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Order Entry

Order Entry

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Summary

- Information Gathering
 - ◆ *Source Equipment Order Checklist*
 - ◆ *Distribution Equipment Order Checklist*
 - ◆ *Gas Specification Sheet*
 - ◆ *Gas Cabinet Configuration*
 - ◆ *Cylinder Gas Specification Sheet*
 - ◆ *ETG Controller Selection Guide*

- Quotation Development
 - ◆ EMC to develop and review all equipment quotations
 - ◆ *Process Gas Recommendations Sheet*
 - ◆ *Technical Specification for Materials*
 - ◆ Completed Quotation sent to Sales Engineer for Final Review

Summary, cont'd

- Production Order
 - ◆ Quotation becomes production order upon receipt of Purchase Order
 - ◆ Production Group issues control number (ETG#)
 - ◆ Production package consists of the following:
 - *Production Control Sheet*
 - *Quotation*
 - *Configuration Sheet*
 - *Gas Specification Sheet*
 - *Manufacturing drawings*
 - *Bill of Material*
 - *Purchase Order*
 - ◆ Production Order package is sent to Customer Service in Fremont to be entered into the *ALIN* (billing) system
 - ◆ Planned delivery time established after receipt of Purchase Order and *Gas Specification Sheet*

- Cycle Time Chart

Source Equipment Order Checklist Instructions

An equivalent one is in the works for distribution products (VMB), and will be released upon completion.

Top information block: This block is **very important** so that communication and billing can be done in a timely and efficient manner. Confirmation of billing and shipping address information at the time of shipping is very rushed and mistakes can happen. Fewer preventable errors of this type will allow everyone to work better.

Order information: provides information for preliminary gas flow sizing (“Applied Materials Centura” etc.) and data for service and potential FabView™ business (“Oxide Etcher #2” etc.). Many times the customer wants information on the gas equipment for a particular process tool installation. This information also allows this type of grouping.

Gas Information: This is **the most important information** provided by the customer in order to properly configure an order for shipment. Unfortunately, it is also usually the last information provided by the customer. If this information is not readily available from the customer, give the customer a copy of the Gas Spec Sheet to fill out when the information is available. This information provides information for pigtail mfg. from cylinder size (“AL 44 size” etc.) and cylinder connections (“UHS 732”). The cylinder pressure (“2000 psig” etc.) and delivery pressure (“35 psig” etc.) information is used along with the cylinder valve type and the weight to set up the controllers.

Process sensor information: provides information for Excess Flow Switch sizing and controller alarm setpoints.

Gas Cabinet information: specifies which cabinets are required and provides for any special application cabinets.

Gas Cabinet options: are all yes (check the box) or no questions about whether the customer wants a shelf (ACS) for small cylinders, or an exhaust failure switch so the controller can warn the user if the cabinet exhaust has dropped below a certain level, or if the customer wants the final connection process line stubouts provided at additional cost, or if a cabinet fire detector is required (i.e. for Silane).

Switching Manifolds: if the customer wants one process line to be supplied by two panels, they will either manual valve for isolation, automatic valves or both. Both allows the customer to have an autoswitch system and still have two valve isolation when a service person works on one panel while the other panel is supplying process gas.

Automatic Gas Panel Information: indicate the type of panels desired by the customer. Automatic panels are RPV (2X8) or not (1XX). Modular, all welded or VCR indicates the level to which a panel can be disassembled for maintenance (and the potential for leaks!). Conventional transducers and removable regulators are standard (but we list the removable regulator as a extra cost option). Flow through transducers are an option (except on the 2X8 cylinder transducer), but should be discouraged because of their track record of failures in the field. Semi-Automatic systems are manual systems with automatic purge cycle valves. These are being reconfigured as a standard product.

Manual Gas Panel Information: Manual panels are self purge or vacuum purge. Self purge (M102 & M103) systems use the process gas itself to do the purging and should only be used on Inert gases. Vacuum purge manual panels (M104U, M105, M106, & new M107) uses the same nitrogen powered vacuum venturi to improve the purge as the automatic systems. Purge panels indicates that the purge cylinder for the system

Source Equipment Order Checklist Instructions, cont'd

is in the enclosure with the process gas. Flat panels are standard, however, if the customer needs to match to older piping, an offset panel may be required. VCR process panel is a manual panel used for process gas.

Purge Gas Manifold Options: Purge purifiers may be used on the purge as to chlorinated corrosives. These purifiers are designed to remove moisture and Oxygen to 10 ppb. These are a costly option and some users do not believe in them. The choice is strictly a customer preference.

Other manifold options: Test access port (TAP) is a valve that the customer can hook a Helium vacuum leak detector to and do a high integrity leak check (in addition to the standard leak check done by our automatic controllers - A successful purge routine does **NOT** guarantee that the system is sufficiently leak tight for process reasons) upon cylinder change or maintenance. ALE suggests this is only do on the purge side of the panel and only supports the automatic operation of a purge side of the process panel TAP (PLC only). Process side TAPs have been provided on large projects, however, are discouraged for safety reasons.

Excess flow switches (EFS) open (or close) a contact to shut the system down in case of a line break when a particular specified flow has been exceeded and are required for use on all HPM. All automatic systems have EFS installed as a standard feature. EFS is an option on manual systems. Emergency shutoff (ESO) valves are on the cylinder end of the pigtail and provide a way to shutoff the gas supply at the cylinder in case of an alarm. ESOs are for high cylinder pressure or low cylinder pressure gases and not needed on 2X8 systems. EFS and ESOs require the use of a controller to provide the switch input and pneumatic control of the ESO. Manual systems with an EFS must also have an ESO and EM-5000MD.

Manual Process line isolation valve (P-ISO) is used on non-autoswitching systems when the customer wants additional isolation from the process line for maintenance functions.

Vespel® is the recommended seat material for regulators and valves for Nitrous Oxide and Carbon Dioxide service.

Final filters are 0.01 micron nickel filters (specify other material requirements from customer) used after process isolation valves. Typical suppliers include PALL, Millipore and MOTT.

Purifier is an expensive combination process gas purifier and filter for **very low flow (< 1 LPM applications)**

Regulator information: High flow is most often used on HCL and for flow above 10 LPM. Absolute pressure regulators (ABS) are for liquid source low pressure gasses which may be drawn under vacuum from the process tool. Some customers want two stage regulators even though ALE does not recommend them. Hastelloy trim is used on chlorinated corrosive gases. Some customers may want to specify particular model numbers on a regulator, AP Tech is our primary supplier.

M series controls: This generation of control products is in the process of being upgraded. New products will be available later this year. EM5000MD is the microprocessor based display and alarm interface. CPU5500 is required (portable use on multiple systems) to provide automatic purging with EM5000MD. EM5000R is a remotely located duplicate of the status LED's on the EM5000MD with a separate ESTOP button. MC-8 is the fully manual pneumatic valve operation device which should **ONLY** be used as a last resort. Any site with EM5000MD automatic systems should have one of these devices.

Source Equipment Order Checklist Instructions, cont'd

M series controller options: Z purge is to purge the interior of the EM5000MD enclosure with nitrogen to make it able to meet class 1 div 2 of the NEC code for hazardous locations. Network indicates that the

system will be used on a monitoring computer (such as FabView™) and is used like autoswitching to set up the EM5000MD in the factory.

P series Controller type: enter model number of the controller per the number of panels (1X35, 2X35), autoswitch or dedicated (2135 vs. 2235) and purge panel transducers (3XXX).

P series Controller options: Z purge is to purge the interior of the PLC enclosure with nitrogen to make it able to meet class 1 div 2 of the NEC code for hazardous locations. Network indicates that the system will be used on a monitoring computer (such as FabView™). Keyswitch is a secondary, redundant hardware password requested by

some customer. Pneumatic solenoid switches give additional troubleshooting capability to the controller. Cylinder connect safety device is for use with Auto-Guard. We have a

difficult time getting Auto-Guards from Matheson, so ALE cannot recommend them. Vacuum venturi flow transmitter measures the flow of nitrogen leading to the venturi. This option is only used where the venturi supply valve (V4) has a constant bleed orifice (CBO) and the customer concerned that the vent line may get plugged. The controller key lock is a barrel lock to prevent access to the controller interior. The controller model number selection guide should be used to determine the option designation.

Electrical input options: 110 VAC is the standard electrical supply. The other options may take longer to get the components.

Cylinder scale type: Standard cylinder platform is GCS-300 series (9.25" x 9.25"). Larger ones are available at additional cost and longer lead-times. LR-300 is used where there is no controller to display the scale weight. Ramp retainers are a way to keep the scale platform from sliding around inside the cabinet and have a front slope which allows the used to roll the cylinder onto the platform rather than lifting. Some customers want to chain both the top and bottom of a cylinder to prevent tip over

Analytical testing: is becoming more a standard question to ask customers as more customers require analytical certification for their gas systems. We are rewriting the specs for standard analytical.

Source Equipment Order Checklist

Company:		Contact:		Sales Rep:	
Ship to Addr:		Phone:		On Site Date:	
		Fax:		WO #:	
City:		V-Mail:		PO #:	
State/Country:		E-Mail:		Quote Date:	
Order Information:			Gas Cabinet Information :		
Destination system (tool) served			CC-1 for PLC or manual systems		
Gas system (device) name			CC-2 for PLC or manual systems		
Gas Information:			CC-3 for PLC or manual systems		
Gas name: (If mix, list Gas%/Bal%)			CC-1M for M controllers		
Gas supplier: (Specify process or purge)			CC-2M for M controllers		
Air Liquide			CC-3M for M controllers		
Air Products			Other		
BOC			Gas Cabinet Options:		
Scott			Adjustable cyl. shelf (ACS)		
Matheson			Exhaust failure switch (EXS)		
Praxair			Process stubouts (316L)		
Other; please specify			Fire sensor		
Process cylinder size			Internal Cabinet Plumbing:		
Process cylinder connection:			Switching manifolds:		
CGA			ASM (pneumatic)		
UHS (DISS)			ASMMIV (manual and pneumatic)		
JIS			SIM-21 (manual)		
Other			Gas Panel Information:		
Cylinder pressure			Quantity of process panels:		
Delivery pressure			Automatics:		
Tare weight (liquids):			RPV		
Purge cylinder size			Modular		
Purge cylinder connection:			All welded		
CGA			VCR		
UHS (DISS)			Manual		
JIS			All welded		
Cylinder pressure			VCR		
Delivery pressure			Self purge		
Cylinder manual valve			Vacuum purge		
Cylinder pneumatic valve			Semi-Automatic M-107		
Process Sensor information:			Flow through transducer option		
Max.(potential) flow rate			Conventional transducer		
Delivery pressure set point			Removable regulator option		
Low cylinder pressure/wt. set point					

Source Equipment Order Checklist, Cont'd

Gas Panel Information Continued:			M Series Controller Options:		
Purge panel			Z Purge		
Flat rack panel			Network		
Offset rack panel			Autoswitching		
VCR process panel			P Series Controller type:		
Purge Gas Manifold Option:			Model #		
UltraPure purge purifier			P Series Controller Options:		
Saes purge purifier			Keyswitch passcode device		
Other			Enclosure Z purge		
Other Manifold Options:			Serial Network		
Test access port valve (TAP)			Ethernet Network		
Process			Pneumatic solenoid override switches		
Purge			Cylinder connect safety device support		
Excess flow switch (manual systems only)			Vacuum venturi flow transmitter		
Emergency shutoff valve (ESO)			Controller enclosure key lock		
High pressure			Electrical Input Options:		
Low pressure			110 Volt		
Manual PLI valve (P-ISO)			220 Volt		
Vespel kit (N ₂ O and CO ₂ only)			24 VDC		
Final process line filter (Nickel)			Cylinder Scale Type:		
Purifier (for application flow <1 LPM)			GCS-300 (Scale Platform 9.25" x 9.25")		
Regulator Information:			LR-300-2 (Two channel scale display)		
High flow (HF)			SR1 (single scale ramp/retainer)		
Absolute pressure (ABS) (< 0 psig)			SR2 (dual scale ramp/retainer)		
Low pressure (LP) (<30 psig)			CB (cylinder bracket with chain)		
Two stage (TSR)			CBU (secondary cylinder bracket)		
Hastelloy trim (HT)			Single cylinder temp. control (diam?)		
Regulator model number			Dual cylinder temp. control (diam?)		
M Series Controller Type:			Analytical Test:		
EM-5000MD (Annunciator w/digital display)			Moisture (indicate spec.)		
EM5000R (remote annunciator display)			Oxygen (indicate spec.)		
EM-5000MD/ ACV (automatic cylinder valve)			Particle (indicate spec.)		
DAS2000			Other		
CPU-5500			SAMPLE		
MC-8 (manual pneumatic control display)					
Other					

Distribution Equipment Order Checklist

Company:		Contact:		Sales Rep:	
Ship to Addr:		Phone:		On Site Date:	
		Fax:		WO #:	
City:		V-Mail:		PO #:	
State/Country:		E-Mail:		Quote Date:	
Order Information:			Stick #3 Config:		Same as 1
Destination system (tool) served			Stick #3 Reg		
Gas system (device) name			Stick #3 Hi Flow Reg		
Gas Information:			Stick #3 Reg model number		
Gas name: (If mix, list Gas%/Bal%)			Stick #3 EFS		
Inlet piping size			Stick #3Max. potential flow rate		
Source Transducers:			Stick #3 Delivery Pressure		
Source 1 transducer			Stick #3 Filter		
Source 2 transducer			Stick #3 Transducer		
Root transducer			Low delivery pressure set point		
Other			Other:		
Lines:			Stick #4 Config:		Same as 1
Quantity of Supply lines			Stick #4 Reg		
Quantity of Outlet lines			Stick #4 Hi Flow Reg		
Quantity of installed sticks			Stick #4 Reg model number		
Other			Stick #4 EFS		
Stick #1 Config:			Stick #4Max. potential flow rate		
Stick #1 Reg			Stick #4 Delivery Pressure		
Stick #1 Hi Flow Reg			Stick #4 Filter		
Stick #1 Reg model number			Stick #4 Transducer		
Stick #1 EFS			Low delivery pressure set point		
Stick #1Max. potential flow rate			Other:		
Stick #1 Delivery Pressure			Stick #5 Config:		Same as 1
Stick #1 Filter			Stick #5 Reg		
Stick #1 Transducer			Stick #5 Hi Flow Reg		
Low delivery pressure set point			Stick #5 Reg model number		
Other:			Stick #5 EFS		
Stick #2 Config:			Same as 1		Stick #5Max. potential flow rate
Stick #2 Reg			Stick #5 Delivery Pressure		
Stick #2 Hi Flow Reg			Stick #5 Filter		
Stick #2 Reg model number			Stick #5 Transducer		
Stick #2 EFS			Low delivery pressure set point		
Stick #2Max. potential flow rate			Other:		
Stick #2 Delivery Pressure			Stick options:		
Stick #2 Filter			Conventional transducer		
Stick #2 Transducer			Flow Through transducer		
Low delivery pressure set point			Removable regulator option		
Other:			Other:		

Distribution Equipment Order Checklist, Cont'd

Stick #6 Config:		Same as 1	Gas Panel Information:		
Stick #6 Reg			Automatics:		
Stick #6 Hi Flow Reg			Manual:		
Stick #6 Reg model number			P Series Controller type:		
Stick #6 EFS			Model #		
Stick #6Max. potential flow rate			P Series Controller Options:		
Stick #6 Delivery Pressure			Keyswitch passcode device		
Stick #6 Filter			Enclosure Z purge		
Stick #6 Transducer			Serial Network		
Low delivery pressure set point			Ethernet Network		
Other:			Pneumatic solenoid override switches		
Stick #7 Config:		Same as 1	Cylinder connect safety device support		
Stick #7 Reg			Vacuum venturi flow transmitter		
Stick #7 Hi Flow Reg			Controller enclosure key lock		
Stick #7 Reg model number			Electrical Input Options:		
Stick #7 EFS			110 Volt		
Stick #7Max. potential flow rate			220 Volt		
Stick #7 Delivery Pressure			24 VDC		
Stick #7 Filter			VMB Cabinet Information :		
Stick #7 Transducer			VC-4 for PLC or manual systems		
Low delivery pressure set point			VC-8 for PLC or manual systems		
Other:			Other Manifold Options:		
Stick #8 Config:		Same as 1	Test access port valve (TAP)		
Stick #8 Reg			Process		
Stick #8 Hi Flow Reg			Purge		
Stick #8 Reg model number			Emergency shutoff valve (ESO)		
Stick #8 EFS			High pressure (V1 manual systems only)		
Stick #8Max. potential flow rate			Low pressure (V1 manual systems only)		
Stick #8 Delivery Pressure			Vespel kit (N ₂ O and CO ₂ only)		
Stick #8 Filter			<h1>SAMPLE</h1>		
Stick #8 Transducer					
Low delivery pressure set point					
Other:					
Stick Regulator Information:				VMB Cabinet Options:	
Hastelloy trim (HT)			Dual Containment		
Absolute pressure (ABS) (< 0 psig)			Exhaust failure switch (EXS)		
Internal Piping Options:			Process stubouts (316L)		
LP MIV			Fire sensor (type)		
SIV(pneumatic)			Other		
MIV (manual and pneumatic)			Analytical Test:		
TAP (manual and automatic)			Moisture (indicate spec.)		
M Series Controller Type:			Oxygen (indicate spec.)		

Document Requirements Checklist

Customer:
 ETG #:
 P.O. #:
 On-site Date:
 Doc Contact:
 Address:

				Installation Guide	Operations Manual	Purge Procedures	Test Documentation	Drawings	Spare Parts List	Tech Specs	Quantity	
Enclosures	Gas Panels	SOURCE	Manual	CC1 (M)								
				CC2 (M)								
				CC3 (M)								
				Manual	M-102							
					M-102V							
					M-102PF							
					M-103							
					M-103PP							
					M-105							
					M-105V							
					M-108SA							
				Automatic	A-101V/111V							
					A-108/118							
					A-108W/118W							
					A-208/218							
					A-208/218 (TAP)							
					A-121							
				DISTRIBUTION								
				Manual	4MPDM							
					6MPDM							
					8MPDM							
				Automatic	4APDM							
					6APDM							
					8APDM							
	Controls	SOURCE	Microprocessor		DAS-2000							
				EM-5000MD								
				CPU 5500								
				M-2135								
				MC-8								
				PLC								
				P- - - - G								
				P- - - - O								
				P- - - - A								
				P- - - - S								
				DISTRIBUTION								
					Microprocessor		M-1415/1815					
					PLC							
							P- - - - G					
							P- - - - O					
				P- - - - A								
				P- - - - S								
Components												

Gas Specification Sheet



GAS SYMBOL	GAS NAME	MIX % IN %	GAS MANUF	CYLINDER PRESSURE	Max Process FLOW RATE	CYL CONN	DIAMETER INCHES	HEIGHT to CL (INCHES)	LOW CYL ALARM SET	DELIVERY SET (PSI)

SAMPLE

CUSTOMER: _____

P.O. #: _____


COMPLETED BY: _____

ETG #: _____

DATE: _____

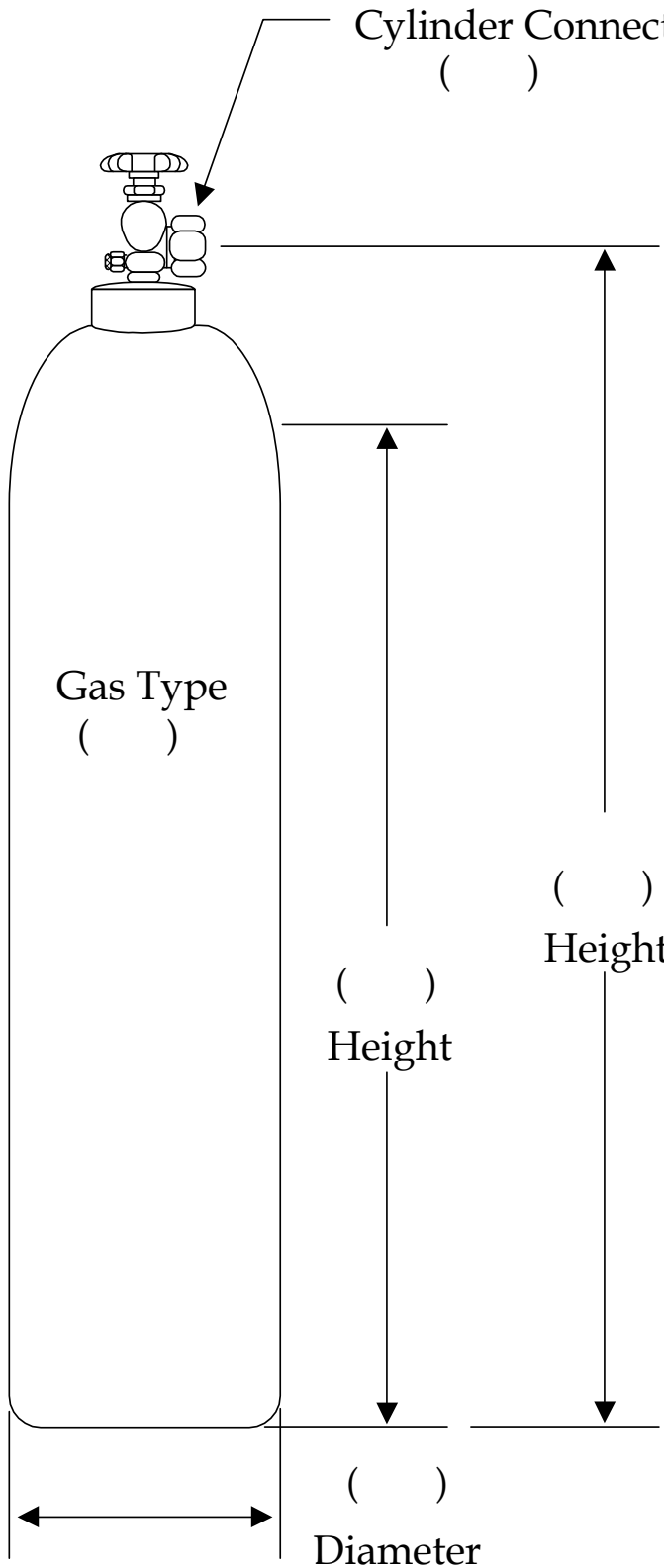
Source Configuration		Customer:	Rev. #
		ETG #:	Date:
(Qty & Description HERE)			
Customer Contact		ETG Contact	
Phone/Fax:		Phone/Fax:	
Quote No:		Pager:	
Order Information:		PO #:	
		On Site Date:	
		Sch'd Ship Date:	
	Process	QA	Process / Purge
			QA
Panel Serial No:			
Assembly Drawing Number			
Gas Information:			
Gas name (If mix, list Gas % / Bal%)			
Gas supplier			
Cylinder size (CL of valve)			
Cylinder pressure			
Cylinder connection (type & #)			
Cylinder valve (Man. or Acv)			
Cylinder heater/chiller			
Gas Cabinet Information:			
CC-1/CC-2/CC-3/Rack			
CC-2M/CC-3M			
Gas Cabinet Options:			
Adjustable cylinder shelf (ACS)			
Exhaust failure switch (EXS)			
Magnehelic			
Internal Cabinet Piping:			
Stubouts / Bulkheads / Manifold			
ASM / ASMMIV / SIM21 / MPIV (P-ISO)			
Autoswitch Number:			
Final process line filter (FF)			
Gas Manifold Information:			
Panel Type			
Panel Drawing Number			
Delivery Transducer			
Pigtail Drawing Number			
Source Transducer			
Regulator model number			
Other Manifold Options:			
Test Access Port valve (TAP)			
Emergency shutoff valve (ESQ)			
Material/internal finish			
Seat material (regulator and valves)			
Poppet material (V5 check valve)			
Process purifier			
N2 purge purifier			
Cylinder Safety Device (CSD)			
Excess Flow Sensor Information:			
Model number			
Max (potential) flow Rate			
Alarm Setpoint Information:			
Delivery pressure alarm			
Low cylinder Press / Wt. set point			
Purge cylinder / delivery pressure			
Controller Type:			
M Series / DAS			
MC-8 (Manual pneumatic control pendant)			
CPU-8500			
PLC Series			
Electrical Output Options:			
A) 5-volt B) 4-20 mA			
Electrical Input Options			
A) 110 V. B) 220 V. C) 24 V.			
Cylinder Scale Type:			
GCS-300 (Platform type)			
LR-300 (Display)			
SR1,SR2 (Scale ramp/retainer)			
Panel Label Color:			
Quality Assurance (Signature)	INCOMING:		FINAL QA:
Shipping Information:	Comments		Helium Leak Check
			Always required - Inboard: 1 x 10.9 atm
			Analytical Specifications
			Customer Specifies
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Customer's Authorization		Date	
Doc. #QAL-43-0052-11			

SAMPLE

Distribution Configuration			
Customer: _____		Rev. #:	
ETG #: _____		Date:	
(Qty & Description HERE)			
Customer Contact:		Acct. Mgr:	PO #:
Phone/Fax:		Phone/Fax:	On Site Date:
Quote No:		Pager:	Sch'd Ship Date:
Order Information:	VMB/VMP Manifold	Q/A	Qty. Stick _____ Q/A
Type of VMP/VMB:			SAMPLE
Cabinet Serial No:			
Panel Serial No:			
Gas Information:			
Gas name (if mix, list Gas % / Bal %)			
VMB Cabinet Information:			
Cabinet Layout Drawing Number:			
VC-4, VC-8			
Exhaust failure switch (EXS)			
Magnehelic			
Internal Cabinet Piping			
Stubouts/Bulkheads			
Gas Manifold Information:			
Material / Internal finish			
Seat material (regulator and valves)			
VMB/VMP information:			
Panel Drawing Number:			
Test access port valve (TAP)			
Emergency shutoff valve (ESO)			
Manual process isolation valve (MPIV)			
Lockout / tagout			
Source transducer (inlet)			
Root transducer			
Process purifier / filter (inlet)			
Purge pressure transducer (PPT)			
Purge pressure gauge (PPG)			
Pressure switch (vacuum venturi supply)			
Flow switch (vacuum venturi supply)			
Vacuum monitor (vacuum generator)			
Stick Information:			
Stick Drawing Number:			
Regulator model number			
Delivery Transducer			
Delivery Gauge			
Excess flow sensor			
Process purifier/filter (outlet)			
Stick Sensor Information:			
Max. (potential) flow rate			
Delivery pressure set point			
Controller Type:			
M Series			
P Series			
Electrical Output Options:			
A) 5-volt B) 4-20 Ma.			
Electrical Input Options			
A) 110 V. B) 220 V. C) 24 V.			
Panel Label Color:			
Quality Assurance (signature)	INCOMING:		FINAL QA:
Shipping information	<u>Comments</u>		<u>Helium Leak Check</u>
			Inboard 1 x 10-9 atm
			<u>Analytical Specifications</u>
			Customer Specifies
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Customer's Authorization _____		Date _____	
Doc. #QAL-43-0039-01			

Cylinder Gas Specification Sheet

SAMPLE



Customer: _____

Date: _____

Supplier: _____

Flow Rate: _____

ACV Present: _____

Net Contents: _____

Air Liquide Electronics EMC Controller Ordering Guide



Process Gas Recommendations

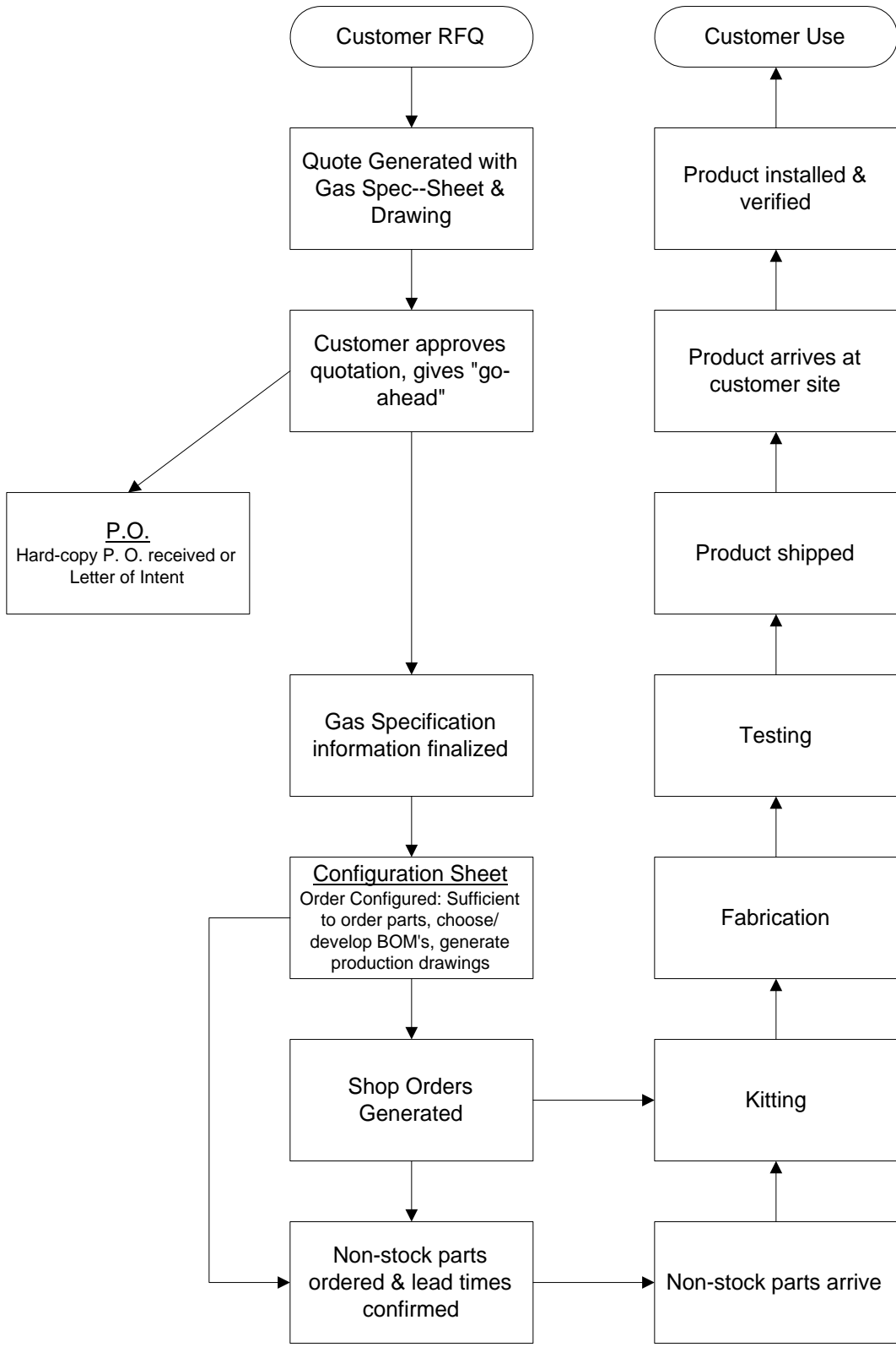
Gas Classification	Gas	Cab	Wall	Temp	C22	Vesp	CV	CDC	Imp	Scale	UV/IR	Type Z	Semi
High Pressure (>100 psig) Reactive Gases													
Toxic	AsH3	X										X	
	PH3	X									X	X	
	B2H6	X		X								X	
	NF3	X											
Pyrophoric	SiH4	X	X					X	X		X	X	
Flammable	H2	X									X	X	X
Corrosive Liquid	HCL	X			X			X			X		
	NH3	X					X				X		
	HBr	X			X			X			X		
High Pressure (>100 psig) Non-Reactive Gases													
Compressed	Ar		X										X
	N2		X										X
	He		X										X
	O2		X										X
	CF4		X										X
Liquid	N2O		X			X				X			X
	CO2		X			X				X			X
	C2F6		X							X			X
	SF6		X							X			X
Low Pressure (<100 psig) Reactive Gases													
Corrosive Liquid	CL2	X			X			X		X			
Low Pressure (<100 psig) Non-Reactive													
Liquid	CHF3		X							X			X
Low Pressure (<10 psig) Reactive Gases													
Corrosive Liquids	WF6	X		X	X					X			
	BCL3	X		X	X			X		X			
	SiH2CL2	X		X	X			X		X			
	HF	X			X			X		X			
	SiCL4	X			X					X			

- Key:**
- Semi Semi-Automatic control system is available
 - Imp Impingement wall required between cylinders
 - Cab Cylinder cabinet required
 - CV EP seats recommended on Vent Check Valve
 - Vespel Vespel seats recommended on Reg and valves
 - C22 Hastelloy C22 trimmed components recommended
 - Scale Liquid gases require scale platforms
 - UV / IR Ultraviolet and/or infrared fire detectors required
 - Type Z Enclosure purge and monitoring recommended (Class 1 Div 2 Electrical)
 - CDC Collateral Damage Control (CC-1 + CC-2)
- Note: All systems are recommended as automatic.

SAMPLE

Courtesy of Air Liquide Electronics

Cycle Time Chart



Sample Production Package

Document Requirements Checklist

Customer:
 ETG #:
 P.O. #:
 On-site Date:
 Doc Contact:
 Address:

				Installation Guide	Operations Manual	Purge Procedures	Test Documentation	Drawings	Spare Parts List	Tech Specs	Quantity		
Enclosures	SOURCE	<i>Manual</i>	CC1 (M)										
			CC2 (M)										
			CC3 (M)										
	DISTRIBUTION	<i>Manual</i>	M-102										
			M-102V										
			M-102PF										
			M-103										
			M-103PP										
			M-105										
			M-105V										
		M-108SA											
		<i>Automatic</i>	A-101V/111V										
			A-108/118										
			A-108W/118W										
			A-208/218										
			A-208/218 (TAP)										
			A-121										
	SOURCE	<i>Manual</i>	4MPDM										
			6MPDM										
8MPDM													
<i>Automatic</i>		4APDM											
		6APDM											
		8APDM											
DISTRIBUTION	<i>Microprocessor</i>	DAS-2000											
		EM-5000MD											
		CPU 5500											
		M-2135											
		MC-8											
	<i>PLC</i>	P- ---- - G											
		P- ---- - O											
		P- ---- - A											
	<i>Microprocessor</i>	M-1415/1815											
<i>PLC</i>	P- ---- - G												
	P- ---- - O												
	P- ---- - A												
	P- ---- - S												
Components													

REQUEST FOR QUOTATION

RFQ #: _____
DATE: _____

TO:

FROM: AIR LIQUIDE ELECTRONICS

CUSTOMER:

ETG#:

SAMPLE

AUTHORIZATION TO MANUFACTURE: _____

(PLEASE INCLUDE A BRIEF DESCRIPTION OF WHAT IS REQUIRED - INCLUDE DRAWING#'S AND QUANTITIES OF EACH)

DATE REQUIRED: _____

ALAC CONTACT: _____

MATERIAL IN THIS PACKAGE INCLUDES:

_____ PRODUCTION DRAWING PACKAGE

_____ GAS SPECIFICATION SHEET

_____ BILLS OF MATERIAL

_____ OTHER _____ (PLEASE SPECIFY)

MATERIAL STATUS:

NOTES: Concept Drawings include Bill of Materials. Additional drawings are included for reference.

APPROVED: _____

Gas Specification Sheet

GAS SYMBOL	GAS NAME	MIX % IN %	GAS MANUF	CYLINDER PRESSURE	Max Process FLOW RATE	CYL CONN	DIAMETER INCHES	HEIGHT to CL (INCHES)	LOW CYL ALARM SET	DELIVERY SET (PSI)

SAMPLE

CUSTOMER: _____ P.O. #: _____

COMPLETED BY: _____ ETG #: _____

DATE: _____

Gas Specification Sheet

GAS SYMBOL	GAS NAME	MIX % IN %	GAS MANUF	CYLINDER PRESSURE	Max Process FLOW RATE	CYL CONN	DIAMETER INCHES	HEIGHT to CL (INCHES)	LOW CYL ALARM SET	DELIVERY SET (PSI)
Ar	Argon	100	AP	2500	10	718	9	56.5	200	30
BCL3	Bor Trichl	100	Math	4.4	Pending	634	9	20.5	3	
BCL3	Bor Trichl	100	Scott	5	Pending	634	9	15.5		1-3
C2F6	Halo 116	100	Scott	445	10	716	9	53.5	300	30
CF4	Halo 114	100	Airco	2000	10	716	9	53.5	200	30
CHF3	Halo 223	100	Airco	635	10	716	9	34.5	500	30
CL2	Chlorine	100	Scott	85	8.2	728	9	28.5	70	30
HBR	Brom	100	Math	320	Pending	Unk	9	20.5	250	30
HCL	Hydro Chlor	100	Airco	610	96-100	634	9	53.5	400	30-40
He	Helium	100	AP	2640	10	718	9	56.5	200	30
He/C2	Helium/Ox	95/5	AP	2400	10	718	9	56.5		30
NF3	Nit Trifluor	100	AP	1450	9.4 or 20	640	9	56.5	200	30
NH3	Ammonia	100	Airco	114	21	720	9	50.5	90	30
N2O	Nitrs Oxide	100	AP	745	20	712	9	50.5	600	30
SF6	Sulfur Hex	100	Airco	310	10	16	9	35.5	200	30
SiH4	Silane	100	AP	755	14or20	632	9	56.5	150	30
SiH2CL2	Dichlorosiln	100	AP/Airco	9	Pending	636	9	34.5or53.5	5	1-3
WF6	Tngstn Hex	100	AP	2.4	Pending	638	9	20.5	1	1

SAMPLE

CUSTOMER: _____

P.O. #: _____

COMPLETED BY: _____

ETG #: _____

DATE: _____

Source Configuration	Customer: _____	Rev. # _____	
	ETG #: _____	Date: _____	
(Qty & Description HERE)			

Customer Contact		ETG Contact		PO #:	
Phone/Fax: _____		Phone/Fax: _____		On Site Date: _____	
Quote No: _____		Pager: _____		Sch'd Ship Date: _____	
Order Information:	Process	QA	Process / Purge	QA	Purge
Panel Serial No: _____					
Assembly Drawing Number _____					
Gas Information:					
Gas name (If mix, list Gas % / Bal%) _____					
Gas supplier _____					
Cylinder size (CL of valve) _____					
Cylinder pressure _____					
Cylinder connection (type & #) _____					
Cylinder valve (Man. or Acv) _____					
Cylinder heater/chiller _____					
Gas Cabinet Information:					
CC-1/CC-2/CC-3/Rack _____					
CC-2M/CC-3M _____					
Gas Cabinet Options:					
Adjustable cylinder shelf (ACS) _____					
Exhaust failure switch (EXS) _____					
Magnehelic _____					
Internal Cabinet Piping:					
Stubouts / Bulkheads / Manifold _____					
ASM / ASMMIV / SIM21 / MPIV (P-ISO) _____					
Autoswitch Number:					
Final process line filter (FF) _____					
Gas Manifold Information:					
Panel Type _____					
Panel Drawing Number					
Delivery Transducer _____					
Pigtail Drawing Number					
Source Transducer _____					
Regulator model number _____					
Other Manifold Options:					
Test Access Port valve (TAP) _____					
Emergency shutoff valve (ESO) _____					
Material/internal finish _____					
Seat material (regulator and valves) _____					
Poppet material (V5 check valve) _____					
Process purifier _____					
N2 purge purifier _____					
Cylinder Safety Device (CSD) _____					
Excess Flow Sensor Information:					
Model number _____					
Max.(potential) flow Rate _____					
Alarm Setpoint Information:					
Delivery pressure alarm _____					
Low cylinder Press. / Vlt. set point _____					
Purge cylinder/ delivery pressure _____					
Controller Type:					
M Series / DAS _____					
MCS (Manual pneumatic control pendant) _____					
CPU-5500 _____					
PLC Series _____					
Electrical Output Options:					
A) 5-volt B) 4-20 mA _____					
Electrical Input Options					
A) 110 V. B) 220 V. C) 24 V. _____					
Cylinder Scale Type:					
GCS-300 (Platform type) _____					
LR-300 (Display) _____					
SR1,SR2 (Scale ramp/retainer) _____					
Panel Label Color:					
Quality Assurance (Signature) _____	INCOMING: _____			FINAL QA: _____	
Shipping Information:					
Comments _____			Helium Leak Check		
			Always required - Inboard: 1 x 10 ⁻⁹ atm		
			Analytical Specifications		
			Customer Specifics _____		

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Customer's Authorization _____	Date _____
Doc. #QAL-43-0032-11	