Equipment II
Lubricating Systems

Course Objectives

1. Describe the purpose and function of lubrication and the benefits to manufacturing equipment.
2. Explain why the right lubricant and right temperature are needed for a given application.
3. Distinguish between applications that typically require oil or typically require grease.
4. Describe a circulating oil system.
5. Describe the various grease delivery methods.

Key Terms (Define the following)

viscosity - _____

circulating oil system - _____

grease gun - _____

Copyright © 2013 | Regional Center for Advanced Manufacturing

Principles

Oil/Grease Comparison

Oil

- Fluid
- Lower viscosity
- Components move continuously
- Continuously supplied
- Effective to remove excess heat
- Main purpose is lubrication.

Example Applicatons:

- internal combustion engines
- turbine bearings

Grease

- Semi-solid
- Higher viscosity
- Components move periodically
- Infrequently supplied
- Non-effective to remove excess heat
- Main purpose is lubrication, but can also seal out dust and moisture.

Example Applicatons:

- valve stem packing
- sealed bearings

NLGI Grease Classifications

NLGI Number	ASTM Worked Penetration 0.1 mm (3.28 x 10^{-4} ft) @ 25 °C (77 °F)	Consistency
000	445 - 475	Semi-fluid
00	400 - 430	Semi-fluid
0	355 - 385	Very Soft
1	310 - 340	Soft
2	265 - 395	Common Grease
3	220 - 250	Semi -hard
4	175 - 205	Hard
5	130 - 160	Very hard
6	85 - 115	Solid

Copyright © 2013 | Regional Center for Advanced Manufacturing

Questions

1. What are the advantages to lubricating manufacturing equipment?

2. What happens to the viscosity of oil when it heats up?

3. Why is it important to use the right lubricant at the right temperature for an application?

4. Where would you find lubrication information for an application?

5. List the typical components of a circulating oil system.

6. List three applications in which grease might be used instead of oil as a lubricant.
   1) _____
   2) _____
   3) _____

7. List three types of grease applicators.
   1) _____
   2) _____
   3) _____

Copyright © 2013 | Regional Center for Advanced Manufacturing