As nodes are becoming more tightened, CMP process is becoming more and more critical and a particular attention is needed on the slurry distribution and storage to maintain slurry health to its highest level.

The PTM-1 has the advantage to take care of both. The conception of the tank induce to the slurry a recirculation that keeps it always in motion and avoids sedimentation, meanwhile the Levitronix pump avoids shear forces on the slurry and allows a smooth slurry handling.

More and more slurries contains surfactants that foams as soon as they pass through a pump, even at 4000rpm, the Levitronix pumps do not induce any foam to the slurry.

The PTM-1 tank is the alternative solution for the new generation of slurries.

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### The Need

Having a slurry distribution cabinet to allow qualification and pre production of new slurries and chemistries.

- The Cabinet must respond to the needed volume for pre-production
- The Cabinet must be transportable from one area to another and have a small footprint

### Have a tool that can run all kind of chemistries:

- Capability to recircle (keep the slurries in motion)
- Capability to stir without an external stirrer

### Several projects were indentified

- With displacement pumps, no stirring, directly with pails
- One of them was able to do « all in one » and able to be customized

### The specificity of the use needed a custom project based on the budget and the slurry use.

- A smooth handling
- The possibility to mix and stir without any additional components
- All this fitted inside a Cabinet that must contain not more than 100liters
- No particles generation

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### The Capabilities

#### The Levitronix PTM – 1 Tank

A smooth handling thanks to the BPS – 1 pump

The slurry is permanently mixed in the tank by two holes. The gentle motion is given by the pump

#### The Chemical Cabinet

The whole cabinet must be managed by an automaton

- Able to do H2O2 titration
- The transfer from the pails to the tank need to be done by a displacement pump (No choice)

### Three possibilities of work

- Connected to a MIPS with concentrated slurry (Mix In Place system)
- Connected to 1 or 2 Tools with Ready to Use slurry

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### Advantages

- The PTM Tank offers flexibility in all kind of projects
- There is no shearing forces, no stress on the motion of the slurry.
- The holes that allows the recirculation works well, the slurry is always in motion.
- Defectivity has given very good results (No charts available)
  - The Large Particle Count normal @ 0.56µm

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### Drawbacks

- The capabilities of the cabinet are rapidly reach as the allocated budget has limited its performances, but this can be override with an upgrade on the automaton.
- The holes on the bottom of the PTM – 1 tank are not inclined in order to give a whirl motion
- The PTM – 1 has crests where slurry can fix. The Tank needs to be more curved to receive high % solids slurries as ceria slurries
- Need a displacement pump to intake the slurry and fill the PTM-1 tank

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### Conclusion

- The PTM system takes care of slurry health and allows handling on the last generation of slurries
- The flexibility of the system offers to the customer several solutions depending on the liquid and the volume to be considered.
- The PTM system is an alternative for slurry handling and for the new generation slurries.