SERVO DRIVES VS VFD

A VFD (variable frequency drive) is generally used to control a squirrel cage type motor, where both stator and rotor are of a wound type to create the magnetic flux. Servo drives are used to control permanent magnet motors. Permanent magnet motor because they use rare earth magnets in the rotor, create a much higher magnetic flux for their given size. This enables the motor to be able to create more torque in a much smaller rotor and hence motor size. Giving the motor a lower inertia to accelerate and decelerate much more dynamically than that of the asynchronous squirrel cage type motor.

On the controller side, the servo controller can calculate a complex path and maintain the position along that path with varying loads and speeds. Many servo controllers are multi-axis or can be daisy chained to make multi-axis moves to follow complex paths.

Some VFDs now have encoder inputs but do not have the high speed computing power to calculate complex high speed paths. Since, as mentioned above a regular AC motor lacks the performance to make such a move there is no need for it. The pulse or encoder feedback is used mainly for greater speed control and zero speed detection.