

GP 03-03-12	Oil Mist Lubrication Systems	July 2001
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Oil Mist Lubrication Systems

GP 03-03-12

Scope

[I] This Global Practice (GP) covers the Vendor's design and Purchaser's installation of oil mist lubrication systems.

[I] This Practice covers machinery applications to exclude atmospheric contamination. Such applications include the purging of oil reservoirs, gear casings, and bearing housings.

[I] An asterisk (*) indicates that a decision by the Purchaser is required or that additional information is furnished by the Purchaser.

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1. Required References

[I] This Section lists Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

1.1. American Society for Testing and Materials

ASTM A 53/A 53M	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 269	Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service

2. Definitions

Term	[I] Description
Application fittings	Also called reclassifiers, application fittings meter oil mist, convert oil mist to a spray, or condense oil droplets at lubrication points.
Dry sump lubrication	Also called pure mist, dry sump lubrication is an arrangement in which no oil level is maintained in the bearing housing. Lubrication is accomplished by condensing fresh oil from the mist on to the rolling bearing or anti-friction elements. The mist both lubricates the bearing and purges the housing.
Generator console	As referred to in this Practice, the generator console includes the oil mist generator, the generator oil supply system, the air supply moisture separator/filtering system, the oil mist outlet header, and the attendant controls and instrumentation. For dry sump applications it may also include a backup generator mounted directly to the generator console cabinet.
Oil mist	Oil mist is a dispersion of 1 to 3 μm sized oil droplets in an air stream.
Oil mist lubrication system	An oil mist lubrication system includes the mist generator console, distribution piping with supports, application fittings, bearing housing vents, and the central lubricant supply tank.
Purge mist lubrication	Purge mist lubrication refers to a wet sump arrangement. Normal bearing housing oil levels shall be maintained and atmospheric contamination excluded by introducing oil mist. The mist purges only the bearing housing. Bearing lubrication is by conventional oil bath, flinger, or oil ring.

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3. Design

3.1. Application

* [I] Application of oil mist lubrication systems for lubricating bearings and other machinery applications shall be specified.

- 1) [R] Oil mist systems shall be designed for both dry sump lubrication (pure mist) and purge mist; however, initial operation shall be with purge mist. Future conversion to dry sump lubrication shall be by the Owner's Engineer.
- 2) * [R] Oil mist lubrication systems shall not be applied for:
 - a) Any equipment where the properties of the mist oil are incompatible with the primary lubricant
 - b) Equipment with force-feed lubrication systems that operate continuously
 - c) *Electric motor drivers, unless otherwise specified

3.2. Requirements

- 1) [O], [R] The oil mist generator vendor shall assume overall engineering responsibility. Such responsibility shall include, but not be limited to, the selection and sizing of all system components and the approval of detail piping drawings.
- 2) [I] Air supply shall normally be from the plant instrument air system.
- 3) [O] The system shall be designed to ensure a homogeneous mist at the farthest application point. The piping run between the generator and lubrication point shall not exceed the Vendor's maximum recommended limit.
- 4) [R] The generator shall be designed to maintain a minimum of 20 in. H₂O (5 kPa) header pressure at the generator under rated flow capacity.
- 5) [R], [M] Minimum size application fittings shall be .045 in. (1.14 mm) in diameter.

3.3. Generator Consoles

- 1) [R] All dry sump applications shall have oil mist generator consoles equipped with a 100 percent capacity spare generating module.
- 2) [S] Enclosures for electrical equipment shall be appropriate for the specified area classification and environmental exposure.
- 3) * [R] If a spare console is specified to be installed, the spare unit shall not be located within the same process unit area.
- 4) Instrumentation shall be provided to monitor primary and standby generator conditions. Such instrumentation shall provide an alarm to remote locations in the event of malfunction.
- 5) [O] The following identification information shall be permanently mounted inside the generator console:
 - a) Operating characteristics over the specified flow range
 - b) Instrumentation set points

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