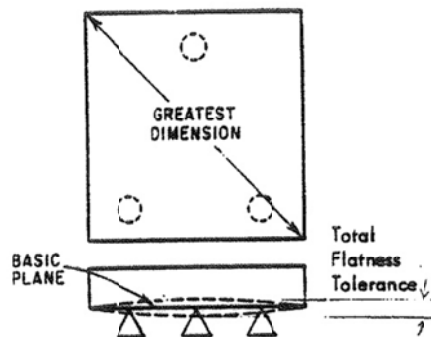


FLATNESS TOLERANCES

Flatness is that condition which exists when all points on a surface lie in the same plane. The surface of a casting can be measured for flatness by supporting the surface in question on three widely separated points to establish the basic plane.



Surface	Greatest Dimension	Flatness Tolerance
As Cast	0 thru 6" Ea. additional in.	Within .030 in. .003 in/in
Belt Sanded	0 thru 6" Ea. additional in.	Within .015 in. .002 in/in
Machined	0 thru 6" Ea. additional in.	Within .005 .001 in/in

DIMENSIONAL TOLERANCES ON DRILLED HOLES

1. Hole Diameter

Up to 3/4"	+ .010
	- .000
13/16 to 1.0	+ .015
	- .000

Reamed Hole \pm .002

2. Hole Location

No Drill \pm .040 from 2 specified edges

For tolerances tighter than \pm .040, a drill fixture is normally required which the customer must pay for.

POROSITY AND SHRINKAGE

While permanent mold casting generally produce higher quality parts, porosity and shrinkage can occur. This occurs due to entrapped air or other impurities and is generally around the heating elements or cooling tubes. Areas of volumetric shrinkage smaller than 1 square inch and no deeper than .06" at any point will be acceptable. Any single visible hole over .06" in diameter or depth will cause the casting to be rejected. More than 5 holes between .03" and .06" on any casting surface will cause rejection. Holes smaller than .03" in any number will be acceptable. In addition, no visible cracks greater than .015" wide and/or 1" in length will be acceptable.

GATES, RISER, CHILL MARKS

Castings with straight sides will normally be de-gated by using an abrasive cutoff wheel. This produces a straight mill finish appearance. Unless otherwise specified, no further finishing will be done by the foundry.

Castings with curved gates or complex contours which are not readily adaptable to being de-gated by the abrasive wheel will be band sawed to within 1/16 of the casting surface. They will then be belt sanded (36 grid) flush with the casting surface.

Keep in mind that all of the tolerances listed are Durex normal standards. Generally, these can be improved upon at additional cost, if they are brought to our attention when the job is quoted.