

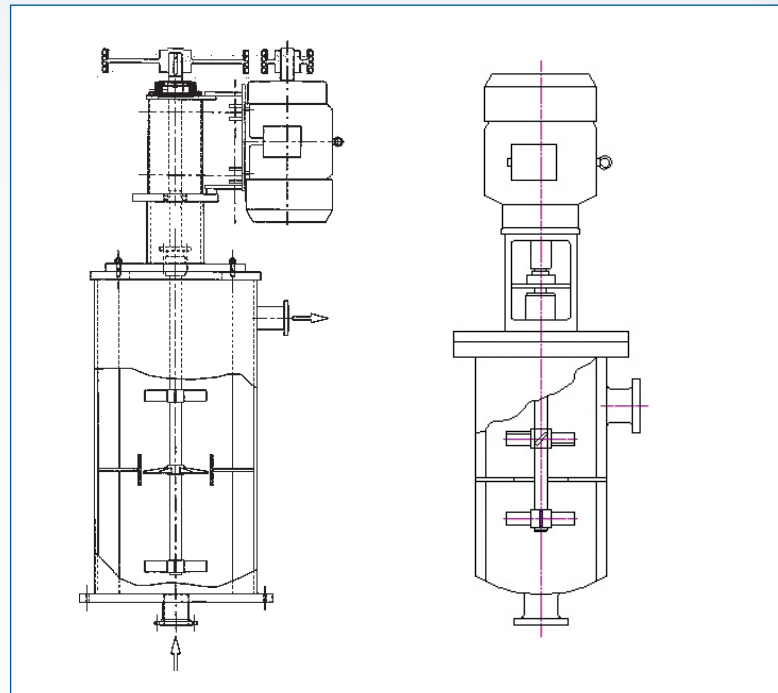
## MIX CONTINUOUSLY WITHOUT CONVENTIONAL MIXING TANKS

### Multi-Stage Dynamic In-Line Mixers

Applications for multi-stage in-line systems include:

- Blending of fluids with large differences in viscosity or specific gravity
- Dispersion of gases into the flow stream
- Blending of high viscosity materials
- Viscosity reduction of thixotropic fluids
- Critical neutralization processes
- Immiscible blending / Emulsion make-up
- Solid / liquid contacting

Multi-Stage In-line Mixers are employed on more critical or difficult applications. Horizontal plate(s) divide the vessel into separate mixing chambers, typically 2 or 3, to ensure intimate contact of all components is achieved. Vertical baffles in each chamber prevent swirl and promote optimum flow pattern to ensure product uniformity.



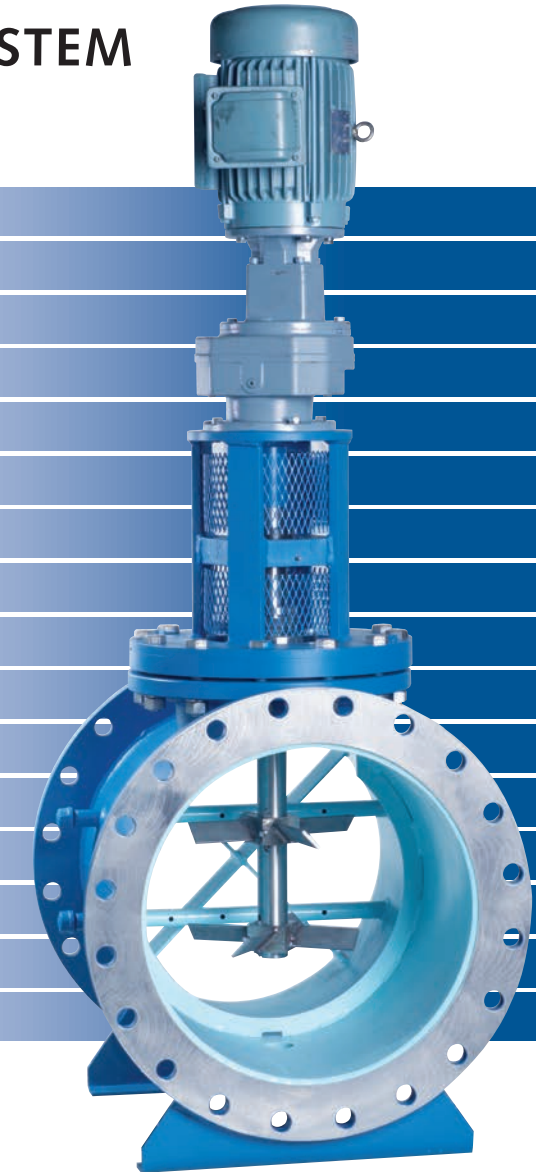
5 Brigden Gate, Halton Hills, ON L7G 0A3 Tel (905) 693-8595 Fax (905) 693-1452

haywardgordon.com  
info@haywardgordon.com

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## DYNAMIC IN-LINE SERIES RAPID MIXING SYSTEM



The Dynamic In-line Mixer provides violent, high shear mixing to ensure uniform mixing in short retention times.

www.haywardgordon.com



MIXERS

## DYNAMIC IN-LINE SERIES

### HIGH INTENSITY MIXING

The Hayward Gordon Dynamic In-line Mixing System ensures any chemicals added to the process pipeline are completely and uniformly dispersed throughout the flow stream. This device achieves uniformity not normally attainable with static in-line mixers. Numerous drive styles and seal configurations are available with sizes ranging from 6" diameter to mixing systems suitable for 54" pipelines.

Applications which require additives to be "flushed" into a process stream can benefit from this system which comes in a small footprint when compared to more conventional top entry mixers with their associated tank.

#### Typical Applications

**Water & Wastewater Treatment** – Flocculant dispersion, pH control, polishing and other dispersions of chemical additives

**Food Processing** – Blending of syrups, colourings and flavours

**Chemical Processing** – Rapid mixing of reactants, modifiers and fillers into the process flow stream

**Petroleum Refining** – Blending of fuel additives

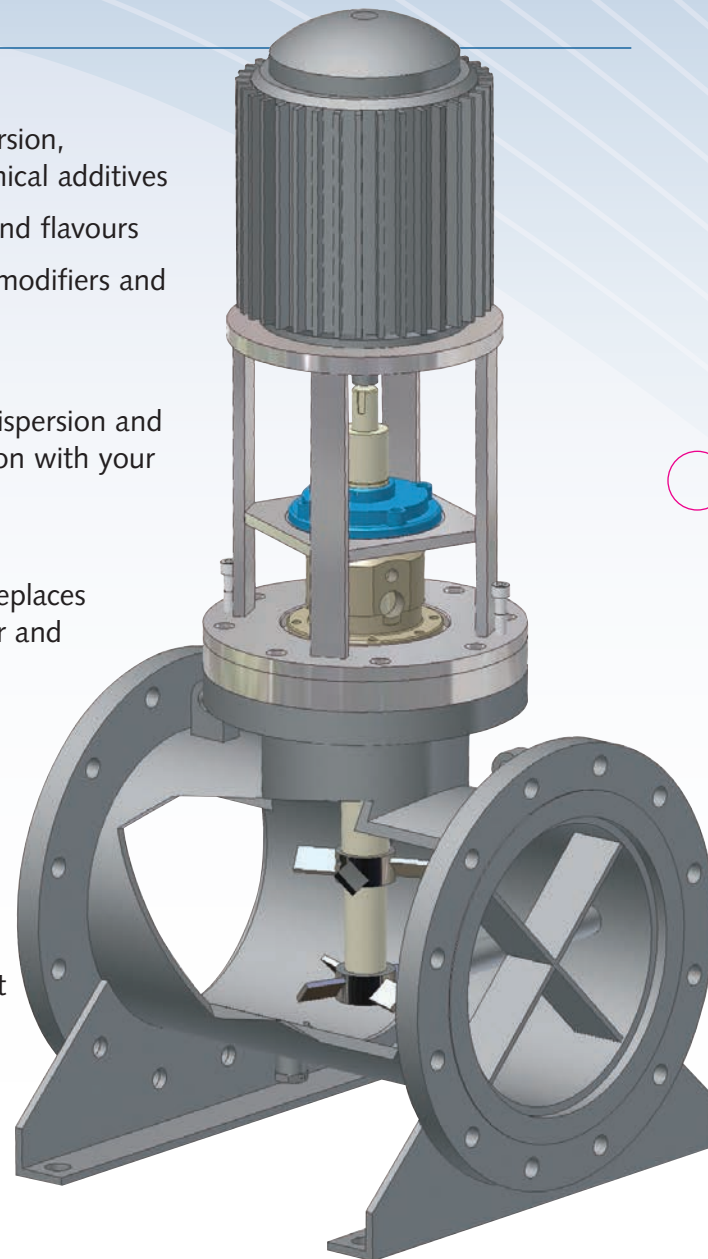
Dynamic In-Line Mixers can also be used for gas dispersion and high viscosity applications. Contact Hayward Gordon with your application requirements.

#### Cost Savings

- **Low Capital Cost** - The Dynamic In-Line Mixer replaces the need for a conventional tank, top entry mixer and the associated mixer support structure.
- **Space Saving** – Mixing is accomplished in a much smaller footprint than conventional top entry mixing systems.
- **Ease of Installation** – Flanged mixing chamber drops in as section of pipeline.

#### Drive Configurations

In-Line Mixers are available in direct, gear or V-belt driven arrangements depending on mixer size and customer preference. Oversized shafting is used to minimize deflections caused by the high intensity mixing and flow velocities through the vessel, which in turn maximizes seal life.



### DESIGN FEATURES

#### Vessel Design

Vessel internals including flow straightening vanes, baffles, separator plates and injection configurations promote optimum flow patterns to ensure quick and complete dispersion of additives and prevent short circuiting. The Hayward Gordon Dynamic In-line Mixing System ensures any chemicals added to the process are completely and uniformly dispersed throughout the flow stream.

#### Shaft Sealing

Numerous seal configurations are available, including:

- High Pressure Stuffing Box, normally consisting of 5 rings of packing, lantern ring and grease connections which can be used to pressures of 150 PSIG and temperatures to 300 °F. Note that stuffing boxes leak which should be considered when selecting the most appropriate sealing device.
- Single Dry Running Mechanical Seal which can be used to pressures of 75 PSIG and temperatures to 250 °F.
- Double Mechanical Seals are used on the most demanding applications where almost any pressure and temperature can be accommodated.

#### Impeller Designs

While many impeller styles are available, radial flow and pitched blade turbines (or a combination of these) are the most popular designs. These impellers have high shear performance characteristics which work in conjunction with the other vessel internals to ensure a uniform product leaves the mixing system.

