



Progressing Cavity Pump

Professional Variable Frequency Drive

Voltage rating: 380V to 480V, 50/60Hz

PVR Pro Series Variable Frequency Drives

Industry Power & Control for Artificial Lift Application



Modular design, Easy-to-use and Easy-to-maintain Variable frequency drive



Input power supply	3 phase 380V to 480V $\pm 10\%$, 50/60Hz $\pm 5\%$
Converter type	6 pulse diode rectifier
Input low harmonic	Built-in passive harmonic filter, THID-5% at full load ABB Ultra-low harmonic drive module integrated
Inverter type	IGBTs
Input current protection	Circuit breaker
Input surge suppression	IEC test classification / EN type: II/T2 Maximum continuous voltage: 350V(L-PE) I_{SCCR} : 50kA (max.200A gG) Voltage protection level: 1500V I_n : 20kA 8/20 μ s I_{max} : 40kA 8/20 μ s
Output voltage	The same as power supply
Output frequency	0 Hz to ± 598 Hz
Motor control	Direct Torque Control (DTC) or V/F control
Motor technology	Induction Motor (IM) and Permanent Magnet Motor (PMM)
Efficiency	>97% at full load
Power factor	0.98 at nominal load
Handling regenerative energy	Brake chopper and brake resistors
Overload rating	150% for 1min/5min
Certifications	ISO9001, ISO14001
Enclosure rating	IP55 [equivalent to NEMA3]
Cooling method	Forced air cooling
Altitude	0 to 1000m without derating
Ambient operating Temp.	-20 degC to 50 degC
Relative humidity	20% to 95% maximum(noncondensing)
H ₂ S protection	Conformal-coated PCBs & bus bars
Material	Carbon steel, the thickness is 2.5mm
Line-side termination	Circuit breaker's lugs in power junction box
Load-side termination	Lugs in power junction box
Operating interface	7" touched screen panel
Analog inputs/outputs	2 programmable analog inputs and expandable 2 programmable analog outputs and expandable
Digital inputs/outputs	6 programmable digital inputs 2 digital inputs/outputs 1 digital input interlock 3 programmable relay outputs

ABB drive module

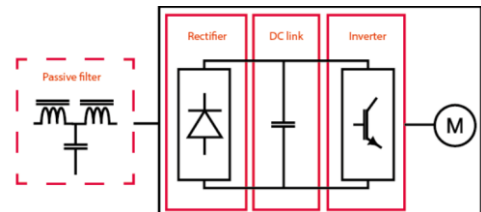


- + ABB flange (push through) mounting is designed for outdoor enclosure and harsh environment installations where dust and other impurities are present.
- + ABB drive modules include a built-in control software that is designed specifically for progressing cavity pump (PCP). This control software provides several features such as backspin control , pressure protection, level control and acceleration ramps that improve your production and help protect your pumping system.
- + Robust, long lifetime design for maximum reliability. Nine-year maintenance interval.
- + Coated circuit boards for harsh conditions. Each drive module factory-tested at full load.
- + Global product approvals, e.g. CE, UL, cUL, CSA, marine certifications, ATEX, support for various motor types, worldwide service and support.

Low harmonic solutions

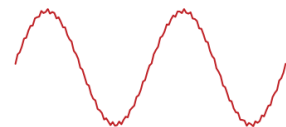
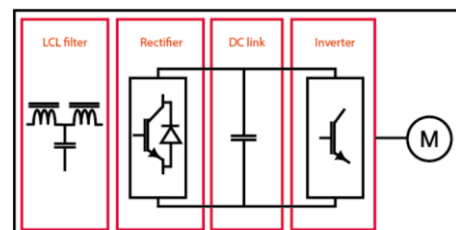
+ Passive Harmonic Filter solution

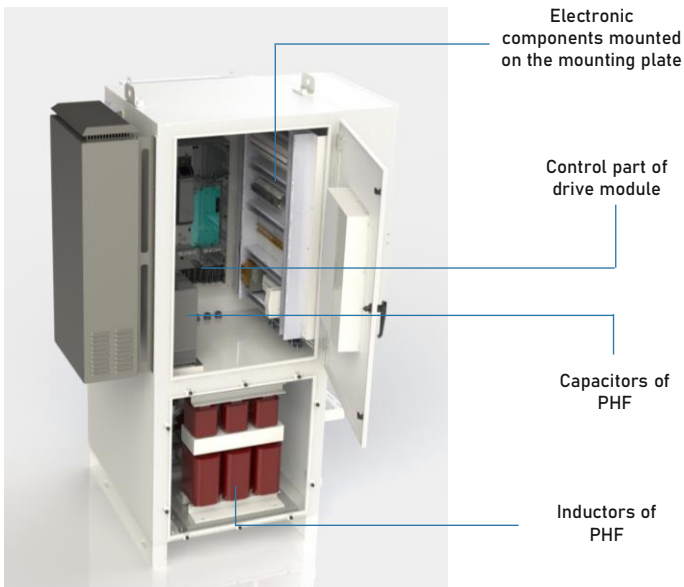
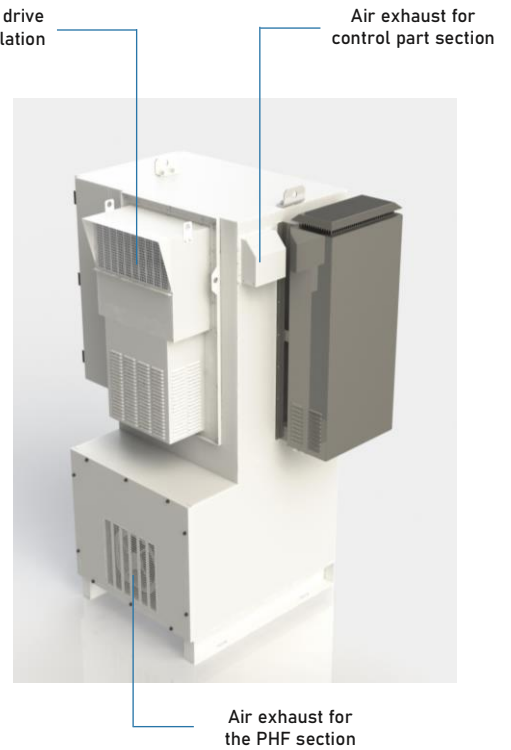
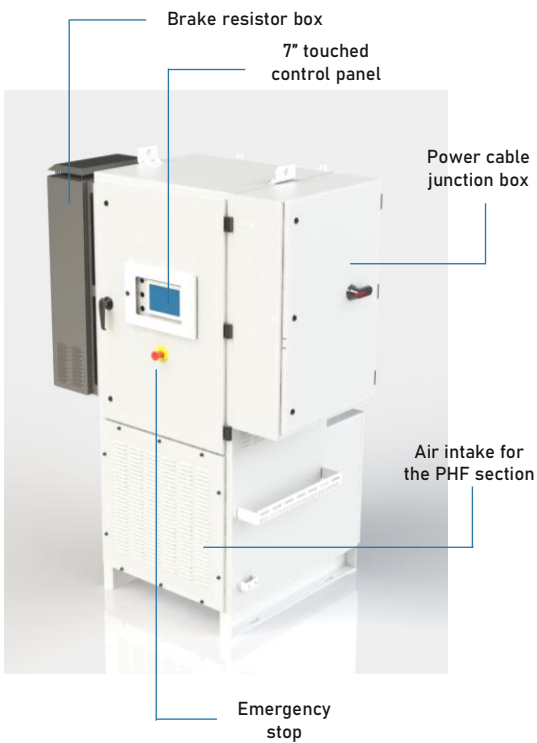
A passive filter VFD uses a combination of inductors and capacitors. The capacitors in the filter are charged from the power line. The drive module then draws its current from the capacitors when needed. The inductors between the capacitors and the power line prevent the current to the drive module from having a significant impact on the power line. This combination filters out the harmonic current distortion over a wide range but are generally tuned between the 5th and 7th harmonics where the highest magnitude of the harmonic content originates from.



+ Ultra-low harmonic solution

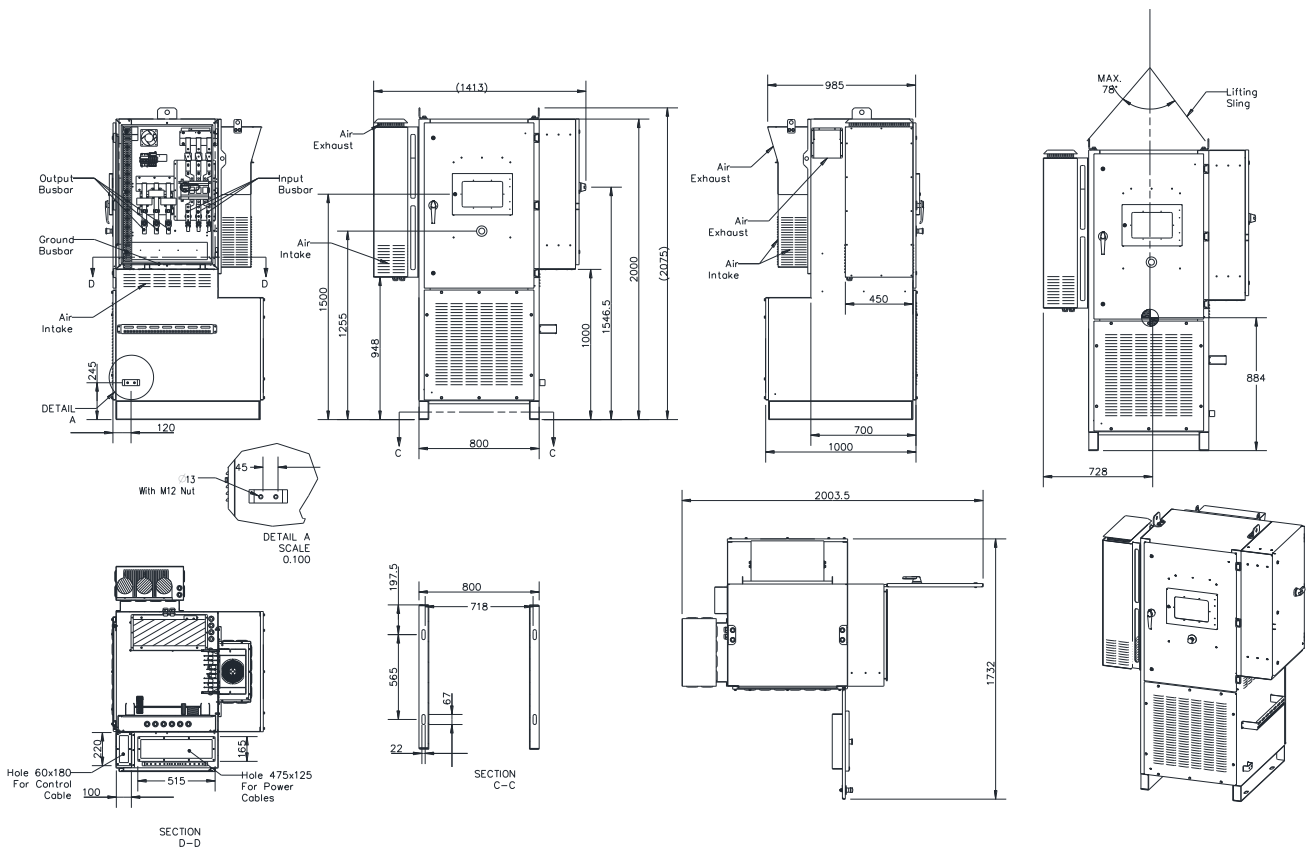
Instead of a conventional diode bridge, an ultra-low harmonic VFD has switching IGBT semiconductors on the supply side. The VFD can control the line current to a sinusoidal waveform. Additionally, the line filter used in an ultra-low harmonic VFD is designed to attenuate high-over voltage harmonics to achieve very low total distortion of both current and voltage.





- + The 6 pulse VFD and filtered 6 pulse VFD are standard products
- + Ultra-low harmonic VFDs are custom designed products
- + ABB ACS880 series drive module integrated
- + Standard brake chopper and brake resistors

The passive harmonic filter (PHF) with 6 pulse drive module solution



VFD rating	50HP (37kW)	75HP (55kW)	100HP (75kW)	150HP (110kW)	200HP (132kW)
Output current 6 pulse VFD/ PHF 6 pulse VFD / ultra-low harmonic VFD	65A	96A	124A	180A	240A
Overload capacity	150% 1min/5min	150% 1min/5min	150% 1min/5min	150% 1min/5min	150% 1min/5min
Dimension H×W×D [mm]	2075×1413×1000	2075×1413×1000	2075×1413×1000	2075×1413×1000	2075×1413×1000



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