[TITLE OF DOCUMENT] WHAT IS CLAIMED IS:

[Claim 1]

A workpiece carrying-in-and-out method in double-end surface grinding for grinding both surfaces of the workpiece by a pair of grinding wheels while rotating a thin disk-shaped workpiece which is held by static pressure by a pair of static pressure pads, by a carrier,

the workpiece carrying-in-and-out method comprises a process in which at the time of sucking the workpiece by carrying-in-and-out means, to carry the workpiece into and out from the carrier between the both static pressure pads, the workpiece in the carrier is sucked by one of the static pressure pads at an advanced holding position,
a process in which after the workpiece in the carrier is sandwiched by the carrying-in-and-out means and the one static pressure pad, and in that state, the workpiece is delivered between the carrying-in-and-out means and the static pressure pad.

[Claim 2]

The workpiece carrying-in-and-out method in double-end surface grinding according to Claim 1, wherein, after the workpiece sucked by the carrying-in-and-out means is inserted into the carrier, to be sandwiched by the carrying-in-and-out means and the one static pressure pad, the suction of the workpiece by the carrying-in-and-out means is released at substantially the same time of suction of the workpiece by the one static pressure pad, or around the time of suction of the workpiece by the one static pressure

pad.

[Claim 3]

The workpiece carrying–in-and-out method in double-end surface grinding to according Claim 2 ~~3~~, wherein, after the other static pressure pad is advanced to the advanced holding position, the suction of the workpiece by the one static pressure pad is released, and a static pressure fluid is supplied to the respective static pressure pads, to hold the workpiece by static pressure.

[Claim 4]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 1 to 3, wherein, after the holding of the workpiece by static pressure by the both static pressure pads at the advanced holding position is released, and the workpiece in the carrier is sucked by the one static pressure pad, the other static pressure pad is withdrawn from the advanced holding position.

[Claim 5]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 3, wherein a static pressure fluid is supplied from the other static pressure pad, to release the surface tension between the other static pressure pad and the workpiece at substantially the same time of suction of the workpiece by the one static pressure pad, or around the time of suction of the workpiece by the one static pressure pad.

[Claim 6]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 5 , wherein, after the workpiece in the carrier is sandwiched by the carrying-in-and-out means and the one static pressure pad, the suction of the workpiece by the one static pressure pad is released at substantially the same time of suction of the workpiece by the one static pressure pad, or around the time of suction of the workpiece by the carrying-in-and-out method, and a static pressure fluid is supplied from the one static pressure pad, to separate the workpiece from the one static pressure pad.

[Claim 7 ]

A double disk surface grinder comprising:

a carrier that rotates a thin sheet-like workpiece;

a pair of static pressure pads which hold the workpiece in the carrier by static pressure;

a pair of grinding wheels that grind both surfaces of the workpiece which is held by static pressure by the static pressure pads, and is rotated by the carrier; and

carrying-in-and-out means for sucking the workpiece to carry the workpiece into and out from between the pair of static pressure pads, the double-end surface grinder wherein

one of the static pressure pads includes suction holes for sucking the workpiece in the carrier at a plurality of places in a circumferential direction including a vicinity of an engaging protrusion that engages a notch section of the workpiece.

WHAT IS CLAIMED IS:

[Claim 1]

A workpiece carrying-in-and-out method in double-end surface grinding for grinding both surfaces of a thin disk shaped workpiece by a pair of grinding wheels while the workpiece which is pressurized and held by a static pressure fluid supplied from a pair of static pressure pads and is rotated, by a carrier,

at the time of sucking the workpiece by carrying-in-and-out means, to carry the workpiece into or out from the carrier between the both static pressure pads,

the workpiece carrying-in-and-out method comprises

a process in which the workpiece sucked by a carrying-in means is inserted into the carrier, and the workpiece in the carrier is sucked by one of the static pressure pads at an advanced holding position in the vicinity of the workpiece while the workpiece is sandwiched and supported by the carrying-in means and the one of the static pressure pads,

a process in which the suction of the workpiece by the carrying-in means is released at substantially the same time of the suction of the workpiece by the one static pressure pads, or around the time of the suction of the workpiece by the one static pressure pads,

a process in which after the other static pressure pad is advanced to the advanced holding position, the suction of the workpiece by one static pressure pad is released,

a process in which after grinding the workpiece, a hold of the ground workpiece by the both static pressure pads at the advanced holding position is released,

a process in which the ground workpiece in the carrier is sucked by the one static pressure pad, and

a process in which the static pressure fluid is supplied from the other static pressure pad at substantially the same time of the suction of the workpiece by the one static pressure pad, or around the time of the suction of the workpiece by the one static pressure pad to release the surface tension between the other static pressure and the ground workpiece.

[Claim 2]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 1, wherein after the suction of the workpiece by the one pressure pads, the static pressure fluid is supplied to the respective pressure pads to hold the workpiece by the static pressure.

[Claim 3]

The workpiece carrying–in-and-out method in double-end surface grinding to according Claim 1 or 2 , wherein after the ground workpiece in the carrier is sucked by the one static pressure pad, the other static pressure pad is withdrawn from the advanced holding position.

[Claim 4]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 3 , wherein after the other static pressure pad is withdrawn from the advanced holding position, the ground workpiece is sucked by a carrying-out means while the ground workpiece in the carrier is sandwiched and supported by the carrying-out means and the one static pressure pad.

[Claim 5]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 4, wherein at substantially the same time of the suction of the ground workpiece by the carrying-out means or around the time of the suction of the ground workpiece by the carrying-out means, the suction of the ground workpiece by the one static pressure pad is released.

[Claim 6]

The workpiece carrying–in-and-out method in double-end surface grinding according to Claim 5 , wherein after the suction of the ground workpiece by the one static pressure pads is released, the static pressure fluid is supplied from the one static pressure pad to release the ground workpiece from the one static pressure pad.

[Claim 7]

A double disk surface grinder comprising:

a carrier configured to have an engaging protrusion that engages a notch section of a thin disk shaped workpiece and rotate the workpiece,

a pair of static pressure pads configured to hold the workpiece in the carrier by static pressure,

a pair of grinding wheels configured to grind both surfaces of the workpiece while the workpiece is held by static pressure by the static pressure pads and is rotated by the carrier, and

a carrying-in-and-out means configured to suck the workpiece to carry the work piece into or out from between the pair of static pressure pads,

wherein one static pressure pads has suction holes for sucking the workpiece in the carrier at a plurality of places in a circumferential direction including a vicinity of the engaging protrusion,

the double-end surface grinder further comprising,

a suction source and a discharge source configured to be switchably connected with the suction holes,

a means configured to insert the workpiece sucked by a carrying-in means into the carrier, suck the workpiece by the one static pressure pad while the workpiece is sandwiched and supported by the carrying-in-means and the one static pad at the advanced holding position, and release the suction of the workpiece by the carrying-in means at substantially the same time of the suction of the workpiece by the one static pressure pad or around the time of the suction of the workpiece by the one static pressure pad,

a means configured to release the suction of the workpiece by the one static pressure pad after the other static pressure pad is advanced to the advanced holding position,

a means configured to release a static pressure holding of the ground workpiece by the both static pressure pads at the advanced holding position after the workpiece is ground, and

a means configured to suck the ground workpiece in the carrier by the one static pressure pad, supply a static pressure fluid supplied from the other static pressure pad at substantially the

same time of the suction of the ground workpiece by the one static pressure pad or around the time of the suction of the ground workpiece by the one static pressure pad, and release the surface tension between the other static pressure pad and the ground workpiece.