

According to the computed result, we can obtain the influence curve of the oil cavity depth on the maximum velocity when the rotation rates are 6r/min.

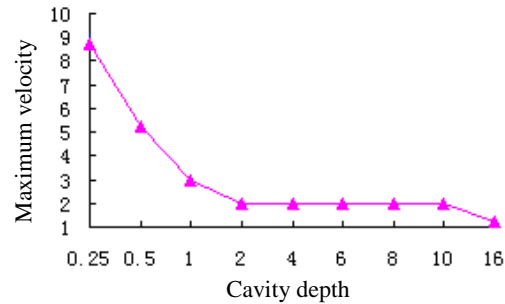


Fig.6. Influence curve of the oil on the maximum velocity

Figure 6 illustrates that the Maximum speed of the fluid of the large size hydrostatic guide-way clearance increases with the oil cavity depth gradually then decreases then remains unchanged.

5 Conclusion

Finite volume method is adopted for hydrostatic guide-way interstitial fluid to carry on numerical simulation, and the internal flow distribution is obtained. The speed of sealing side from high to low is the lift side, the radial-out side, the inside radial side, the right side.

When the oil cavity area is equivalent, we can conclude that by comparing the calculation results of different oil cavity depth, the changing rule of velocity on rail of radical is the same, they all increase gradually from the inside to the outside, as the oil cavity depth increasing the homogeneity of the velocity distribution descending. While the oil cavity depth is the same, the Interstitial fluid flow velocity increasing as the rotation speed increasing.

The numerical simulation result does not appear divergence phenomena, indicates that the equation using finite volume method is stable. At the same time, the flow distribution of interstitial fluid on hydrostatic guide accord with the practical, testify that the research method is credible.

References

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