

FUNDAMENTAL MANUFACTURING PROCESSES

Sheet Metal Stamping Dies & Processes-SD

SCENE 1.

SD58A, CGS: Die Lubrication
white text, centered on background
FMP BKG, motion background

SCENE 2.

SD59A, **SME4427**, **15:01:28:00-15:01:46:00**
stamping operation
SD59B, **SME2765**, **02:20:21:00-02:20:30:00**
stamping operation, pan to lubrication

NARRATION (VO) :

FRICITION IS INHERENT IN DIE CUTTING AND FORMING PROCESSES. FORCES APPLIED TO CUTTING AND FORMING TOOLS ARE TRANSFERRED TO THE SHEET METAL BY DIRECT CONTACT. FOR THIS REASON, LUBRICATION IS VITAL FOR SUCCESSFUL SHEET METAL FORMING.

SCENE 3.

SD60A, **SME2694**, **02:02:36:00-02:02:44:00**
c.u. lubricant being used in operation
SD60B, **SME2694**, **02:19:26:00-02:19:36:00**
c.u. lubricant
SD60C, **SME4392**, **01:27:37:00-01:27:54:00**
lubricant used to perform deep draw operation

NARRATION (VO) :

A LUBRICANT'S MAIN FUNCTION IS TO MINIMIZE SURFACE CONTACT BETWEEN THE TOOLING AND THE WORKPIECE. AS A RESULT, WORKPIECE SURFACE QUALITY IS DIRECTLY RELATED TO THE PROPERTIES AND BEHAVIOR OF LUBRICANTS.

SCENE 4.

SD61A, **SME4423**, **13:47:26:00-13:47:49:00**
zoom out, lubrication manually applied, drawing operation

NARRATION (VO) :

IN ADDITION TO PROVIDING A BOUNDARY BETWEEN DIE AND WORKPIECE, PROPER LUBRICATION WILL COOL BOTH COMPONENTS TO PREVENT METAL TO METAL ADHESION OR WELDING, AND CUSHION THE DIE DURING THE DRAW.

SCENE 5.

SD62A, SME4144, 15:17:46:00-15:18:20:00

zoom out, lubrication of sheet metal in progressive die operation

SD62B, CGS: Controlled Friction

Reduced Force

Reduced Power Requirements

Reduced Tooling Stresses

Extends Tooling Life

Improves Product Quality

NARRATION (VO) :

EFFECTIVE LUBRICATION RESULTS IN CONTROLLED FRICTION, REDUCED FORCE, POWER REQUIREMENTS, AND TOOLING STRESSES. PROPER LUBRICATION ALSO EXTENDS TOOLING LIFE, AND IMPROVES PRODUCT QUALITY BY ELIMINATING SURFACE DAMAGE.

SCENE 6.

SD63A, SME4003, 02:02:52:00-02:03:08:00

lubrication of part

SD63B, CGS: Type of Operations Performed

Tooling Design & Materials

Metal to be Formed

Press Speed

Lubricant Application Method

NARRATION (VO) :

CHOOSING THE PROPER LUBRICANT REQUIRES CAREFUL CONSIDERATION REGARDING THE TYPE OF OPERATIONS PERFORMED, TOOLING DESIGN AND MATERIALS, THE METAL TO BE FORMED, PRESS SPEED, AND THE LUBRICANT APPLICATION METHOD.

SCENE 7.

SD64A, SME2694, 02:20:00:00-02:20:10:00

light oil lubrication of part

SD64B, SME2695, 03:09:27:00-03:09:36:00

heavy drawing compound used in stamping operation

SD64C, CGS: Oil-Based

Water Soluble

Synthetic

NARRATION (VO) :

LUBRICANTS FOR STAMPING RANGE FROM LIGHT MINERAL OILS, TO HEAVY DRAWING COMPOUNDS. THESE LUBRICANTS CAN BE OIL-BASED, WATER SOLUBLE, OR SYNTHETIC.

SCENE 8.

SD65A, SME4428, 16:12:57:00-16:13:18:00

zoom in, lubrication of sheet metal in progressive die operation

NARRATION (VO) :

THE OBJECTIVE IN APPLYING THESE LUBRICANTS IS TO APPLY THE CORRECT TYPE WHERE NEEDED, AT THE RIGHT TIME, AND IN THE PROPER AMOUNT.

SCENE 9.

SD66A, SME4427, 15:18:39:00-15:19:03:00

sheet stock being lubricated

SD66B, CGS: Manual

Drip

Roller

Spraying

Flooding

NARRATION (VO) :

THE FIVE PRIMARY METHODS USED FOR

APPLYING DIE LUBRICANTS INCLUDE:

MANUAL,

DRIP,

ROLLER,

AND SPRAYING.

FLOODING.

SCENE 10.

SD67A, SME2694, 02:03:04:00-02:03:16:00

manual roller application of lubricant

SD67B, SME2764, 01:05:06:00-01:05:15:00

manual brush application of excessive
lubricant

NARRATION (VO) :

THE MOST BASIC LUBRICANT APPLICATION IS

DONE BY HAND, WITH A ROLLER, BRUSH, SWAB

OR SPONGE. MANUAL METHODS DO NOT REQUIRE

EXPENSIVE EQUIPMENT, BUT CAN BE

UNECONOMICAL BECAUSE OF WASTED

LUBRICANT, POOR UNIFORMITY AND EXCESSIVE

LABOR COSTS.

SCENE 11.

SD68A, SME2755, 01:24:55:00-01:25:15:00

drip application of lubricant

NARRATION (VO) :

DRIP APPLICATION SIMPLY ALLOWS THE

LUBRICANT TO DRIP CONTINUOUSLY ON THE

STOCK STRIP. IT CAN BE USED FOR SMALL

PARTS BEING BLANKED OR FORMED WITH

LIGHT-BODIED, EASY-FLOWING LUBRICANTS.

SCENE 12.

SD69A, SME4314, 07:09:52:00-07:10:22:00

roller coating of lubrication

SD69B, CGS: Unpowered

Plain

Powered

SD69C, SME4428, 16:27:58:00-16:28:23:00

zoom out, roller coating of lubrication

NARRATION (VO) :

ROLLER COATING OF LUBRICATION IS WIDELY

USED. THERE ARE THREE TYPES OF ROLLER

COATERS:

UNPOWERED,

PLAIN, WHICH IS UNPOWERED WITH A
RECIRCULATING SYSTEM,
AND POWERED.

THE PREFERRED POSITION FOR A ROLLER
COATER IS BETWEEN THE STOCK FEEDING
EQUIPMENT AND THE PRESS.

SCENE 13.

SD70A, SME4138, 09:18:00:00-09:18:15:00

zoom out, airspraying application of
lubricant

SD70B, SME2694, 02:19:42:00-02:19:55:00

alternate shot, airspraying application of
lubricant

SD70C, CGS: Airspray

Airless Spraying

Electrostatic

NARRATION (VO) :

SPRAYING SYSTEMS FOR APPLYING LUBRICANT
INCLUDE AIRSPRAY,
AIRLESS SPRAYING,
AND ELECTROSTATIC.

SCENE 14.

SD71A, SME3468, 04:01:10:00-04:01:41:00

wide, flood lubrication system used to
coat round blanks

SD71B, SME3468, 04:01:50:00-04:02:11:00

zoom out, flood lubrication system used to
coat round blanks

NARRATION (VO) :

THE FLOOD LUBRICATION SYSTEM
CONTINUOUSLY RECIRCULATES AND FILTERS A
LUBRICANT, ALLOWING A HEAVY FLOW VOLUME
TO BE USED WHEN NECESSARY, WITHOUT
WASTE.

SCENE 15.

SD72A, SME3210, 11:02:42:00-11:03:04:00

washing of stamped parts

SD72B, SME4393, 03:19:12:00-03:19:25:00

projection welding of bolts into stamped
fabrication

NARRATION (VO) :

AS IMPORTANT AS LUBRICANT APPLICATION
IS, REMOVING THE LUBRICANT AFTER THE
PART IS STAMPED IS JUST AS IMPORTANT TO
FACILITATE FURTHER PROCESSING SUCH AS
WELDING AND FINISHING.

--- FADE TO BLACK ---