

What is **SpeedPorts**?



SpeedPorts is an innovative and patented manufacturing system for block hydraulic cylinders.

SpeedPorts **dramatically increases** the oil flow on face-seal mounted O-Ring port cylinder while keeping the external dimensions of the cylinder **unchanged**. Thus creating unparalled compact speed.



No performance difference between a SpeedPorts oil delivery and a typical threaded oil delivery.

Now you can have an extremely **compact** cylinder with the **same speed** as a much bigger one.



Pressure Drop vs. Speed

Each hydraulic circuit has pressure drops consequent to oil flow in:

- Valves
- Connectors
- Pipes
- Fittings
- Holes drilled on mold plates
- Cylinder oil ports



Therefore, to calculate oil pressure available inside of the cylinder:

Pump Pressure Output - *Oil Ports* - Overall Circuit Loss (other items above) = Pressure Available



Example: Cylinder without SpeedPorts

- Oil port size: **6 8 mm**
- Cylinder Rod Speed: 0.3 m/s
- Oil Pump Output Pressure: **120 bar**

Pump Pressure Output - *Oil Ports* - Overall Circuit Loss = Pressure Available

120 bar - *20 bar* - ~15 bar = 75 bar



Example: Cylinder with SpeedPorts

- Oil port size: **14 mm**
- Cylinder Rod Speed: 0.3 m/s
- Oil Pump Output Pressure: 120 bar

Pump Pressure Output- Oil Ports- Overall Circuit Loss= Pressure Available120 bar- 2 bar- \sim 15 bar= 103 bar



What's the **difference**?

With SpeedPorts:

Much more pressure left (**103 bar**), therefore...

- Faster
- Stronger
- Safer

Without SpeedPorts:

Much less pressure left (**75 bar**), therefore...

- Less fast
- Less
- Less safe



What's the **difference**?





May The Force Be With You!

	Oil Pressure bar	Oil Flow I/min	Bore mm	Stroke mm	Cylinders no.	Speed m/s	Pressure loss bar	Cycle time s	Force N
SpeedPorts	150	125	40	200	2	0.83	8.00	0.48	17.505
Standard Cylinder	150	125	40	200	2	0.83	77.00	0.48	8.999
Standard Cylinder	150	125	40	200	2	0.4	20.00	1	16.026



May The Force Be With You!

- Standard cylinders present huge pressure drops (Δ -69 bar) at the same speed (0.8 m/s)
- To obtain almost the same force (but not quite; 16 N vs. 17.5 N) a standard cylinder has to move twice as slow (0.4 m/s vs. 0.83 m/s), doubling cycle times (0.48 s vs. 1 s)
- Of course, this difference is valid for any bore, since **SpeedPorts** will always have **more oil delivery** than a standard cylinder of the same size



The Quest for Savings



- A SpeedPorts cylinder can then move **two to three times faster** than a standard cylinder
- Mold cycle times can drop of about 10%, leading to huge savings in the long run.



Hamlet's Dilemma, also known as: Fast and Furious or Slow and Cheap?



It may **seem** that SpeedPorts requires a higher overall cost, due to a larger circuit, larger valves, pumps, and so on.

A cylinder with SpeedPorts technology, though, costs **just as little** as a standard cylinder: therefore the user can decide whether to **go faster** (with a theorical extra cost for a larger circuit) or **keep the speed** as it is.

Actually, SpeedPorts puts a knife in the hands of the mold maker. Why?



Mold Maker vs. Mold User

- Mold makers usually are on a limited budget, but want to provide a safe solution (even if slower) to safeguard their good name and avoid troubles
- Now mold makers are in the position of negotiating: does the user want more speed? He can pay more. If the user accepts to be limited to the same speed, he can pay the same but get longer life.

- Mold users want efficiency and profit. The cost of a larger circuit and pump to go faster will be negligible when compared to the profits and pieces made.
- They don't care how long the cylinder will last, if that'll make them **save time**.



Are SpeedPorts Cylinders **Compatible** with Other Brands?

- SpeedPorts is applied to V500 CZ cylinders with either **manifold** or **threaded** oil ports
- Our V500 CZ has been designed to adhere to the European standards for block cylinders, and is therefore **compatible with other manufacturers' products** (like AHP, HEB, some Meusburger cylinders, and HPS with the use of flanges)





Isn't High Speed a Risk to be Avoided?



- V500 CZ can reach a speed of **1 m/s** even on **low oil pressure** with an unloaded rod. The fastest comparable standard cylinder **barely reaches 0.5 m/s**.
- Our cushioning system, which is **hydraulic** and **highly effective**, and not just a rubber bumper like some others, fits the SpeedPorts technology perfectly.
- It dissipates the high impact energy at both stroke ends, allowing the cylinder to reach higher speeds without risks of failure.





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