About RVCR Mechanism

Fig 1 - Vane Piston

1. RVCR uses curved vane-pistons **(Fig 1)** in a toroidal chamber.

Conventional Machines use Cylindrical pistons that slide up and down in a straight Cylinder called Liner. This piston here is extended downwards (out of the liner) using an oscillating connecting Rod paired to a pin fitted in the Piston
In RVCR the straight-line cylindrical liner is bent into a circle in such a fashion that the top and bottom end meet.
The liner is a toroid (a hollow doughnut shape) with two Curved pistons that can slide and rotate inside the toroid.

Fig 2 - Tyre

2. How do we insert two curved Pistons inside a Toroid?

This is done by construction of the toroid which is like tyre Fig 2 fitted on a rim. Same as those used on cars, bikes etc.
The tyre part is the outer casing and the RIM part the inner. The Curved Vane Piston is 1st placed on the RIM and the Tyre covers it.
How is the Vane Piston made to slide inside the Toroid?
The rim is also made in two parts by cutting the rim along the line where the spokes go in the rim. (the lowest diameter line).

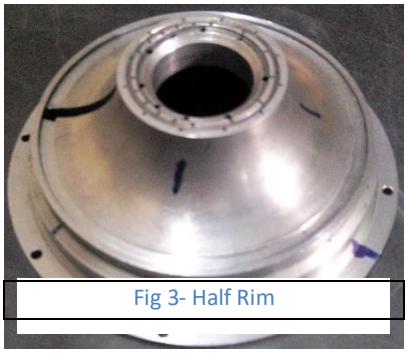


Fig 3- Half Rim

One curved vane-piston is fitted on each rim half (Fig 3).
Each half of the rim is fitted with a Pipe/sleeve (Fig 4).
The rim fitted with a sleeve and a Vane-Piston is depicted in Fig 5

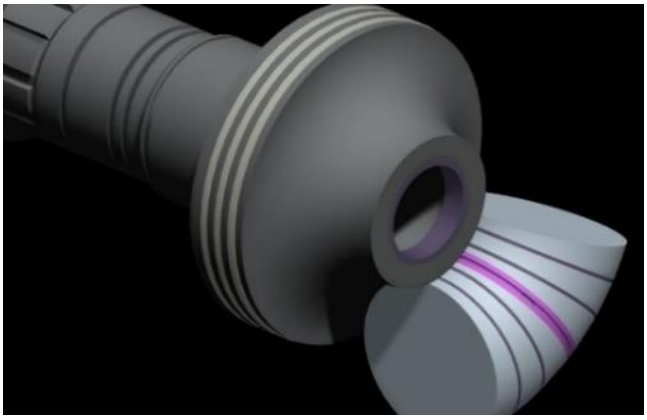


Fig 5– Rim sleeve Vane Piston fitting

Fig 4 – Rim with sleeve

The 2 rim Sleeve Vane Piston cut lines are placed adjacent Fig6 Hence the 2 curved Vane-Pistons fixed on one rim each is extruded sideways and turning the pipe/sleeve slides the bent piston inside the hollow toroidal liner (like key twisted from outside turns the portion of the key inside the Lock).

Finally, a shaft is passed through and through the pipe (Fig 7). The casing then covers the vane pistons by mounting it over the rim, Like a tyre (Fig 8)

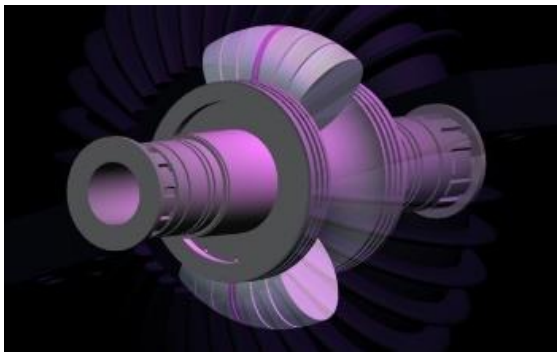


Fig 6

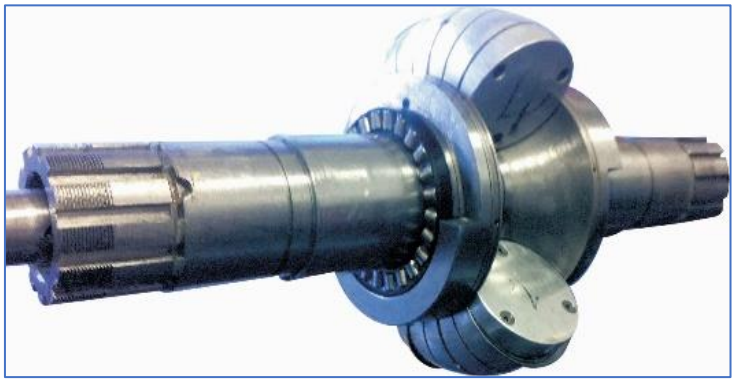


Fig 7

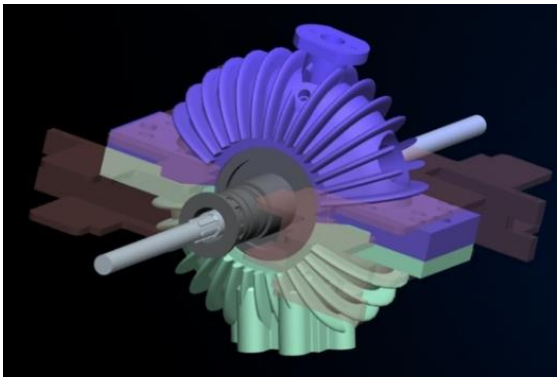
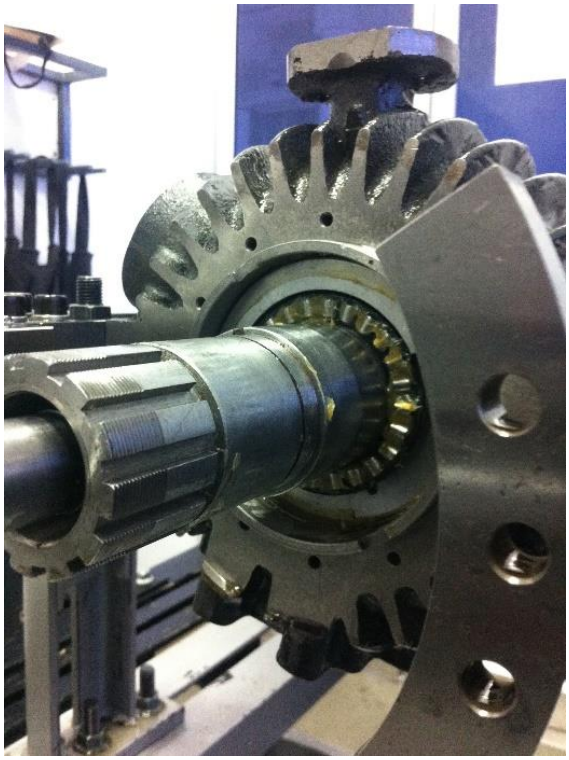


Fig 8

RVCR assembly: - RVCR constitutes of a pair of 'vane-piston' sets mounted on a central shaft and each couple and decouple with it individually. When coupled the 'vane piston' rotates along with the shaft and when decoupled it is grounded.

The sequence: - 1st one 'vane-piston' rotates along the central shaft axis hence the angle between the two 'Vane Pistons' increases on one side and reduces on the other. The rotating vane reaches the proximity of the 2nd 'vane-piston' that is held stationary from the back side. At a pre-set point of the rotating 'vane-piston' actuates the coupling between stationary 'Vane-Piston' ahead of and the central shaft (Like the actuating of a shuttle Valve in steam engine) and both 'Vane Piston' made to rotate synchronously with. Here the rotating Piston transfers its inertia to the 2nd 'vane-Piston'. Subsequently when the 1st 'vane-piston' reaches the point where the 2nd 'vane-piston' was held stationary, it is decoupled from the central shaft, and held stationary. The 2nd 'vane-piston' now continues to rotate till it reaches the proximity of the current stationary 1st 'vane-piston'. This pattern is repeated cyclically



For Schematic Depiction please Click.