

LACO TECHNOLOGIES

CALMASTER™ LEAK STANDARD MATRIX

SECTION	CODE	OPTION
CALIBRATED LEAK		
1	CM	CalMaster™
LEAK ELEMENT		
2	1	Teflon Permeation
	2	Metal Capillary
	3	Glass Permeation
	4	Multiple Glass Elements
	5	Micro Tube Capillary
GAS		
3	1	Helium (He)
	2	Air
	3	Argon (Ar)
	4	Nitrogen (N ₂)
	5	Carbon Dioxide (CO ₂)
	6	Nitrous Oxide (N ₂ O)
	7	Helium 3 Isotope (He ³)
	A	R-12 Refrigerant
	B	R-22 Refrigerant
	C	Hydrogen (H ₂)
	D	Deuterium (D ₂)
	E	Sulfur Hexafluoride (SF ₆)
	F	Neon (Ne)
	G	Xenon (Xe)
	H	R-134a Refrigerant
	J	Methane (CH ₄)
	K	Krypton (Kr)
	L	R-404a Refrigerant
	M	R-290 Refrigerant
	O	Carbon Monoxide (CO)
P	R-407c Refrigerant	
R	R-410 Refrigerant	
S	Ammonia (NH ₃)	
T	Halon 1301	
LEAK RATE MANTISSA		
4	X	Any value in designated range
	M	Middle range (4 to 6 in the designated range)
	L	Low range (1 to 3 in the designated range)
	H	High range (7 to 9 in the designated range)
##	Special value: within +10% of prescribed leak rate	
LEAK RATE EXPONENT		
5	+2 to -10	Specifies leak rate decade range
	##	Multiple ranges for adjustable leak rate leaks
NUMBER OF CALIBRATION POINTS		
6	1	Single pressure calibration
	#	Additional calibration points
ISOLATION VALVE		
7	0	No isolation valve
	1	Manual valve
	2	Solenoid isolation valve, 3 way, SS, 24 VDC
	3	Zero-volume isolation manual valve
	4	Bakeable manual isolation valve
	5	Zero-volume valve with pneumatic actuator
6	Miniature pneumatic valve (for production leak testing)	
GAS RESERVOIR		
8	0	None
	1	115cc Standard (below 400 psi)
	2	300cc DOT (400 to 1500 psi)
	4	150cc DOT (for high pressures where size is a constraint)
	5	Dual fabricated reservoir (for refrigerant leaks only)
	6	1000cc DOT (for large leak rates - mid 10 ⁻⁵ and lgr.)
	7	500cc DOT (for lg. leak rates - mid 10 ⁻⁵ and lgr.)

SECTION	CODE	OPTION
GAS RESERVOIR (CONTINUED)		
8 (CONT'D)	8	Alcatel internal leak - 180T, 182T, ASI 20
	9	Proprietary reservoir provided by customer
	A	1/8" FNPT
	B	1/8" MNPT
	C	1/4" FNPT
	D	1/4" MNPT
	E	1/4" MVCR
	F	1/4" SL COMP
	G	3/4" O.D. tube
	H	1/2" MVCR
	J	NW 16
	K	NW 25
	L	NW 40
	M	2.75" CF
	N	1.33" CF
	P	3/8" O.D. tube
	Q	10-32 male thread
	R	1/4" MVCO
	S	1/4" Push Tube
U	50cc reservoir	
T	VIC / Edwards internal leak standard	
V	Varian internal leak	
W	Ultra miniature leak (10 ⁻⁷ to 10 ⁻¹⁰ only)	
Y	Alcatel internal leak - 142, 122D	
	Special reservoir (Contact LACO)	
CONNECTION		
9	0	NW 16 flange
	1	NW 25 flange
	2	NW 40 flange
	3	1 1/8" O.D. tube
	4	3/4" O.D. tube
	5	VCR4 male
	6	1/4" swagelok
	7	1/8" FNPT
	8	1/4" MNPT
	9	10-32 male thread w/o-ring
	A	3/8" O.D. tube (for vacuum applications only)
	B	1/8" MNPT
	C	1/4" FNPT
	D	Alcatel sniffer probe adaptor
	E	2.75" Con-Flat flange
	F	Gas Check 3000 leak detector
	G	1/2" - 20 straight thread
	H	Leybold sniffer probe
	J	1 1/3" mini Con-Flat flange
	K	Varian Sniffer Probe
L	M8 Screw	
M	MGD 2002	
N	NO OUTLET CONNECTION	
P	1/4" MVCO	
Q	NW 50 flange	
R	1/8" Swagelok	
S	Swagelok Q.D. SS-QC4-S-2PF	
T	10-32 female thread	
U	VCR4 female	
V	3/8" O.D. tube (for sniffing applications only)	
W	Gas Check SF6	
Y	1/2" O.D. tube	
Z/#	Staubli 1/8" Q.D. Add optional code # for coded Q.D. Codes: Yel=0, Red=3, Grn=4, Blu=6, Bn=7, Violet=1, Blk=9	
	Special Connection (Contact LACO)	
OUTLET FLOW CONDITION		
10	A	Into Atmosphere - 760 Torr
	V	Into Vacuum - <100 mTorr
	X	Special Condition, Specify in Sec. 14

Inlet options for leaks with no reservoir. Specify inlet pressure in Section 13.

SECTION	CODE	OPTION
OPTIONS		
11	0	No options
	G	Pressure gauge with fill valve (refillable leaks)
	P	Calibrated via primary rate of rise system Special Connection (Contact LACO)
LEAK RATE UNIT		
12	/1	Atm.cc/sec
	/2	Std.cc/sec
	/3	sccm
	/4	mbar.L/sec
	/5	Torr.L/sec
	/6	Pa.m3/sec
	/7	Oz/year
	/8	Gr/year
	/9	Mol/sec
	/A	MicroL/sec
/B	Std.cc/hr	
/C	CFM	
INLET PRESSURE/PRESSURE UNIT		
13	/#.#-code	Pressure value applied at the inlet
	1	PSI - Absolute
	2	PSI - Relative
	3	Atm - Absolute
	4	Torr - Absolute
	5	mTorr - Absolute
	6	Microns - Absolute
	7	Bar - Absolute
	8	MBar - Absolute
	9	Pascal - Absolute
	A	Kpa - Absolute
	B	InHg - Absolute
	C	InHg - Relative
	D	InWater - Relative
E	mmHg - Absolute	
F	Kpa - Relative	
G	Bar - Relative	
OUTLET PRESSURE/PRESSURE UNIT		
14	/#.#-code	Pressure value applied at the inlet
	1	PSI - Absolute
	2	PSI - Relative
	3	Atm - Absolute
	4	Torr - Absolute
	5	mTorr - Absolute
	6	Microns - Absolute
	7	Bar - Absolute
	8	MBar - Absolute
	9	Pascal - Absolute
	A	Kpa - Absolute
	B	InHg - Absolute
	C	InHg - Relative
	D	InWater - Relative
E	mmHg - Absolute	
M	MPa - Relative	
GAS CONCENTRATION		
15	/#.#	Specific gas concentrate w/ nitrogen as the balance gas
	X	Specify the gas and the balance gas
FLOW DESIGNATION		
16	T	Total Flow
	P	Partial Flow

Leave blank if no inlet pressure is specified.

Use only if Section 10=X. Leave blank if Section 10 is A or V.

Use only if gas concentration is not 100%.

Select one only if Sec. 15 is used.