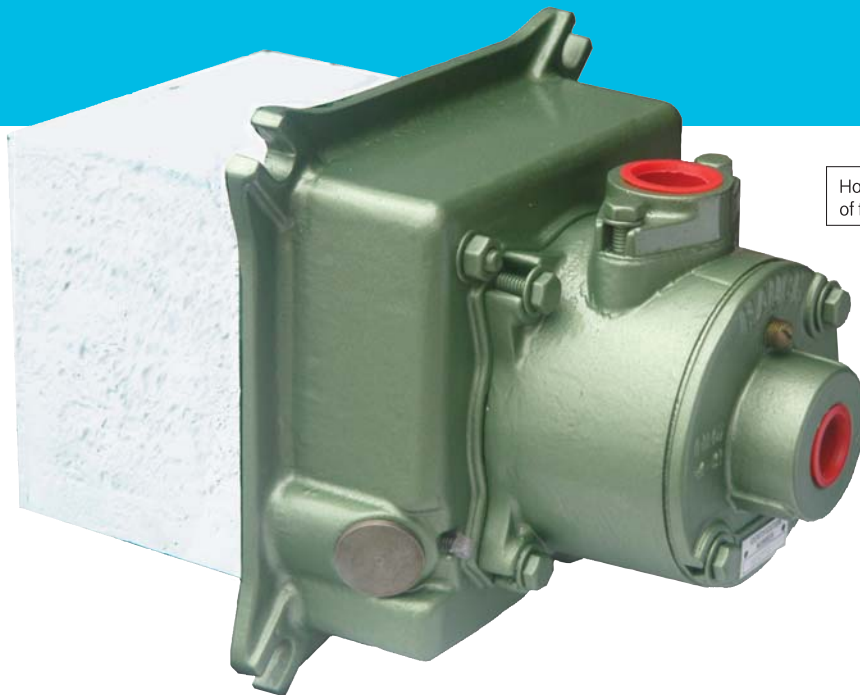




NMG

Nozzle Mix Gas Burners

NMG-1
Edition 09-08



Hauck, a product brand
of the Elster Group



- Burns most gaseous fuels
- Sealed-in capability
- Stable flame over entire operating range
- Preheated air to 800°F (425°C)
- Direct spark or pilot ignition option
- Wide turndown
- Low maintenance



Hauck's NMG nozzle mix gas burners are designed for applications requiring a general purpose, long life, low maintenance burner.

Operation. Combustion air and fuel are channeled into the burner nozzle separately, permitting wide turndown. Since the burner nozzle is sealed into the refractory tile, all combustion air is supplied through the burner. The NM series burners couple a uniform flame front with flame stability over the entire operating range.

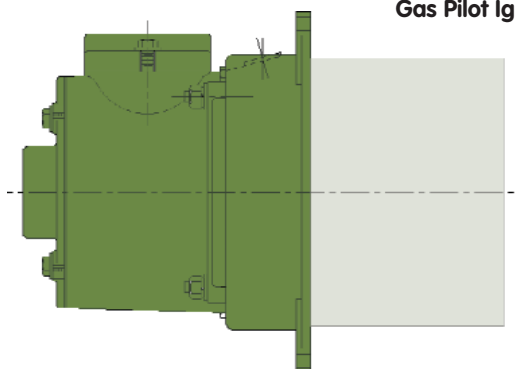
NM burners are available for preheated air operation up to 800°F (425°C) for high temperature furnace applications. Atomizing air is maintained at ambient conditions during preheated air operation.

The burners can be controlled manually or automatically. Automatic control normally employs a ratio regulator for each control zone or burner to maintain air-fuel ratio. An alternate system uses control valves in each of the fuel and air lines, linking the valves to a single motor controller.

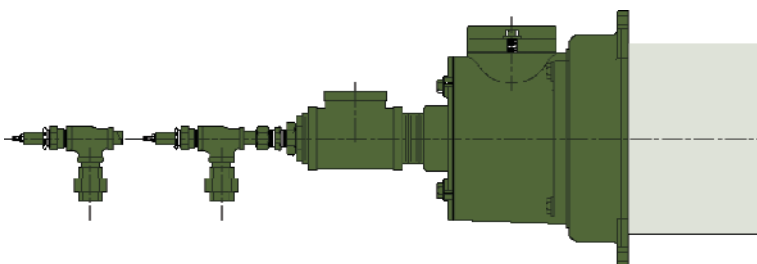
Use of the NM in recuperative systems results in an economical approach to energy savings.

Construction. With no moving parts, the burner is virtually maintenance free. Parts subject to heat are constructed of either heat resistant cast iron or stainless steel. Special refractory materials and jacketed tiles can be supplied upon request.

Gas Pilot Ignited NMG Burner



Direct Spark Ignited NMG Burner



Mounting. The burner, mounting plate and refractory tile are shipped as an assembled unit. The burner can be mounted to fire in any position - horizontal, vertical up or vertical down. The air connection can be rotated to any of three other positions.

Each NM burner is equipped with companion flanges on the main air connections to permit easy burner installation and removal and allow the mounting of an orifice plate for reduced air flows, if required.

Ignition. Direct spark ignition is available on the NMG 215 through 240 burners, while gas pilot ignition is available on all size burners.

Pilot. The burner mounting plate includes a port for the gas pilot/ignition system. The pilot is required for initial burner ignition only and is not required to maintain ignition.

Flame Supervision. The NM mounting plate is provided with a port for monitoring the pilot and main flame using a UV scanner or other suitable device.

For additional information on this product, visit our website at:

www.hauckburner.com

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CAPACITIES

NMG NOZZLE MIX GAS BURNERS

NMG CAPACITY TABLE

O N R A T I O G A S	NMG BURNER NO.	AIR PRESSURE													
		4 oz.		6 oz.		8 oz.		12 oz.		16 oz.		20 oz.		24 oz.	
		AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR	AIR CFM	BTU CAP. IN 1000 BTU/HR
	210x50	21	114	25	136	29	158	36	196	41	224	46	251	50	273
	210	33.5	183	41	224	47.3	258	58	316	67	365	75	409	82	447
	215	70	382	86	469	99	540	121	660	140	764	157	856	172	938
	220	132	720	161	878	186	1015	228	1244	263	1435	294	1604	322	1757
	230	272	1484	333	1817	385	2100	471	2569	544	2968	608	3317	666	3633
	240	413	2253	505	2755	583	3180	714	3895	825	4500	922	5030	1011	5515
	260	780	4255	955	5210	1103	6017	1351	7370	1560	8510	1744	9514	1911	10425

Capacities based on natural gas 1040 Btu/Cu. Ft. Minimum gas pressure required at burner inlet 6 "wc.

TABLE 1

NMG-H CAPACITY TABLE
(Air Flow @ 16 osig)

NMG BURNER NO.	ITEM	COMBUSTION AIR TEMP., °F				MIN. FLOW	EXCESS AIR, %
		100	400	650	800		
H210	Combustion air, scfm	67	54	48	45	7	200
	Natural gas, scfh	371	300	264	248	38	
H215	Combustion air, scfm	140	113	100	94	14	200
	Natural gas, scfh	775	625	550	517	77	
H220	Combustion air, scfm	263	212	187	175	26	200
	Natural gas, scfh	1457	1175	1035	971	145	
H230	Combustion air, scfm	544	439	386	363	54	200
	Natural gas, scfh	3014	2432	2141	2009	300	
H240	Combustion air, scfm	825	666	586	550	82	150
	Natural gas, scfh	4570	3743	3302	3102	455	
H260	Combustion air, scfm	1560	1259	1108	1040	156	150
	Natural gas, scfh	8643	6974	6138	5761	865	

TABLE 2

(OVER)

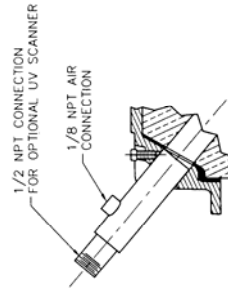
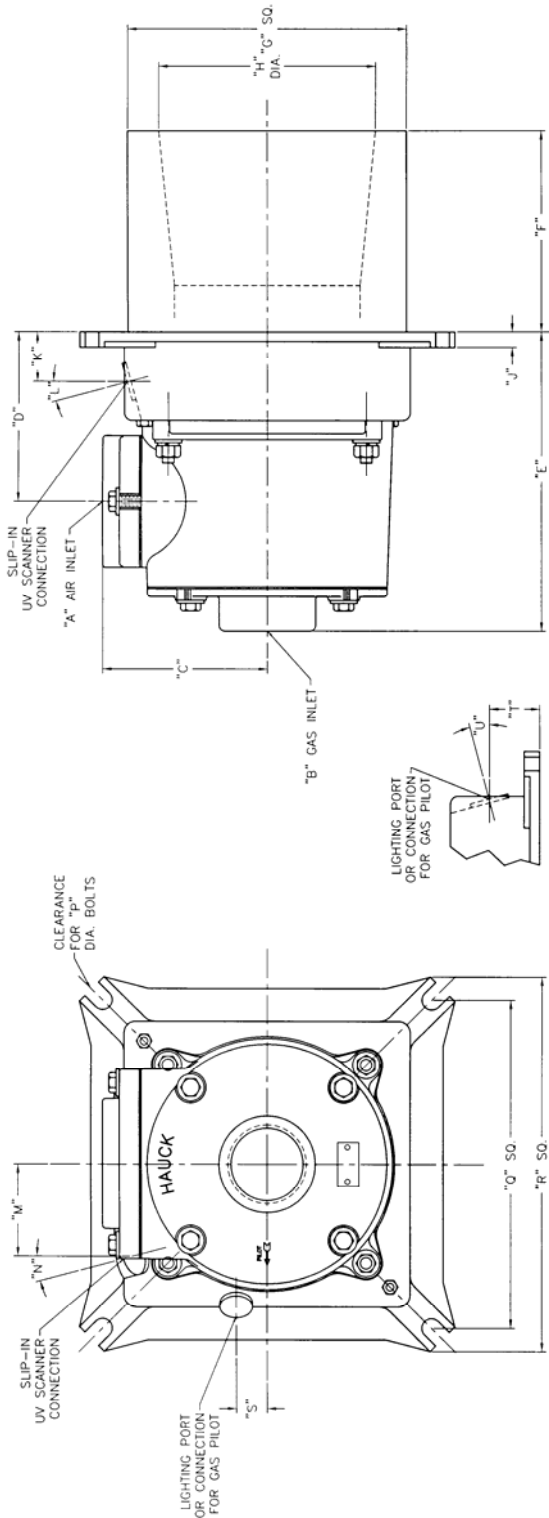
In accordance with Hauck's commitment to Total Quality Improvement, Hauck reserves the right to change the specifications of products without prior notice.



NMG-H CAPACITY TABLE AND APPLICATION NOTES

1. Fuel capacity based on natural gas at 1040 Btu/cu. ft.
2. Natural gas flows shown for 10% excess air. 6 "wc minimum gas pressure required at burner.
3. Combustion air capacities at 16 osi total pressure. Air flows at lower pressures proportional to $\sqrt{P/16}$. Air flows at intermediate temperature proportional to $\sqrt{\frac{860}{T_h + 460}}$ times the flow at 400°F.
4. Include sensible heat of preheated air when computing total burner heat output. Sensible heat Btu/hr = scfm x 1.11 x $\Delta T(^{\circ}\text{F})$.
5. Excess air % maximums (approx.) shown for 16 osig secondary air pressure.
6. To size pipe for preheated air, compute acfm = scfm $\left(\frac{T + 460}{520} \right)$.
7. When supervising flame, provide approximately 16 osig ambient purge air (1-1/2 – 2 cfm) to special scanner purge assembly.
8. Flame lengths are shown in Hauck Application Sheet GJ58.
9. When sizing blower, consider application and operation so as to prevent overloading the blower motor at ambient scfm.

NMG NOZZLE MIX GAS BURNERS NMG 210 - 240



SECTION "A-A"
SHOWING OPTIONAL UV SCANNER ADAPTER

BURNER NO.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"	"R"	"S"	"T"	"U"
NMG 210	1 NPT	3/4 NPT	3 1/4	4 3/8	7 1/16	5	6	4	7/16	1 13/16	30"	1 3/4	15"	3/8	7 3/8	8 5/8	0	1 9/16	30"
NMG 215	1 1/2 NPT	1 NPT	3 1/2	4 5/8	7 9/16	5	7 1/2	4 5/16	1/2	3 1/2	30"	1 7/8	13"	3/8	9	10 1/4	0	1 1/2	30"
NMG 220	2 NPT	1 1/4 NPT	4 1/8	4 7/8	8 1/8	6 1/2	9	5 1/2	1/2	4 1/8	40"	2 3/4	15"	5/8	10 5/8	12 1/8	0	1 13/16	47"
NMG 230	3 NPT	2 NPT	5 5/16	5 1/2	9 11/16	6 1/2	9	7	1/2	5 5/16	40"	2 3/4	15"	5/8	10 5/8	12 1/8	0	1 13/16	47"
NMG 240	4 NPT	2 1/2 NPT	7 5/8	8 7/8	14 7/16	11 5/16	14 3/4	9 1/2	5/8	7 5/8	39"	3 1/4	0"	5/8	17 1/4	19 3/4	1	2 5/16	56"

Y3110
(NOT TO SCALE)

NOTES:
1. ALL PRESSURE TAP CONNECTIONS ARE 1/8 NPT.
2. NMG 210-220 HAS NO PRESSURE TAP ON AIR INLET FLANGE.

(Metric Dimensions on Reverse Side)

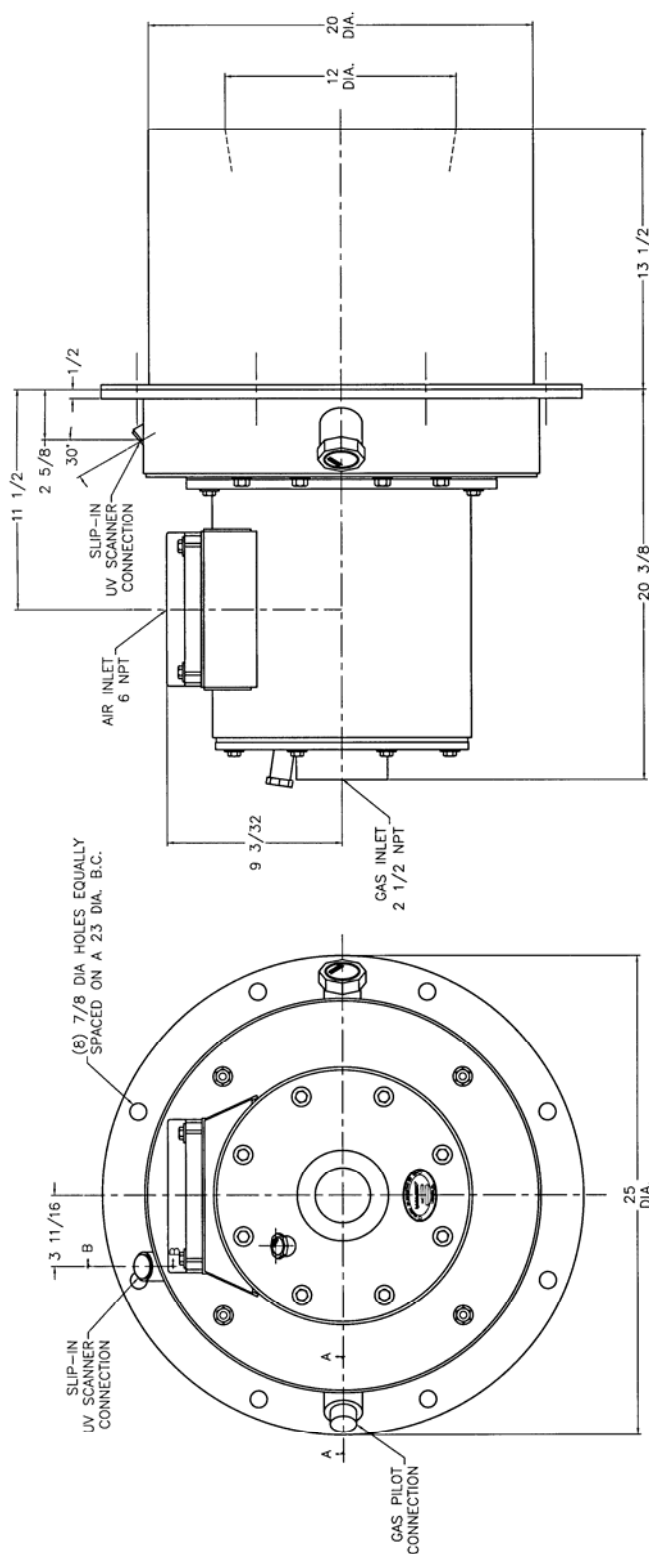


MORTERA Y COMPAÑIA, S. A DE C. V.

DIMENSIONS

NMG NOZZLE MIX GAS BURNERS

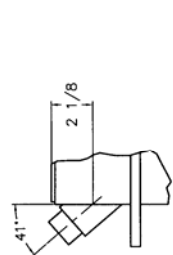
NMG260



Y3112
(NOT TO SCALE)



SECTION "B-B"



SECTION "A-A"
SHOWING OPTIONAL GAS PILOT CONNECTION

(Metric Dimensions on Reverse Side)

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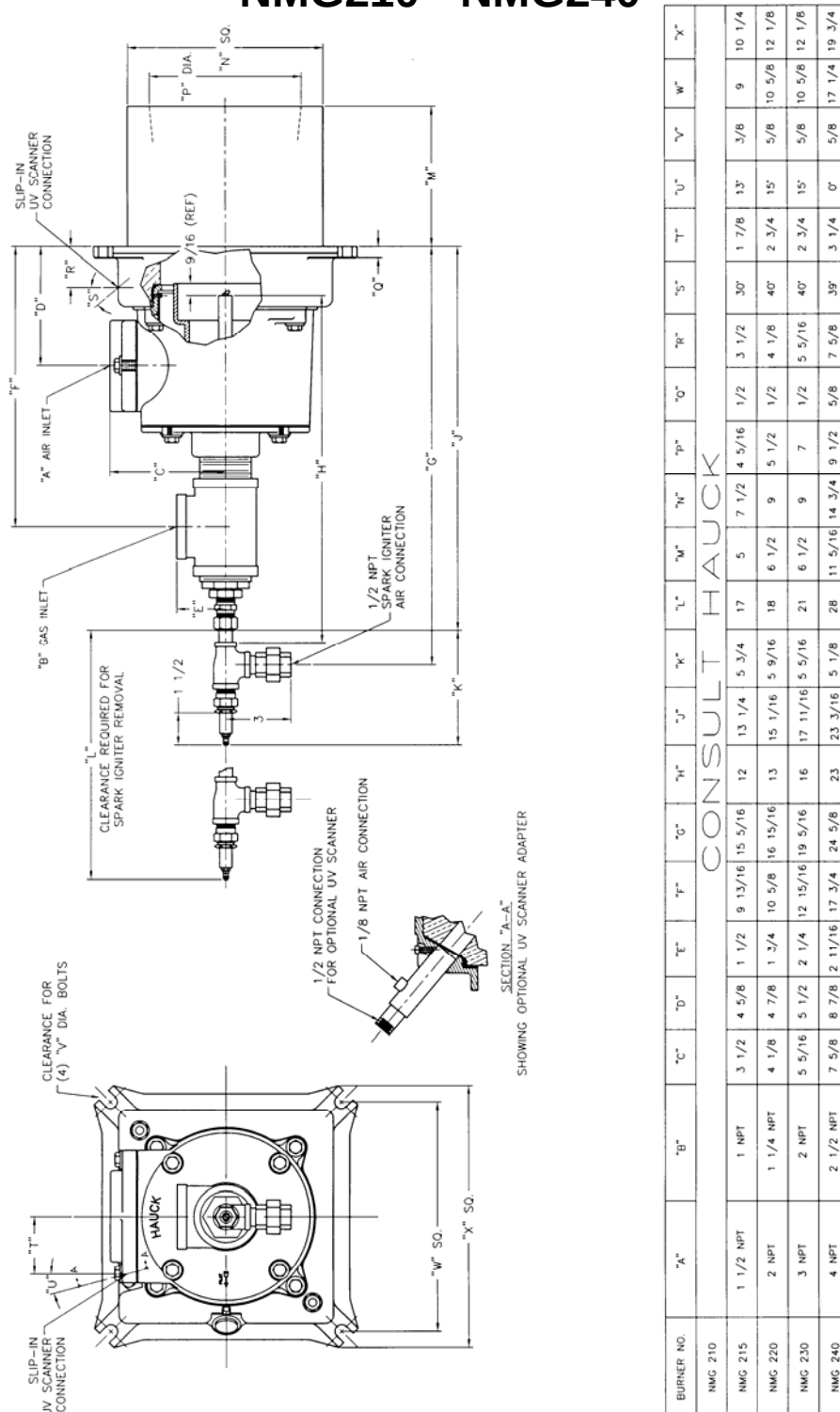
Fax: 717-273-9882

www.morterahauck.com

ventas@morterahauck.com

NMG-3.1

NMG NOZZLE MIX GAS BURNER DIRECT SPARK IGNITION NMG210 - NMG240



NOTES:
1. ALL PRESSURE TAP CONNECTIONS ARE 1/8 NPT.
2. NMG 210-220 HAS NO PRESSURE TAP ON AIR INLET FLANGE.

Y7970
(NOT TO SCALE)

(Metric Dimensions on Reverse Side)

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NMG-3.2

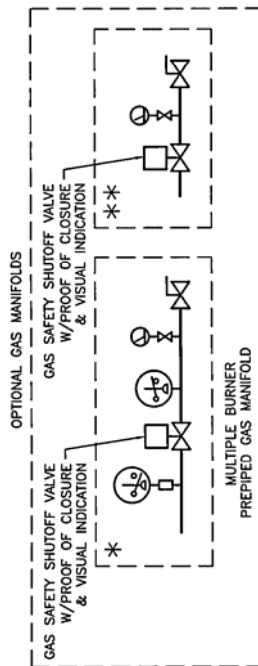
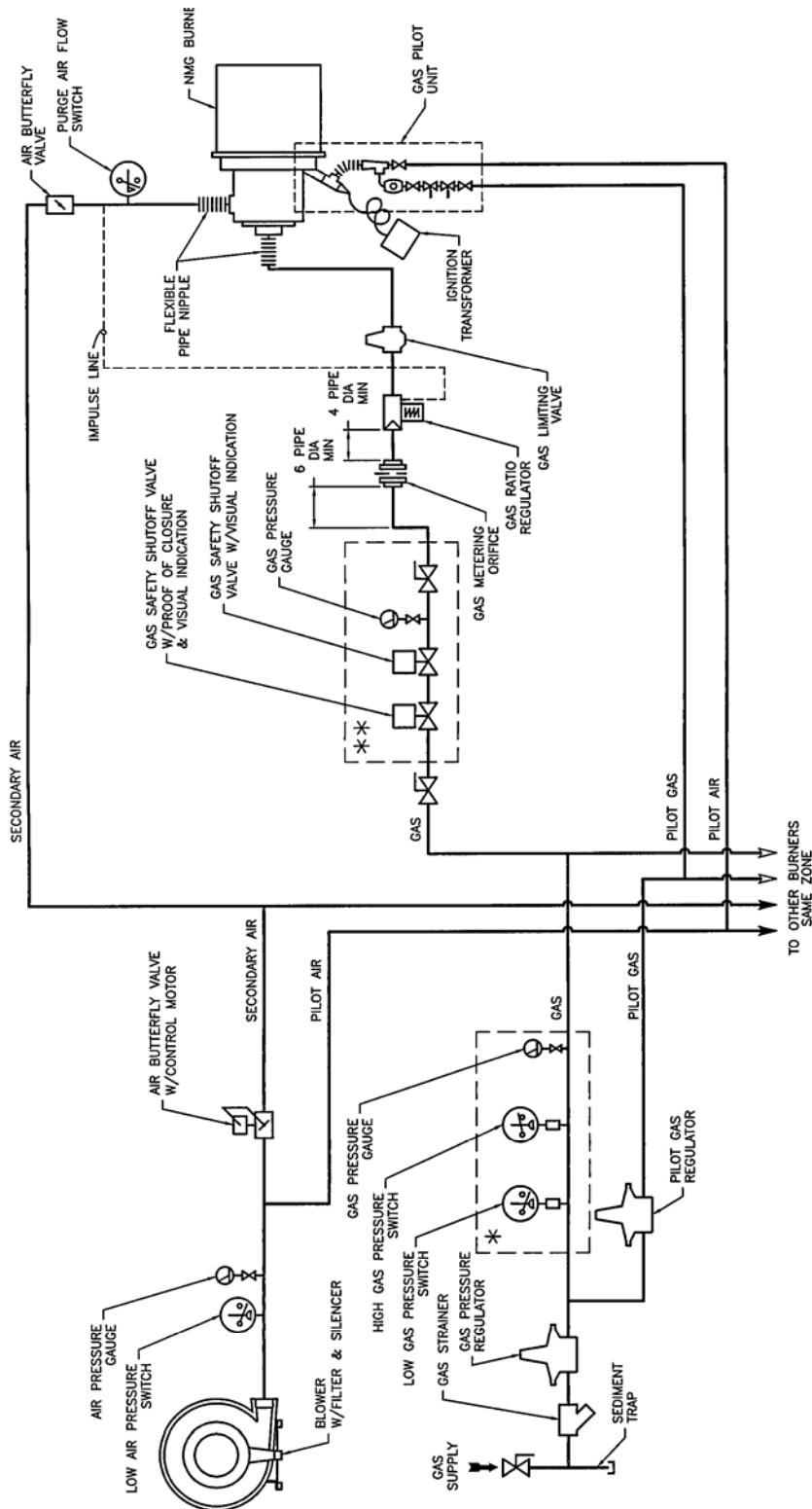


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SUPPLEMENTAL DATA

NMG NOZZLE MIX GAS BURNERS

TYPICAL MULTIPLE BURNER SYSTEM RATIO CONTROL



NOTES:
1. OPTIONAL GAS MANIFOLDS CAN BE UTILIZED FOR MULTIPLE BURNERS FIRING INTO A COMMON HEATING CHAMBER, HOWEVER, SPECIAL FEATURES ARE REQUIRED IN THE ASSOCIATED CONTROL SYSTEM (SEE HAUCK APPLICATION SHEET GJ76).

Y7740
(NOT TO SCALE)

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NMG-4