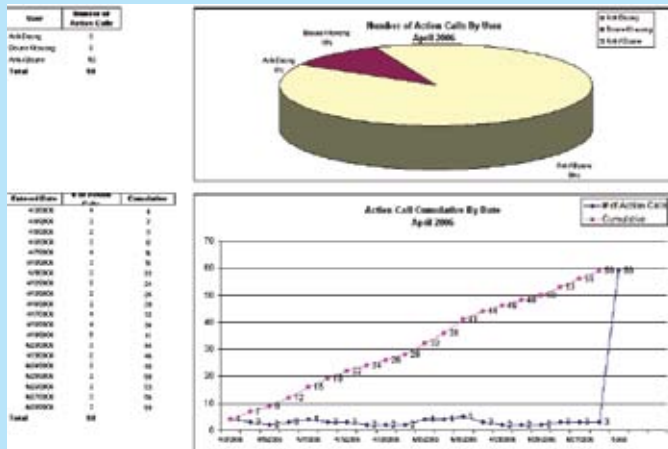




certified vacuum pump and blower repair

# Pump Management Program

## ACTION CALL TREND ANALYSIS

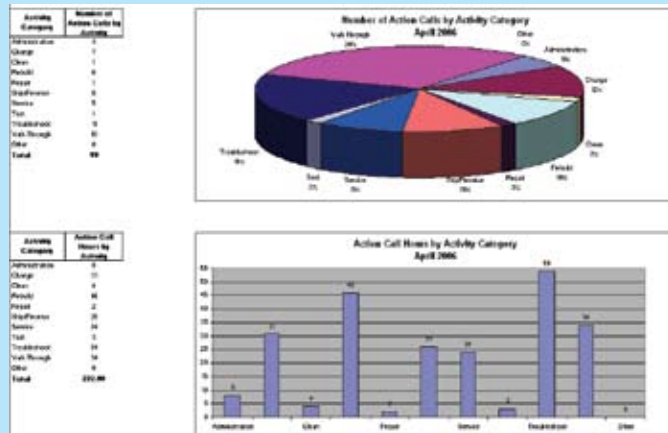


For Semiconductor Fab and other manufacturing companies with more than 200 pumps who want to take the guess work out of vacuum system related downtime and/or failures, and keep their line technicians focused on maximum tool productivity, the FMG Pump Management Program provides an on-site technician and software supported system that tracks, schedules preventative maintenance and monitors the progress of pump status as it proceeds through each department.

Unlike in house maintenance efforts, our on-site technician(s) custom software group assist in managing pump inventory, and reduce maintenance costs dramatically through inventory control monitoring and action call control observation embedded software – customized to accommodate individual needs.

The Pump Management Program even has the ability to log pertinent pump information and provide detailed reports on its service call activities. And, since 1987, FMG has been in the field, servicing thousands of pumps for major semiconductor players.

## PART CHANGE OUT ANALYSIS



What if you're facing a problem you haven't even considered? It's never too late to learn why vacuum failures may often be more than just the pump. Our on-site Pump Management Program offers you the following:

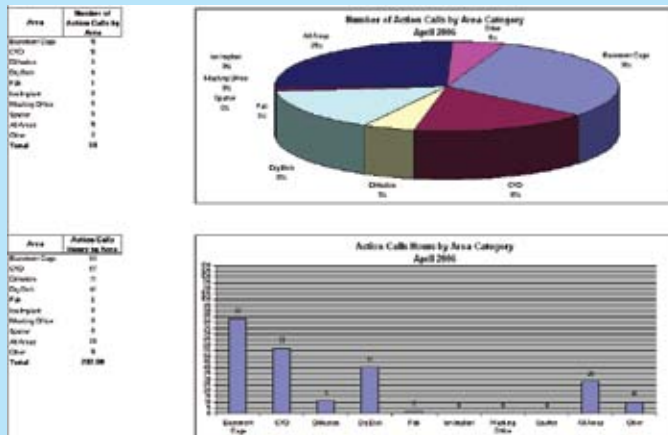
### FEATURES

- Customized FMG Certified™ vacuum pump PM program tailored specifically to your Fab needs
- On Site support Technicians with fab knowledge
- Technician efficiency for service calls reporting
- Reports include work order, action call, failure category, transcription log, technician activity, etc.

### ADVANTAGES

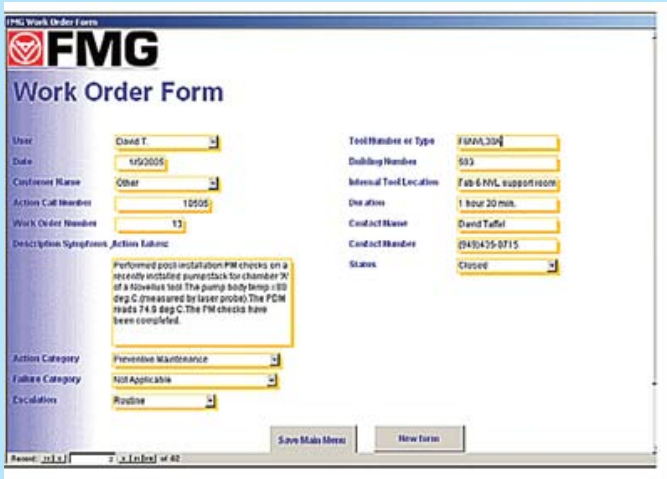
- Improve accuracy of service activity reconciliation by reducing discrepancies between FMG and customer service call records
- Improve Mean Time To Response (MTTR) with greater communication between technicians
- Identify potential problem areas with statistical data in the areas of call type, activity, location, part type, failure, etc.
- Provide weekly/monthly information on KPI attainment to ensure execution of established monthly and quarterly goals

## FAB AREA ANALYSIS



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## DATA COLLECTION



To ensure that the operating, supervising, amending, and optimizing of operations of process vacuum pumps and related equipment are running at full capacity, FMG will:

- Integrate safety walk-through into daily standard operating functions performed by support technicians
- Interact between staff to coordinate and schedule activities that do not adversely affect operations
- Supply storage capacity for 100 to 250 pumps at FMG

FMG will perform all Preventative, Predictive, and Corrective Maintenance on contracted vacuum pumps and related equipment.

- Interval PM services includes 3 month, 6 month and annual PM service to support maintenance strategies
- Perform maintenance tasks and activities so that key performance indicators can be developed and used for improvement
- Troubleshoot vacuum pipeline from intake side and exhaust side to pump or abatement system

As the responsible party for providing the maintenance services, FMG will be expected to:

- Guarantee maintenance tasks are performed in a timely and cost effective manner to address management of procurement and inventory of all consumable materials, spare parts and services.
- Provide materials, labor, supervision, documentation and miscellaneous services, to engineer/design, procure, configure install, pre-test, field test, coordinate and commission all supplied hardware and software
- Installation and removal of pumps, including receiving, and delivery of vacuum pumps to our repair center

On an ongoing basis, FMG will support the review and commission of equipment when deemed appropriate to address the following issues:

- Verification of the integrity of piping systems pressure tests, flushing and cleaning by means of operations tests
- Decommission or complete disposal of pump from tools
- Solution advice on system configuration and equipment or correct process application setup for pumps

FMG will effectively correspond to accomplish the repair, maintenance, troubleshooting, and installation or removal of vacuum pumps. Administrators will ensure the following services are executed:

- Supervision and management of staff to fulfill the scope and services contract
- Plan, prepare and process work request, project cost estimates and work schedule

## TRANSCRIPTION LOG

#	January	February	March	May	June	#	January	February	March	May	June
POWER (kw)	2.3	2.3	2.3	2.4		POWER (kw)	2.1	2.2	2.2	2.2	
TEMP (°C)	80.7	71	70	76.6		TEMP (°C)	22.3	23	22.3		
AMPS (A)	7.9	0.2	7.8	0		AMPS (A)	0.4	0.1	0.2	7.9	
MOTOR TEMP (°C)	20.9	19.9	22	22.9		MOTOR TEMP (°C)	22.3	22.3	22.3		
EXHAUST PRESSURE	0.3	0.4	0.6	0.6		EXHAUST PRESSURE					
TOTAL H <sub>2</sub> O (gpm)	55.0	54.0	53	56.5		TOTAL H <sub>2</sub> O (gpm)	43.4	45	44.3	44.3	
H <sub>2</sub> O FLOW (gpm)	2.4	2.6	2.4	2.4		H <sub>2</sub> O FLOW (gpm)	2.8	2.8	2.6	2.6	
SHMIT SEAL (psi)	6.1	5.8	5.5	5.9		SHMIT SEAL (psi)	6.1	6.1	6.2	6.3	
FINAL H <sub>2</sub> O FLOW (gpm)	49.3	47.1	46.9	46.4		FINAL H <sub>2</sub> O FLOW (gpm)	43.4	44.9	44.3	44.3	
AIR IN H <sub>2</sub> O FLOW (gpm)	6.6	7.6	10	10		AIR IN H <sub>2</sub> O FLOW (gpm)					
BLOWERS part of associated packages											
#	January	February	March	May	June	#	January	February	March	May	June
POWER (kw)	1	0.9	0.9	0.9	0.9	POWER (kw)	1.2	1.3	1.3	1.2	1.2
AMPS (A)	4.5	4.1	4.5	4.4		AMPS (A)	5.5	5.8	5.6	5.2	5.4
MOTOR TEMP (°C)	18.3	18.6	20	19.9	20.4	MOTOR TEMP (°C)	17	15.0	10	17.3	18.2
#	January	February	March	May	June	#	January	February	March	May	June
POWER (kw)	1.3	1.3	1.3	1.9	2.1	POWER (kw)					1.3
AMPS (A)	5.6	5.6	6	7.3	7.6	AMPS (A)					6.2
MOTOR TEMP (°C)	21.4	24.3	27.6	25.9	32.7	MOTOR TEMP (°C)					25

## WORK FLOW

