



Mooney* FlowMax* pressure reducing regulator for natural gas pipelines



imagination at work



HYDRID™ PILOT
SERIES 20/20H/26S/26HS

WOG 250

The Mooney FlowMax regulator is a new pressure reducing regulator that offers bubble tight shut-off at all pressure differentials and full capacity at very low differential pressures. This innovative GE Oil & Gas design compliments the Mooney Flowgrid* regulator. The FlowMax regulator maximizes capacity, speed of response, and accuracy while incorporating many of the same original maintenance and performance features for which the Flowgrid regulator is renowned.

Product Features

- Top-entry design for ease of maintenance
- One actuator for all pressure control ranges
- Oversized balanced diaphragm provides shut off force
- Full portal designs for ultra high capacity
- Guiding piston
- Positive bubble tight shut-off at all pressure differentials
- Control range - 5 i.w.c. to 247 psig
- Full open differential - as low as 3 psig
- Quick acting two-path pilot control system
- Low-volume casing (actuator)
- Lightweight and compact design
- Reversible plug seal

Designed for a range of applications

- District regulator
- Monitor, first stage, or second stage regulator
- Industrial service regulator
- Boiler/burner fuel gas regulator



Designed for bubble tight shut-off at all pressures and full capacity at very low differential pressures.

Pressure Reducing Valve

When the downstream pressure is greater than the set point of the pilot, the pilot is closed, resulting in equal pressure above and below the main diaphragm. With a balancing diaphragm area slightly larger than the seat area, the resulting closing force, along with the force of the main spring, forces the plug against the seat.

With an increase in demand, the outlet pressure will begin to drop and decrease the pressure above the main diaphragm. The drop of the outlet pressure below the pilot set point will cause the pilot to open. As the pilot opens, pressure increases underneath the main diaphragm faster than pressure can bleed through the internal restrictor. The imbalance in pressure on the main diaphragm overcomes the spring force and the additional closing force from the balancing diaphragm, causing the plug to rise off the seat and satisfy the flow demand.

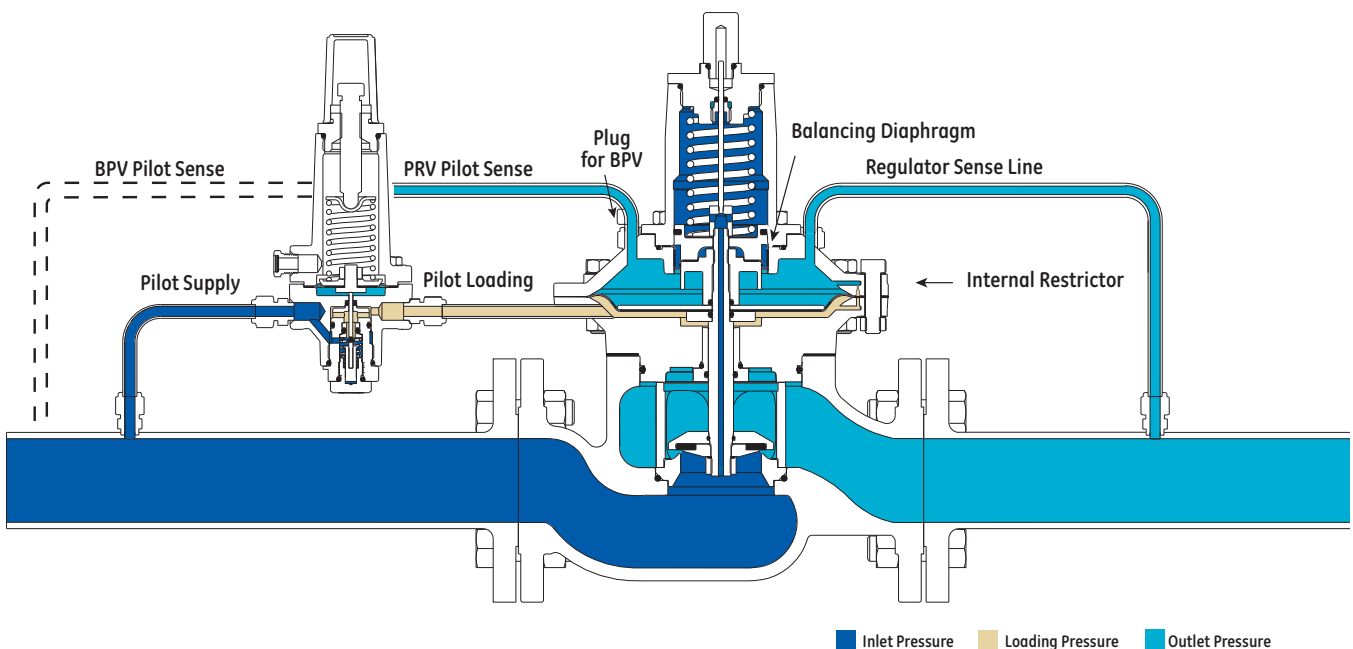
Once the flow demand is satisfied and the downstream pressure begins to increase, the pressure






above the main diaphragm and in the pilot sense cavity rises.






This causes the pilot to close. The pressure below the main diaphragm bleeds through the internal restrictor until pressure equalizes above and below the main diaphragm. The forces of the main spring and the over-sized balancing diaphragm then close the plug on the seat.

Back Pressure Valve

In a back pressure relief application (BPV) the valve functions to maintain upstream pressure at the pilot set point. The sense line for the control pilot is located upstream of the regulator. The extra sense port on the actuator is plugged for BPV pilot configuration. The action of the pilot is the reverse of a pressure reducing pilot, such that the pilot opens when the upstream pressure increases above its set point. The pilot will close when the upstream pressure is less than its set point.



Spring Color	Series 20 ^o Pilot	Outlet Pressure Range
White 	20L	5-15 i. w. c.
Brown 	20L	10-40 i. w. c.
Yellow 	20L	1-3 psig
Orange 	20L	2-5 psig
Gray 	20L	4-8 psig

Spring Color	Series 20 Pilot	Outlet Pressure Range
Red 	20	3-12 psig
Cadmium 	20	10-40 psig
Blue 	20	25-90 psig
Purple 	20	60-200 psig
Black 	20	100-260 psig

Specifications

Body Size	2"	3"	4"	6"
End Connection	NPT ANSI CL 150 RF CL 150 FF***	ANSI CL 150 RF CL 150 FF***	ANSI CL 150 RF CL 150 FF***	ANSI CL 150 RF CL 150 FF***
Minimum Differential (fully open)	3 psig	4 psig	4 psig	4 psig
Maximum Inlet Pressure	250 psig	250 psig	250 psig	250 psig
Maximum Outlet Pressure	250 psig	250 psig	250 psig	250 psig
Maximum Casing Pressure	250 psig	250 psig	250 psig	250 psig
Outlet Pressures Series 20 Pilot Series 20L Pilot	3 to 247 psig 5 i.w.c. - 8 psig	3 to 246psig 5 i.w.c. - 8 psig	3 to 246 psig 5 i.w.c. - 8 psig	3 to 246 psig 5 i.w.c. - 8 psig
Maximum Differential Pressure	250 psid	250 psid	250 psid	250 psid
Temperature Emergency Temperature	-20°F to 150°F -40°F to 175°F	-20°F to 150°F -40°F to 175°F	-20°F to 150°F -40°F to 175°F	-20°F to 150°F -40°F to 175°F
100% Capacity				
C _g	2,250	4,200	7,500	14,500
C ₁	35	37	35	37
C _v	64	114	212	393
50% Capacity				
C _g	1,200	2,100	3,800	7,200
C ₁	31**	32**	31**	31
C _v	39**	66**	123**	231
Face to Face Dimensions				
NPT	10.50	N/A	N/A	N/A
CL 150 RF & CL 150 FF	10.00	11.75	13.88	17.75
Weight				
NPT	31 lbs	N/A	N/A	N/A
CL 150 RF & CL 150 FF	36 lbs	59 lbs	103 lbs	190 lbs

** Estimated

*** CL150 FF mates with 125 FF cast iron pipe.

Flow Capacity Charts (MSCFH)

Inlet Pressure (psig)	Outlet Pressure (psig)	2"	3"	4"	6"	Inlet Pressure (psig)	Outlet Pressure (psig)	2"	3"	4"	6"	
3	0.25	32	57	107	197	60	0.25	217	405	724	1399	
	1	28	50	93	171		1	217	405	724	399	
5	0.25	43	76	142	263		3	217	405	724	1399	
	1	40	71	133	245		5	217	405	724	1399	
	3	30	53	99	181		10	217	405	724	1399	
10	0.25	63	114	210	393		15	210	385	701	1328	
	1	62	111	205	382		20	206	375	686	1293	
	3	57	101	189	350		30	191	346	638	1193	
	5	50	89	166	307		40	168	300	558	1036	
15	0.25	80	146	268	505		70	0.25	246	459	820	1586
	1	79	144	265	498			1	246	459	820	1586
	3	76	138	254	475			3	246	459	820	1586
	5	72	130	240	448	5		246	459	820	1586	
	10	56	99	185	342	10		246	459	820	1586	
25	0.25	97	177	323	610	15		246	459	820	1586	
	1	96	175	320	604	20		238	434	792	1499	
	3	94	170	312	587	30		227	411	756	1419	
	5	91	164	303	567	40		209	376	696	1298	
	10	80	143	266	495	50		181	324	604	1119	
	15	61	108	203	373	60		136	242	453	834	
30	0.25	130	243	433	837	80		0.25	275	514	917	1773
	1	130	243	433	837		1	275	514	917	1773	
	3	126	230	420	795		3	275	514	917	1773	
	5	124	226	414	782		5	275	514	917	1773	
	10	118	214	393	738		10	275	514	917	1773	
	15	108	195	361	673		15	275	514	917	1773	
	20	94	167	312	578		20	269	492	896	1700	
40	0.25	159	297	530	1025		30	260	473	867	1633	
	1	159	297	530	1025		40	246	445	820	1536	
	3	159	297	530	1025		50	225	405	751	1397	
	5	156	285	518	984		60	194	347	647	1197	
	10	151	276	505	952		70	145	257	482	887	
	15	145	263	484	908	100	0.25	333	622	1111	2148	
20	136	246	454	848	1		333	622	1111	2148		
30	106	189	353	651	3		333	622	1111	2148		
50	0.25	188	351	627	1212		5	333	622	1111	2148	
	1	188	351	627	1212		10	333	622	1111	2148	
	3	188	351	627	1212		15	333	622	1111	2148	
	5	188	351	627	1212		20	333	622	1111	2148	
	10	183	335	610	1156		30	324	592	1079	2044	
	15	179	325	595	1123		40	314	572	1048	1974	
	20	172	312	575	1078		50	301	544	1002	1878	
	30	153	274	509	946		60	282	507	938	1749	
40	117	208	389	717	70		255	457	850	1576		

NOTE: High differentials may result in high outlet piping velocities. Swaging up outlet piping is required.

Flow Capacity Charts (MSCFH)

Inlet Pressure (psig)	Outlet Pressure (psig)	2"	3"	4"	6"	Inlet Pressure (psig)	Outlet Pressure (psig)	2"	3"	4"	6"	
125	0.25	406	758	1353	2616	200	0.25	624	—	—	—	
	1	406	758	1353	2616		1	624	1164	—	—	
	3	406	758	1353	2616		3	624	1164	2079	—	
	5	406	758	1353	2616		5	624	1164	2079	—	
	10	406	758	1353	2616		10	624	1164	2079	4020	
	15	406	758	1353	2616		15	624	1164	2079	4020	
	20	406	758	1353	2616		20	624	1164	2079	4020	
	30	406	758	1353	2616		30	624	1164	2079	4020	
	40	394	721	1314	2488		40	624	1164	2079	4020	
	50	385	701	1283	2419		50	624	1164	2079	4020	
	60	372	675	1242	2330		60	624	1164	2079	4020	
	70	356	642	1186	2217		70	605	1106	2017	3820	
	100	268	477	893	1648		100	573	1038	1908	3582	
150	0.25	478	893	1595	—	225	25	527	949	1757	3276	
	1	478	893	1595	—		150	457	817	1523	2821	
	3	478	893	1595	3084		175	343	609	1142	2010	
	5	478	893	1595	3084		250	3	696	1300	—	—
	10	478	893	1595	3084			5	696	1300	—	—
	15	478	893	1595	3084			10	696	1300	—	—
	20	478	893	1595	3084			15	696	1300	2321	4488
	30	478	893	1595	3084			20	696	1300	2321	4488
	40	478	893	1595	3084			30	696	1300	2321	4488
	50	464	849	1548	2932			40	696	1300	2321	4488
	60	455	930	1518	2864			50	696	1300	2321	4488
	70	444	805	1479	2780			60	696	1300	2321	4488
	100	386	693	1287	2392			70	696	1300	2321	4488
125	295	525	983	1812	100	656		1194	2188	4120		
					125	621		1122	2069	3872		
					150	568		1019	1892	3520		
					175	489	873	1629	3013			
					200	364	646	1214	2232			
175	0.25	551	1029	1837	—	250	3	769	—	—	—	
	1	551	1029	1837	—		5	769	1435	—	—	
	3	551	1029	1837	—		10	769	1435	2563	—	
	5	551	1029	1837	—		15	769	1435	2563	4956	
	10	551	1029	1837	—		20	769	1435	2563	4956	
	15	551	1029	1837	3552		30	769	1435	2563	4956	
	20	551	1029	1837	3552		40	769	1435	2563	4956	
	30	551	1029	1837	3552		50	769	1435	2563	4956	
	40	551	1029	1837	3552		60	769	1435	2563	4956	
	50	551	1029	1837	3552		70	769	1345	2563	4956	
	60	535	978	1783	3376		100	737	1345	2458	4642	
	70	526	958	1752	3309		125	708	1284	2361	4433	
	100	484	873	1613	3014		150	666	1201	2220	4145	
125	423	757	1410	2615	175	606	1086	2019	3749			
150	320	568	1065	1961	200	519	925	1729	3194			
					225	385	682	1282	2355			

NOTE: High differentials may result in high outlet piping velocities. Swagging up outlet piping is required.

GE Oil & Gas

2822 S. 1030 West
Salt Lake City, UT 84119
P: +1 801.487.2224
F: +1 801.487.2597

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