

## ***ZERO & RATIO Governor*** Air/gas ratio pressure regulators



CSA 6.22a-2005 ANSI Z21.80A2005 Class I  
ANSI Z21.18-2005 / CSA 6.3-2005 Appliance approved

## F3Z ZERO GOVERNOR

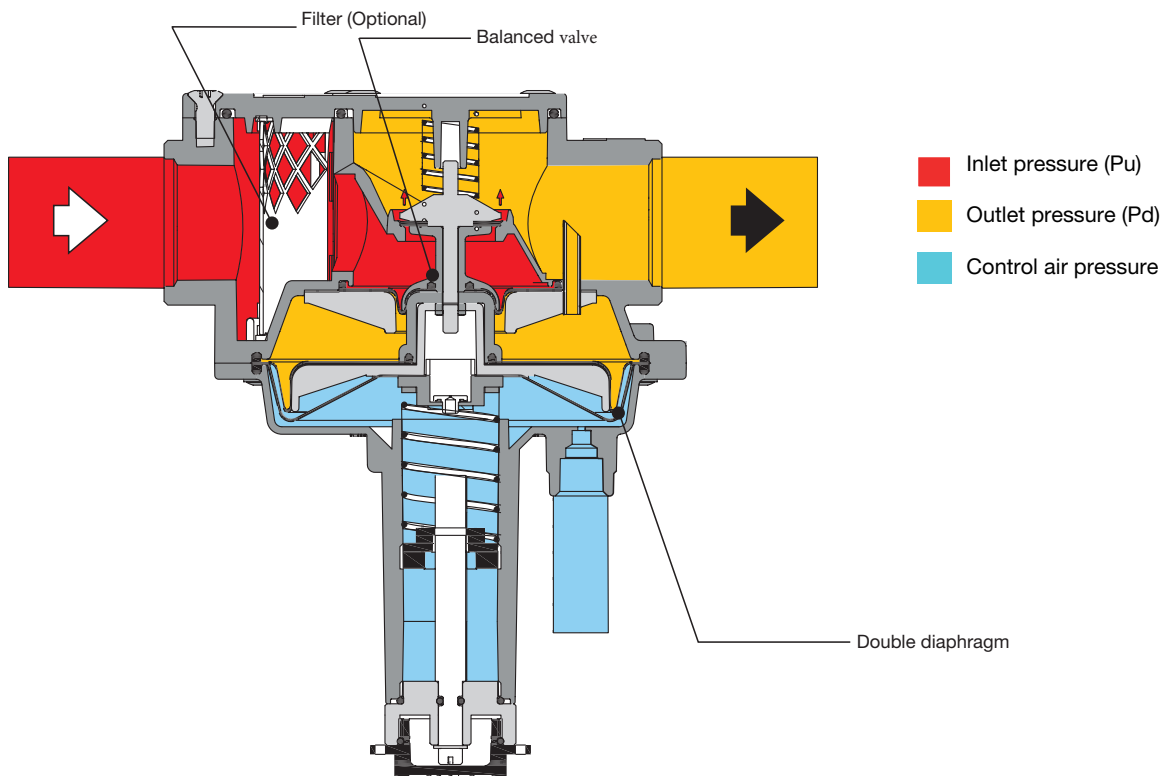
### Air/gas ratio pressure regulators

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.

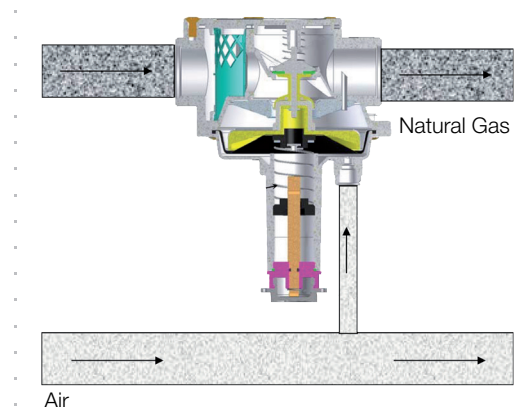
All the **F3Z** regulators are equipped with balanced device design for high outlet pressure accuracy regardless of any inlet pressure variation. The double diaphragm provides added security in case of primary diaphragm failure.



### MAIN FEATURES

**Air/gas ratio:** 1:1  
**Design pressure :** 14.5 PSIG  
**Max inlet pressure :** 7.25 PSIG  
**Outlet pressure :** 0.2 - 60.2" W.C.  
**Air pressure control :** .2 - 60.2" W.C.  
**Minimum  $\Delta P$  between Pu and Pd :** 8" W.C.  
**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



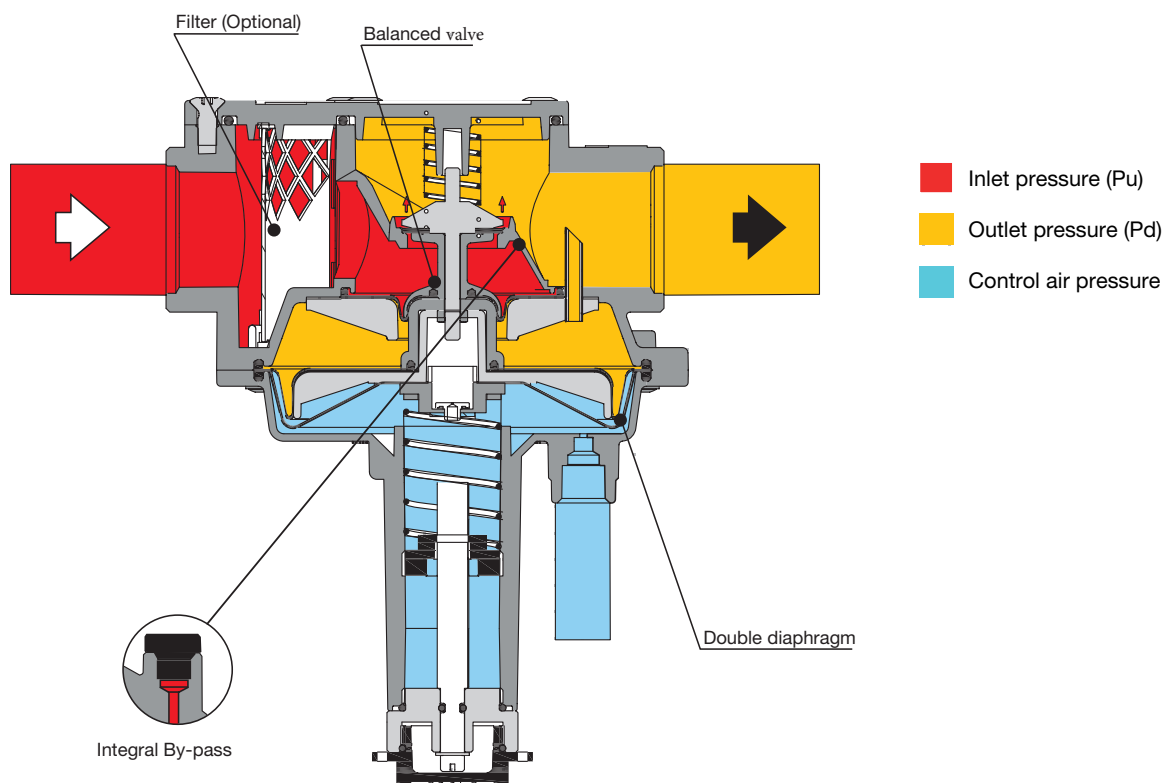
## F3Z RATIO GOVERNOR

### 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.

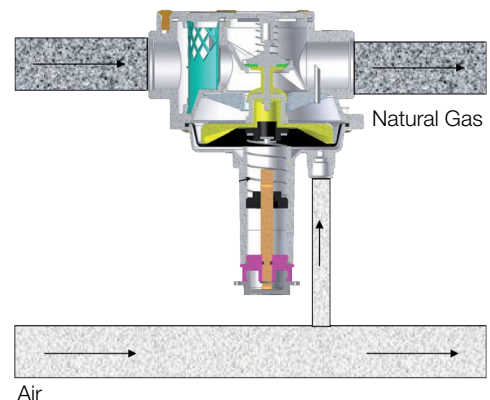
All the **F3S** regulators are equipped with balanced valve design for high outlet pressure accuracy regardless of any inlet pressure variation. The double diaphragm provides added security in case of primary diaphragm failure.



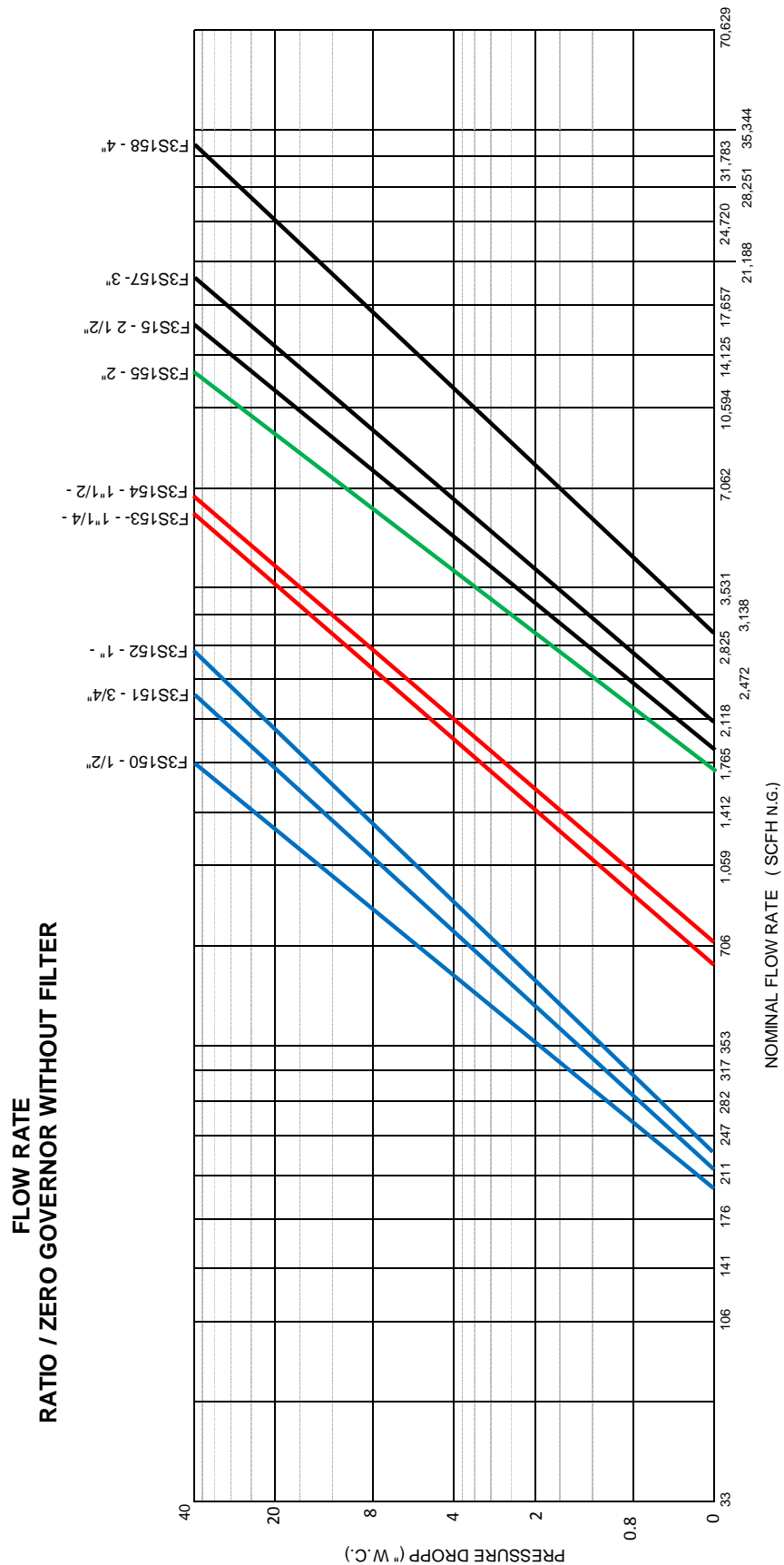
### MAIN FEATURES

- Air/gas ratio:** 1:1
- Design pressure :** 14.5 PSIG
- Max inlet pressure :** 7.25 PSIG
- Outlet pressure :** 0.2 - 60.2" W.C.
- Air pressure control :** .8 - 60.2" W.C.
- Minimum  $\Delta P$  between  $P_u$  and  $P_d$  :** 8" W.C.
- 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

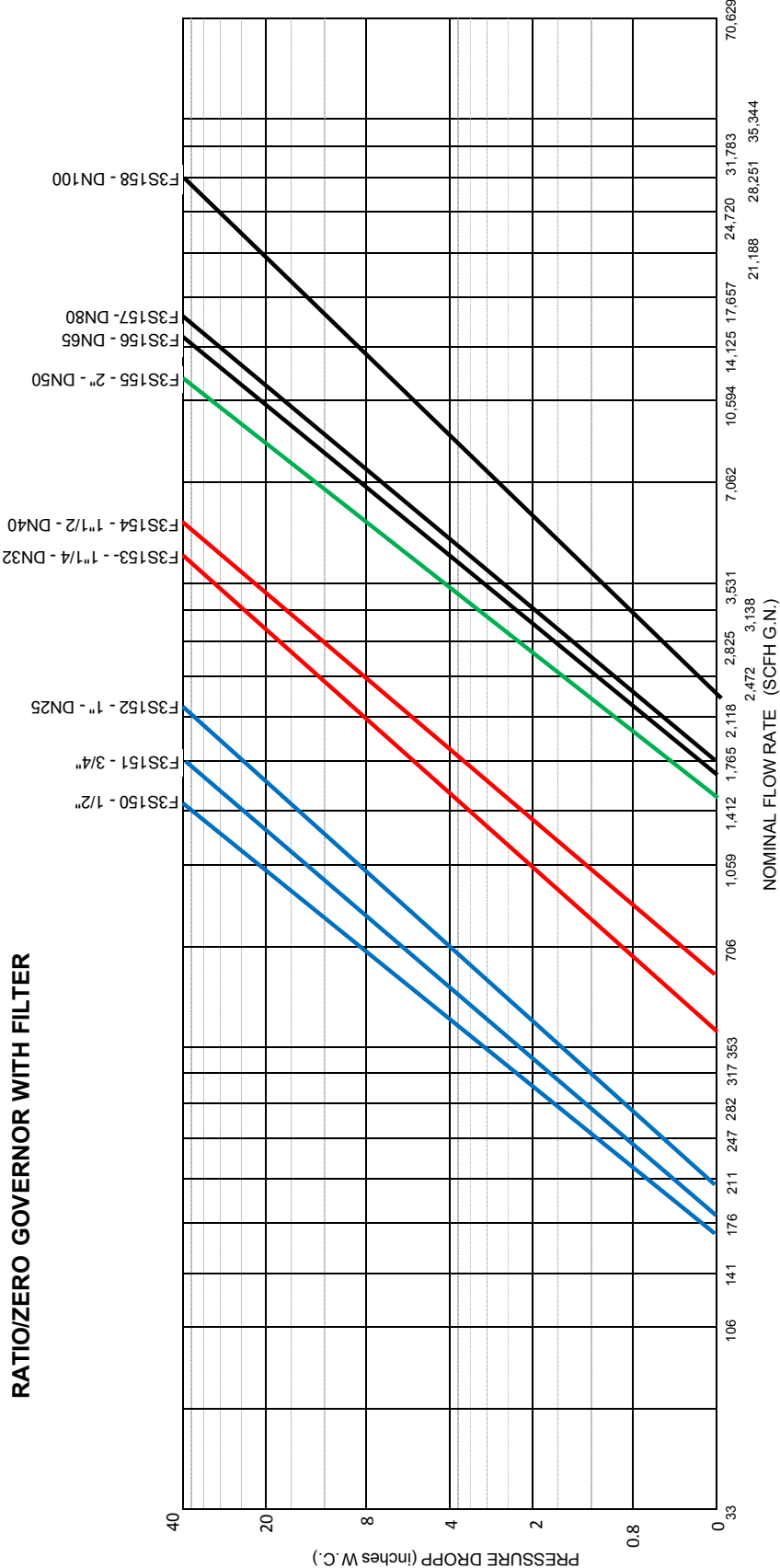
#### Air - Natural Gas Ratio Control



## 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).



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

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

Model	Size	Pressure Drop - inches w.c.										
		0.2	0.4	0.6	0.8	1	1.5	2	2.5	3	3.5	4
F3Z150	1/2"	130	185	228	260	295	360	415	465	510	550	590
F3Z151	3/4"	170	240	290	335	375	460	530	595	655	705	755
F3Z152	1"	200	220	340	395	440	535	625	695	765	825	885
F3Z153	1 1/4"	475	675	825	950	1,070	1,300	1,510	1,680	1,850	1,990	2,135
F3Z154	1 1/2"	500	710	870	1,000	1,120	1,365	1,590	1,770	1,945	2,095	2,245
F3Z155	2"	900	1,280	1,570	1,810	2,020	2,465	2,865	3,190	3,500	3,775	4,050
F3Z156	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
F3Z157	3"	1,400	1,980	2,420	2,800	3,130	3,810	4,430	4,930	5,420	5,840	6,260
F3Z158	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 F3S 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

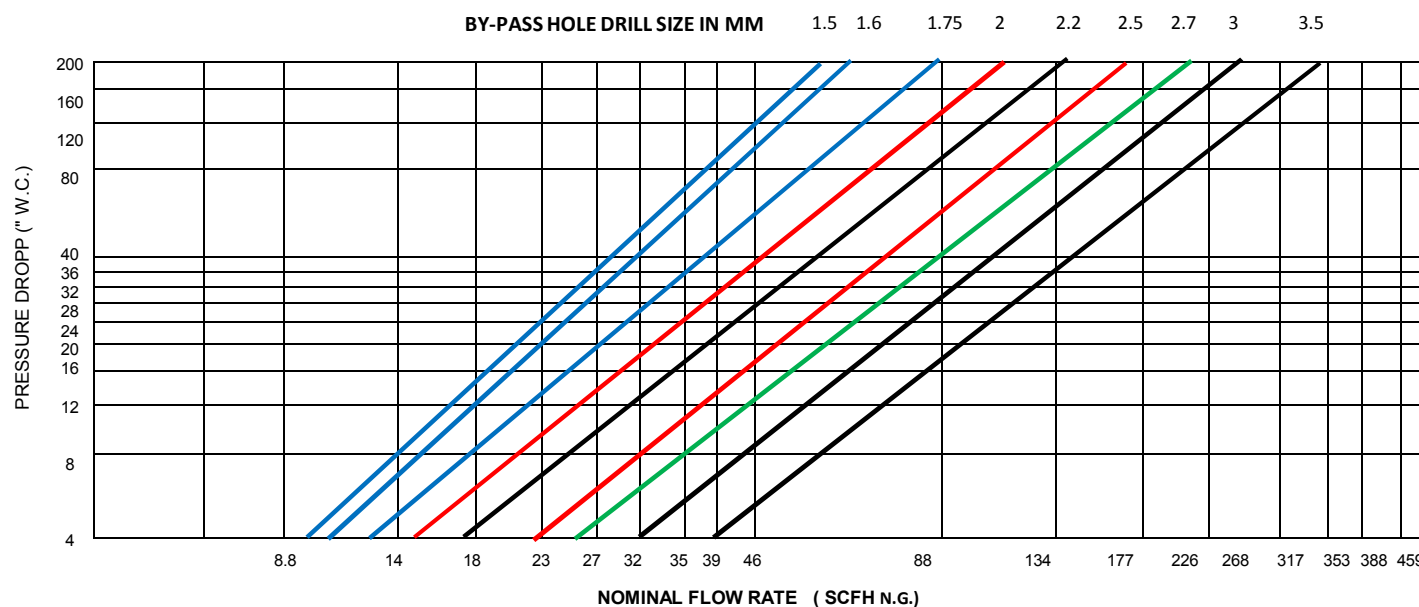
When selecting the F3S Governor and burner for proper ratio at all firing rates, follow the burner manufacturer's instructions. The following procedure contains recommended guidelines only, and they do not supersede the burner manufacturer's procedures.

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.

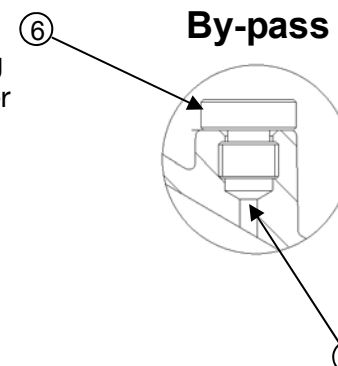
To size a regulator, determine required cfm of gas and pressure drop available at high fire. Divide required Select smallest regulator with Table 1 capacity above this adjusted capacity.

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

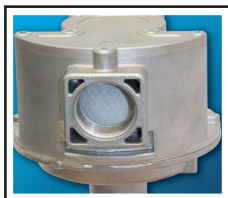
**EXAMPLE:** A nozzle-mix system requires 3,000 cfm of natural gas. Gas inlet pressure is 21" w.c ; maximum air pressure at the burner is 14" w.c. When cross-connected, outlet gas pressure is 14" W.C.. At high fire; pressure drop across regulator required is  $21 - 14 = 7$ " W.C., so chose a F3S154 regulator.

BY-PASS FLOW RATE  
RATIO/ZERO GOVERNOR WITHOUT FILTER

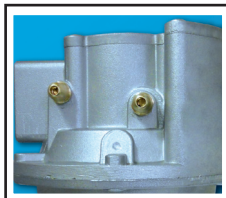
To activate bypass remove the top cover screws. Remove cover plate , remove plug (pos.6) with 2.5 mm allen wrench, the passage (pos.5) diameter is 1.5 mm. If a larger hole is required, drill to the correct diameter per table above. Then replace the over plate and the screws, then check for leaks.



## Options



Inlet filter

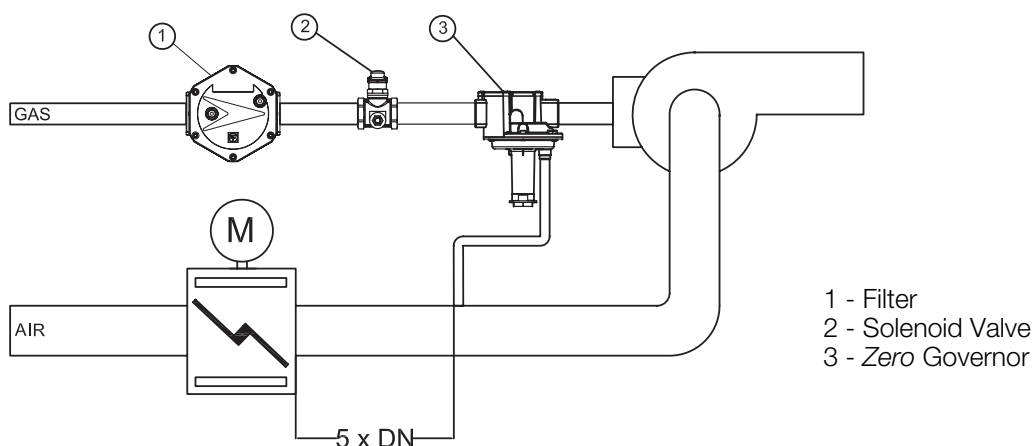


Gas inlet and outlet test point



Air test point

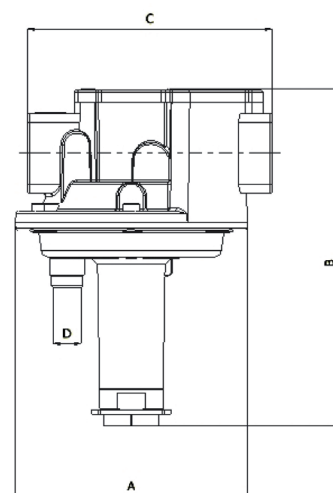
## Typical installation



## Weight and dimensions in inches

### ZERO GOVERNOR

MODEL	Pipe Size	A	B	C	D	Lbs
F3Z150	1/2"	4.9	7.3	5.4	1/4"	2.75
F3Z151	3/4"	4.9	7.3	5.27	1/4"	2.75
F3Z152	1"	4.9	7.3	5.27	1/4"	2.75
F3Z153	1 1/4"	7.55	10.39	7.63	1/2"	7.5
F3Z154	1 1/2"	7.55	10.39	7.63	1/2"	7.5
F3Z155	2"	7.55	12.8	9.3	1/2"	12.32
F3Z156	DN 2 1/2"	12.6	17.32	16.92	1/2"	27.55
F3Z157	DN 3"	12.6	17.32	16.92	1/2"	27.55
F3Z158	DN 4"	12.6	17.32	16.92	1/2"	27.55





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