



REFERENCE GUIDE

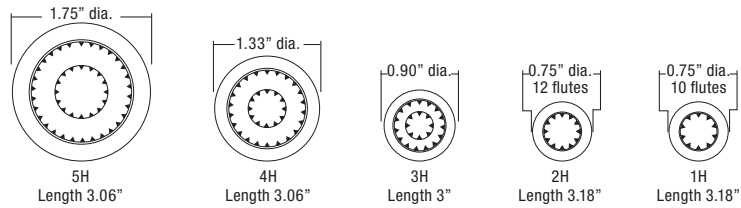


A LINCOLN ELECTRIC COMPANY

Turn to the 2290 HEATING TIPS **Pros**

2290 H TIPS FOR PROPANE OR NATURAL GAS

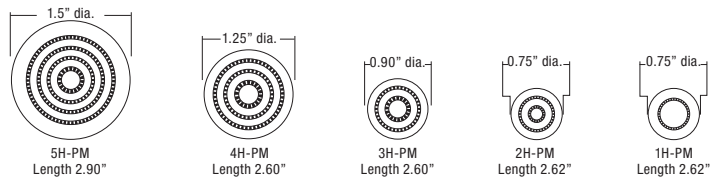
FOR EQUAL
(POSITIVE)
PRESSURE
MIXING
SYSTEMS



PART NUMBER	MODEL NUMBER	OXYGEN PRESSURE PSIG	PROPANE PRESSURE PSIG	FLAME CONE LENGTH	OXYGEN CFH	PROPANE CFH
1800130	2290 1-H	10 - 25	4 - 12	1/4" - 3/4"	160 - 320	40 - 80
1800140	2290 2-H	15 - 45	7 - 22	1/4" - 3/4"	220 - 520	55 - 130
1800150	2290 3-H	25 - 70	8 - 25	1/4" - 1"	340 - 920	85 - 230
1800160	2290 4-H	50 - 110	10 - 30	1/4" - 1"	640 - 1300	160 - 325
1800170	2290 5-H	60 - 135	14 - 40	5/16" - 1-1/4"	720 - 1600	180 - 400

2290 HPM TIPS FOR PROPYLENE

FOR EQUAL
(POSITIVE)
PRESSURE
MIXING
SYSTEMS



PART NUMBER	MODEL NUMBER	OXYGEN PRESSURE PSIG	PROPYLENE PSIG	FLAME CONE LENGTH	OXYGEN CFH	PROPYLENE CFH
1800136	1H-PM	10 - 25	4 - 12	1/4" - 3/4"	160 - 320	40 - 80
1800146	2H-PM	15 - 45	7 - 22	1/4" - 3/4"	220 - 520	55 - 130
1800156	3H-PM	25 - 70	8 - 25	1/4" - 1"	340 - 920	85 - 230
1800166	4H-PM	50 - 110	10 - 30	1/4" - 1"	640 - 1300	160 - 325
1800176	5H-PM	60 - 135	14 - 40	5/16" - 1-1/4"	720 - 1600	180 - 400

Note: When using natural gas, fuel flow rates of Propane or Propylene will double.
BTU/CU.FT. - Propane = 2560 • Propylene = 2370 • Nat. GAS = 1000
For LPG cylinder withdrawal rates see chart on next page.

USE MODEL 43-2 HANDLE, PN: 1401150 • MODEL V-315C, PN: 1400315 FOR 2290 H & HPM HEATING TIPS

HARRIS 2393 TIP TUBE

PART #	MODEL #	LENGTH	STYLE	THREAD
1800200	2393-1F	36"	"Curved" 70°	1/2" - 25
1800210	2393-2F	28"	"Curved" 70°	1/2" - 25
1800220	2393-3F	16"	"Curved" 70°	1/2" - 25
1800230	2393-4F	10 1/2"	"Curved" 70°	1/2" - 25
1800241	2393-F	60"	"Curved" 70°	1/2" - 25
1800240	2393-5F	36"	"Straight" 180°	1/2" - 25
1800211	2393-2F	28"	"Straight" 180°	1/2" - 25
1800221	2393-3F	16"	"Straight" 180°	1/2" - 25
1800231	2393-4F	10 1/2"	"Straight" 180°	1/2" - 25
1800206	2393-6F	48"	"Straight" 180°	1/2" - 25



HARRIS EQUAL (POSITIVE PRESSURE) MIXERS

PART NUMBER	HARRIS® MODEL NUMBER	MAX CAPACITY		
		OXYGEN	LPG	V-SERIES®
9100316	E3-43	1600 CFH	400 CFH	V-W-3
9100314	E2-43	920 CFH	230 CFH	V-W-2



HARRIS INJECTOR (LOW PRESSURE) MIXERS

PART NUMBER	HARRIS® MODEL NUMBER	MAX CAPACITY	
		OXYGEN	LPG
9100306	B-43-N	920 CFH	230 CFH



PERCENTAGE OF FULL CYL.	Temperature in °F				
	0	20	40	60	70
100	45	67	85	110	120
90	42	61	80	99	110
80	38	55	72	86	95
70	33	49	64	80	86
60	30	43	56	70	77
50	26	38	50	62	67
40	22	32	42	52	56
30	18	26	34	43	47
20	14	20	27	33	37
10	11	15	20	24	26
Withdrawal rates in SCFH					

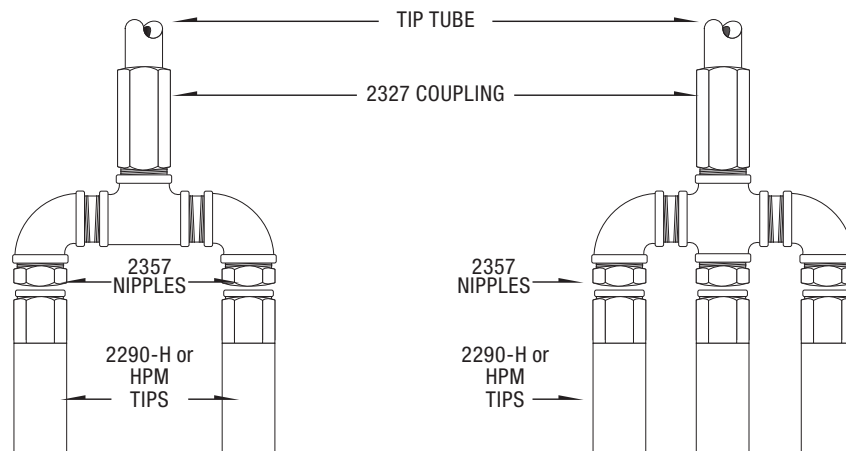
WITHDRAWAL RATE OF LPG FROM 100 lb CYLINDER

All though Chart is specifically for Propane fuel gas it can be used to closely approximate rates for other LPG liquid petroleum gases such as Propylene and Propane blend

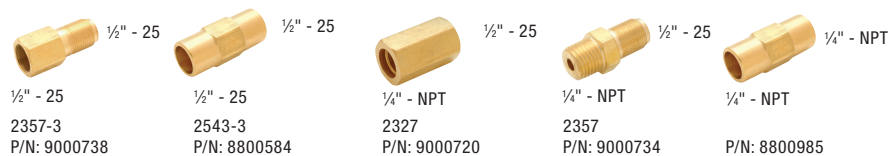
2290 H & HPM MULTIPLE HEATING TIPS ASSEMBLIES

For special heating tip assemblies featuring multiple heating tips, Harris recommends the Harris Model 43-2 handle, E3-43 mixer, 2393 tip tubes, 2290 heating tips, model 2327 couplings and model 2357 nipples. These Harris parts and standard 1/4" NPT steel pipe and couplings can be used to create special multiple heating tip assemblies (example shown below) with certain restrictions.

- ▶ Use only tips specified for the gas being used.
- ▶ Multiple tips must be the same size to insure equal flame length.
- ▶ Maximum BTU output or fuel gas flow cannot exceed the flow capacity listed for the mixer being used.
- ▶ Operating /Lighting procedures: Same as those for single heating tips.
- ▶ Maximum aggregate fuel flow capacity should not exceed 400 SCFH of LPG.
- ▶ Calculate total fuel requirements by multiplying number of tips by individual tip flow rate from tip charts.
- ▶ Total assembly flow rate requirements may necessitate manifolding of multiple cylinders to insure safe equipment operation and to control cylinder residual.



COUPLINGS & ADAPTORS



Note: For extended tube and tip life, use tip adaptor - 2357-3

For further information, please contact Harris Products Group 1.800.241.0804
www.harrisproductsgroup.com



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