



China Array Plastics LLC

Injection Molders of High Performance Thermoplastics

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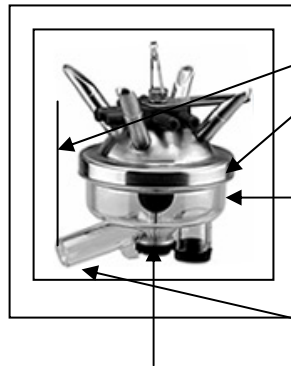
Application: Milk Collection Manifold for Commercial Dairy Farms

Material: Polyethersulfone (PES)

Chemical Resistant: the standard Clean-in-Place (CIP) protocol uses alkaline detergents and an acid rinse at 185° F. Part must also be impervious to milk fat.

Temperature Tolerant: manifold is exposed to temperatures ranging from 185° F for CIP cleaning to minus 40° F during the night in unheated milking parlors.

Wearability: Parts are used up to 20 hours per day 7 days a week in harsh conditions.



Dimensional Stability: plastic bowl connects to stainless top with quarter. Threads must accurately align outlet and claw body.

Clarity: visual inspection of milk flow requires long term transparency.

Impact & Tensile Strength: manifold must stand up to the impact of kicks and drops, as well as the torsion exerted by twisting hoses.

Precise Tolerances: a water tight and vacuum tight seal between the shutoff and the manifold is required to stop milk flow in the event of an unexpected drop off.

FDA Approved

Manufacturing in China Since 1980

<http://www.chinaarray.com>

A Milk Collection Manifold collects milk at the cow's udders and conveys it via hoses to a stainless steel milk line, which conveys it to the bulk storage tank. The part must meet a diverse set of challenges. Suspended from a 1200 pound cow where it can be kicked or dropped on the concrete milking parlor floor the manifold must be impact resistant. The unit must have high tensile strength to withstand the torsion caused by twisting hoses that connect it to the cow and the milk line. Transparency is required to allow visual observation of milk flow.

The unit needs to easily disassemble for cleaning and inspection. The plastic bowl threads into the stainless steel top with a quarter turn. Polyethersulfone's dimensional integrity and stability insures that the threads orient the milk outlet to the hoses for proper evacuation of the milk.

The twice daily Clean-in-Place (CIP) protocol utilizes alkaline detergent and an acid rinse at 185⁰ F. An especially effective plastic is required to stand up to this high temperature, watery mixture of acid and base. At the other extreme, the part must withstand temperatures down to - 40⁰ F: the overnight ambient temperature in a Wisconsin dairy parlor during the winter. Chemical resistance to milk fat is also a core requirement.

In the event of an unexpected drop off during milking, a shutoff valve drops down to seal off the manifold's outlet tube to prevent manure and debris from being sucked into the milk line, a crucial function of the manifold. Creating a water tight and vacuum tight seal between the shutoff and the body requires tight tolerance machining. Few plastics can be machined as precisely as PES.

The manifold is used up to 20 hours per day; 7 days a week. It needs to work without fail for years and to be reasonably price, and, of course, it must be FDA approved.

That a part with such a myriad of useful properties can be created is a testimony to Polyethersulfone's robust versatility.