

Condensers

Parr offers two styles of condensers for attachment to the head of a stirred reactor or pressure vessel. These can be made in various sizes to match the size of the reactor.

Reflux Condenser

The reflux condenser consists of a length of tubing connected directly to the head of a vessel and equipped with a water cooling jacket. Condensed vapors are returned directly to the vessel and any non-condensable gases can be released through a needle valve at the top of the condenser. A helical insert in the condenser ensures maximum effectiveness in a rather short length.

Reflux/Take-Off Condenser

The reflux/take-off condenser consists of the same water jacketed tube described above, assembled with a receiving vessel attached to the lower end of the condenser. Any vapor, such as water from a polymerization reaction, can be condensed and collected in the receiver, from which it can be withdrawn through a bottom valve. Any non-condensable gases can be released through a needle valve at the top of the condenser. If condensate

collection is not required, the receiver can be removed and the condenser can be mounted directly above the reactor for direct reflux into the vessel.

Modifications

Many users opt to install a ball valve at the head of the reactor below the condenser to use as a shut-off to the condenser. Alternate collection vessel volumes are available upon request.

The installation of a condenser on any of the Parr reactors requires a larger port in the head of the vessel, the size of which will vary with the volume of the reactor system. Due to the limited space on the 4560 mini reactors, either the gage opening or one of the cooling coil ports can be enlarged to 1/4" NPT for use with a condenser. This modification would then either combine the gage and condenser functions or eliminate the internal cooling loop to accommodate the condenser. Reactors with volumes of 1 liter and greater would be modified with a 3/8" NPT opening or larger depending on the reactor volume. The standard head fittings would be rearranged to accommodate this port.



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Reactor	Style	Note	Inner Tube O.D. Diameter, in.	Standard Receiver, mL	Part No.
4560 / 4590	Reflux/Take-off	Mod. Gage Opening 1/4" NPT	3/8	150	A2011HC
4560 / 4590	Reflux	Mod. Gage Opening 1/4" NPT	3/8		A2012HC
4560	Reflux/Take-off	Mod. Cool Coil Opening 1/4" NPT	3/8	150	A2013HC
4560	Reflux	Mod. Cool Coil Opening 1/4" NPT	3/8		A2014HC
4520 / 4530 / 4550	Reflux/Take-off	3/8" NPT	1/2	300	A2001HC
4520 / 4530 / 4550	Reflux	3/8" NPT	1/2		A2002HC
4530 HD*	Reflux/Take-Off	3/8" NPT	1/2	300	A2003HC
4530 HD*	Reflux	3/8" NPT	1/2		A2004HC
4540 / 4570 / 4580	Reflux/Take-off	3/8" NPT	3/8	300	A2016HC
4540 / 4570 / 4580	Reflux	3/8" NPT	3/8		A2017HC
4555	Reflux/Take-off	1/2" NPT	3/4	1000	A2018HC
4555	Reflux	1/2" NPT	3/4		A2019HC

*with HD Magnetic Drive