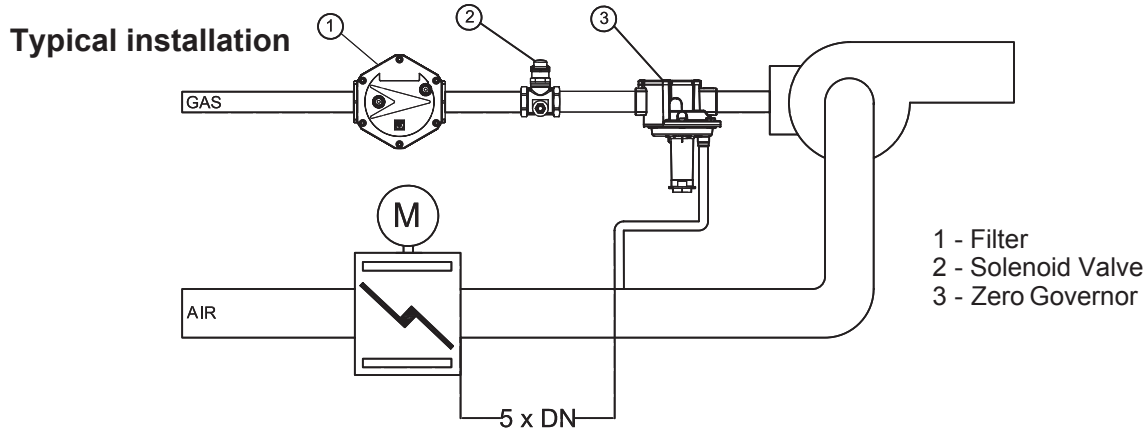


Gas inlet and outlet test point



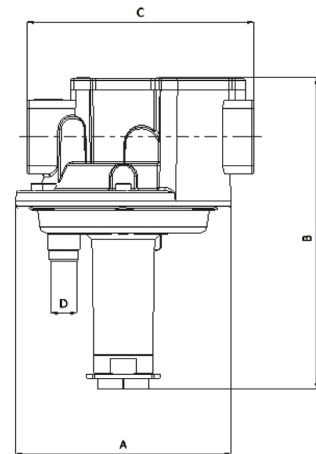
Air test point

## AIR/GAS RATIO PRESSURE REGULATORS



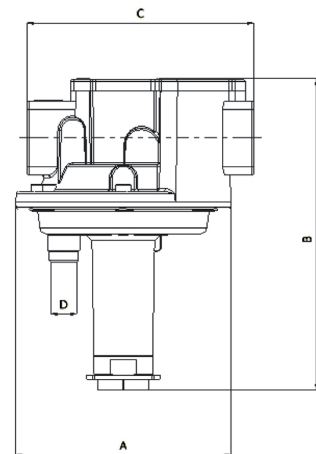
### WEIGHT(Lb.) AND DIMENSIONS (inches) RATIO GOVERNOR

MODEL	Rp/DN	A	B	C	D	Lb.
F30150-5RA	1/2"	4.9	7.3	5.27	1/4"	3
F30151-5RA	3/4"	4.9	7.3	5.27	1/4"	3
F30152-5RA	1"	4.9	7.28	5.27	1/4"	3
F30153-5RA	1 1/4"	7.55	10.39	7.63	1/2"	8.5
F30154-5RA	1 1/2"	7.55	10.39	7.63	1/2"	8.5
F30155-5RA	2"	7.55	12.83	7.75	1/2"	14
F30156/F-5RA	2 1/2"	12.59	17.32	16.92	1/2"	30
F30157/F-5RA	3"	12.59	17.32	16.92	1/2"	30
F30158/F-5RA	4"	12.59	17.32	16.92	1/2"	30



### WEIGHT(Lb.) AND DIMENSIONS (inches) ZERO GOVERNOR

MODEL	Pipe Size	A	B	C	D	Lb.
F30150-5ZE	1/2"	4.9	7.3	5.4	1/4"	3
F30151-5ZE	3/4"	4.9	7.3	5.27	1/4"	3
F30152-5ZE	1"	4.9	7.3	5.27	1/4"	8.5
F30153-5ZE	1 1/4"	7.55	10.39	7.63	1/2"	8.5
F30154-5ZE	1 1/2"	7.55	10.39	7.63	1/2"	8.5
F30155-5ZE	2"	7.55	12.8	9.3	1/2"	14
F30156/F-5ZE	DN2 1/2"	12.6	17.32	16.92	1/2"	30
F30157/F-5ZE	DN 3"	12.6	17.32	16.92	1/2"	30
F30158/F-5ZE	DN 4"	12.6	17.32	16.92	1/2"	30





**EQUIPMENT CONTROLS COMPANY**

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