A TAPE CASTING MACHINE

FIELD OF INVENTION

The present invention relates to a tape casting machine.

BACKGROUND OF INVENTION

Tape casting is a well known technique of fabricating thin ceramic substrates for a wide range of applications including multilayers capacitors, solid oxide fuel cells, sensors and so on. A typical length of commercially available tape casting is at least four metres long and a metre wide. It is usually a stand alone unit with at least a metre in width. It is an expensive ceramic processing equipment, costing over US$ 150, 000.00 to acquire, commission and operate. It also needs a long extraction fume hood and large laboratory space.

US6375451 B1 describes a tape casting machine with a casting base with a static reservoir and doctor blade. However, the size of the machine is bulky and takes up a large footprint.

Therefore, there is a need for a more efficient apparatus to produce thinner ceramic tapes without using a large footprint and in a more energy efficient manner.

SUMMARY OF INVENTION

Accordingly, there is provided a tape casting machine, characterized in that, the machine includes a movable reservoir containing slurry; and at least one doctor blade disposed within the moveable reservoir such that the doctor blade is controllable with a magnetic switch, wherein the slurry is passed on to non sticking transparency on a flat surface.

CLAIMS

1. A tape casting machine (100), characterized in that, the machine (100) includes:
   a movable reservoir (111) containing slurry; and
   at least one doctor blade (101) disposed within the moveable reservoir (111) such that the doctor blade (101) is controllable with a magnetic switch (103), wherein the slurry is passed on to non sticking transparency (105) on a flat surface (109).

2. The machine (100) as claimed in claim 1, wherein the machine (100) is capable of forming ceramic tapes of uniform thickness.

3. The machine (100) as claimed in claim 1, wherein at least one doctor blade (101) is controllable manually or electronically.

4. The machine (100) as claimed in claim 1, wherein the moveable reservoir (111) is controllable by a stepper motor (109).

5. The machine (100) as claimed in claim 1, wherein optimal casting speed for slurries as between 10mm/ sec and 30mm/sec to produce smooth surface finish and uniform thickness.

6. The machine (100) as claimed in claim 1, wherein the flat surface (107) includes a flat glass, plastic plate or light metal tray such as aluminium.

7. The machine (100) as claimed in claim 1, wherein ceramic tape is easily removable from the transparency (105) placed on the flat surface (107) without damage.

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Therefore, there is a need for a more efficient apparatus to produce thinner ceramic tapes without using a large footprint and in a more energy efficient manner.

SUMMARY OF INVENTION

Accordingly, there is provided a tape casting machine, characterized in that, the machine includes a movable reservoir configured to contain slurry; and at least one doctor blade for disposal within the moveable reservoir such that the doctor blade is controllable with a magnetic switch, wherein the tape casting machine is configured for the slurry to be passed on to non sticking transparency on a flat surface.

CLAIMS

1. A tape casting machine (100), characterized in that, the machine (100) includes:
   a movable reservoir (111) configured to contain slurry; and
   at least one doctor blade (101) for disposal within the moveable reservoir (111) such that the doctor blade (101) is controllable with a magnetic switch (103), wherein the tape casting machine is configured for the slurry to be passed on to non sticking transparency (105) on a flat surface (109).

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