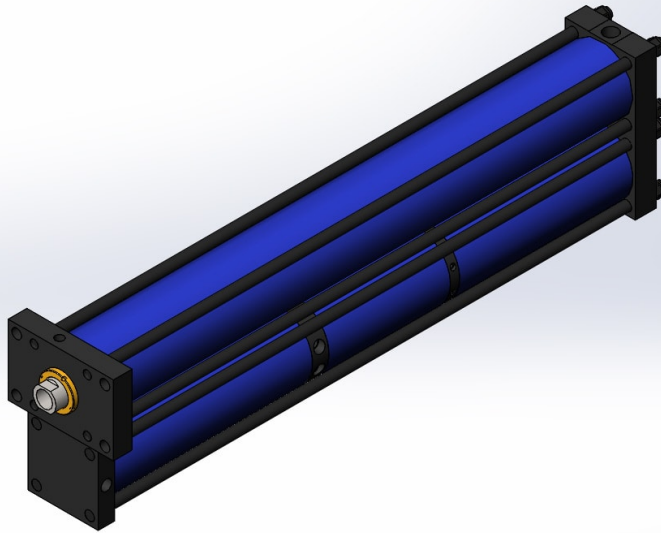




HyperCyl[®]

By Aries Engineering Company, Inc.



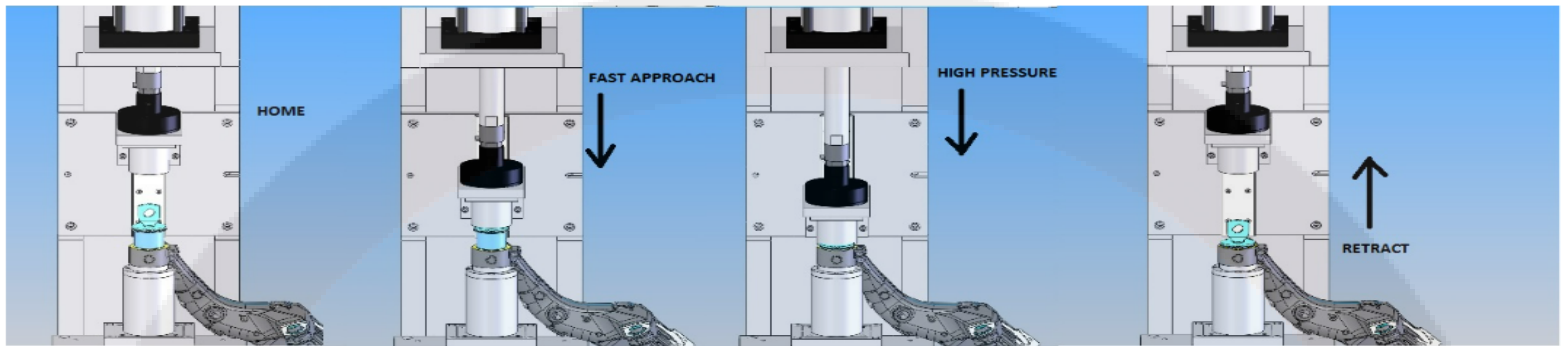
HPT Series Pneumatic Schematics

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Master Control Sequence

The HPI, HPS and HPT HyperCyl® cylinders require two (2) pneumatic 4-way directional control valves and a plant air supply for proper operation. The HZ series HyperCyl® cylinder requires only one (1) pneumatic 2-way directional control valve.



Control sequence to be followed in order 1 through 5

Step number	Description of operation	A1 port condition	B1 port condition	A2 port condition	B2 port condition
1.	Home (retracted)	Exhausted	Pressurized	Exhausted	Pressurized
2. (Cycle Start)	Fast Approach extend	Pressurized	Exhausted	Exhausted	Pressurized
3.	High Pressure extend	Pressurized	Exhausted	Pressurized	Exhausted
4. (Cycle End)	Fast Approach retract	Exhausted	Pressurized	Pressurized	Exhausted
5.	High Pressure retract	Exhausted	Pressurized	Exhausted	Pressurized
	(Cylinder now at Step 1)				

Notes for 3 position exhaust-centered valves, for e-stops or light curtain breaches:

In cycle (steps 2 through 5).

The mid position of the valves is used only for an E-Stop condition (cycle interrupted), or shutdown. Normally, the valve is shifted to one side or the other, and not in the mid position.

Not in cycle (step 1)

When not in cycle, and the e-stop is cleared, B1 and B2 must return to their pressurized condition prior to the start of the cycle. For example, the operator breaches the light curtain to load, unload, or change a part. The machine is not in cycle. The valves shift to their mid position. When the operator is clear of the light curtain, the valves must be shifted to the position in which B1 and B2 are pressurized before the start of the next cycle.

HPT 2-Position Spring Return

HPT Series
HyperCyl

B2

A1

A2

Sol 1
Approach valve

Sol 2
Power Stroke valve

Optional Meter out Flow control

Optional Approach Stroke regulator

Optional Power Stroke regulator

Ma
C

2

Cyl Retracted: Sol 1 and Sol 2 OFF

Extend Ram: Sol 1 ON, Sol 2 OFF

Power Stroke: Sol 1 and Sol 2 ON

Note: Air must be applied to the B2 cyl. port during retract of the ram. Also, once the cylinder has gone i stroke, do not apply pressure to the B2 port (retract piston) without applying pressure to the B1 port (retract power stroke piston). Retracting the power stroke piston without retracting the approach piston can cause cavitation of the oil, and the need to bleed the unit.

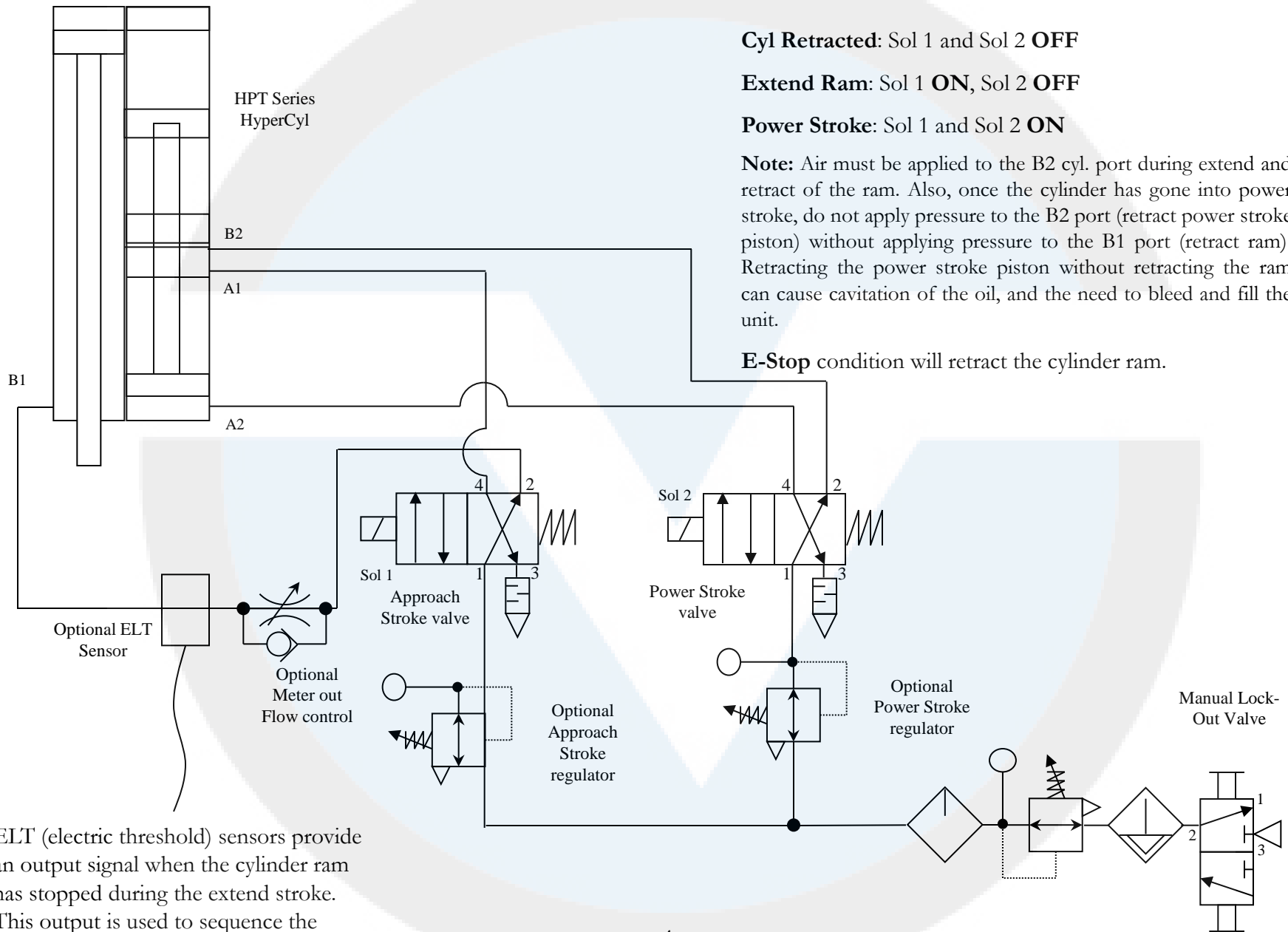
E-Stop condition will retract the cylinder ram

3

E-Stop condition will retract the cylinder ram



HPT 2-Position Spring Return ELT



ELT (electric threshold) sensors provide an output signal when the cylinder ram has stopped during the extend stroke. This output is used to sequence the power stroke valve.

HPT Series
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Extend Ram: Sol 1 ON,

E-Stop condition will retract the cylinder ram

PT Sensor

Optional
Meter out
Flow control

Sol 1

Approach
valve

Optional
Approach
Stroke
regulator

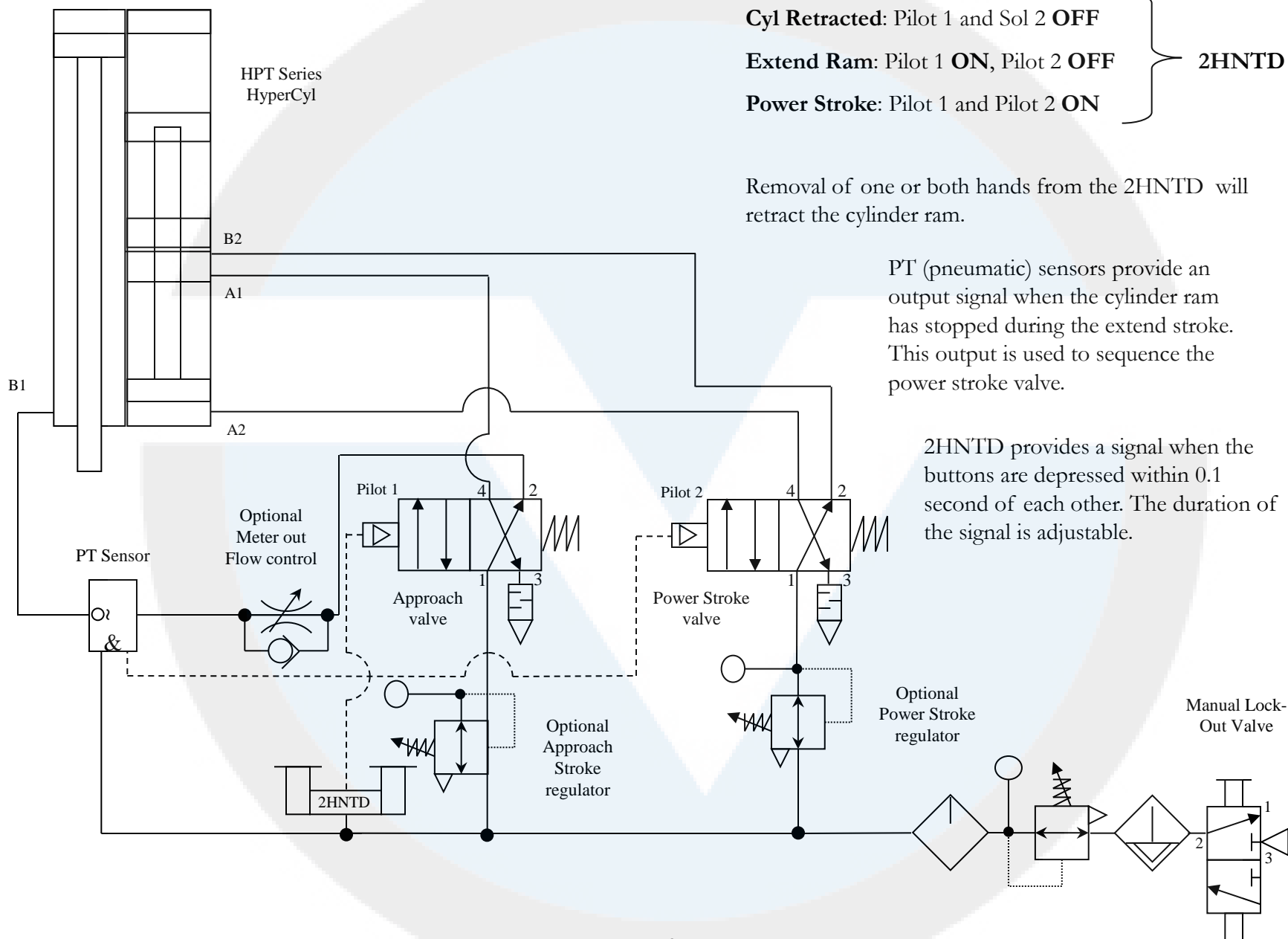
Pilot 2

Power Stroke
valve

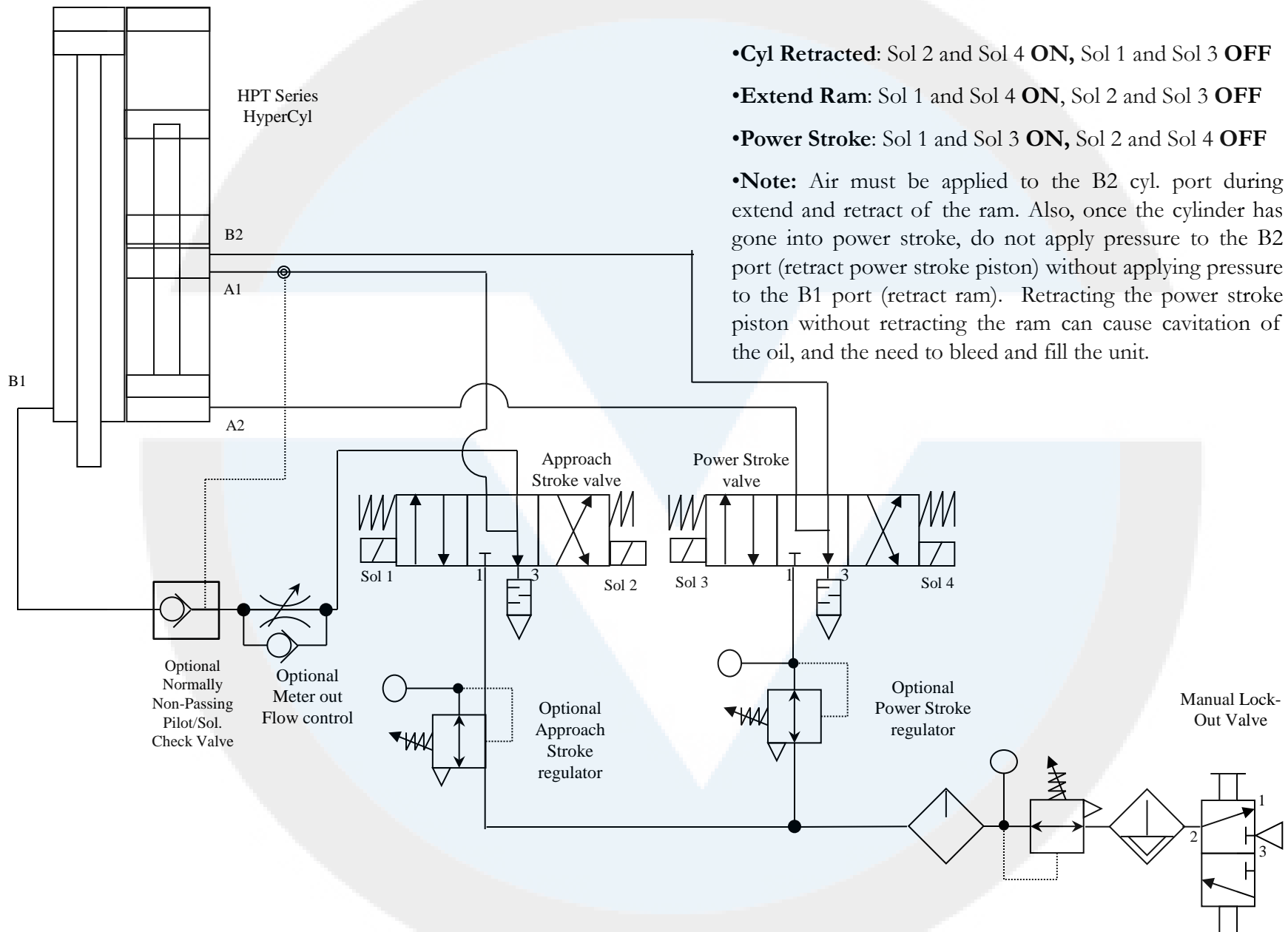
Optional
Power Stroke
regulator

Manual Lock-Out Valve

HPT 2-Position Spring Return with 2HNTD and PT



HPT 3-Position Open Center



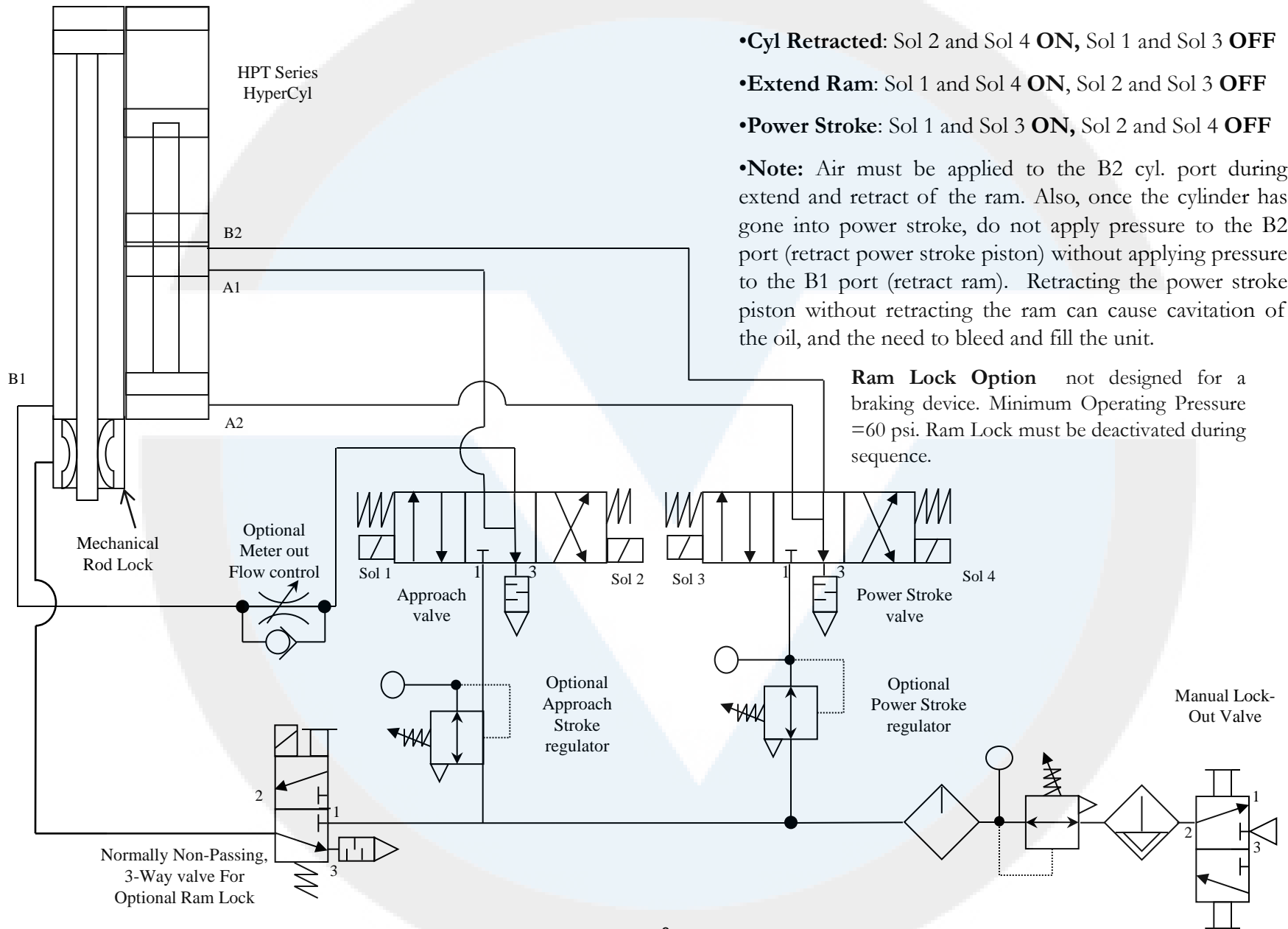
•**Cyl Retracted:** Sol 2 and Sol 4 **ON**, Sol 1 and Sol 3 **OFF**

•**Extend Ram:** Sol 1 and Sol 4 **ON**, Sol 2 and Sol 3 **OFF**

•**Power Stroke:** Sol 1 and Sol 3 **ON**, Sol 2 and Sol 4 **OFF**

•**Note:** Air must be applied to the B2 cyl. port during extend and retract of the ram. Also, once the cylinder has gone into power stroke, do not apply pressure to the B2 port (retract power stroke piston) without applying pressure to the B1 port (retract ram). Retracting the power stroke piston without retracting the ram can cause cavitation of the oil, and the need to bleed and fill the unit.

HPT 3-Position Open Center with Ram Lock



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