

FUNDAMENTAL MANUFACTURING PROCESSES

Sheet Metal Stamping Presses - SP

SCENE 1.

, CGS: Press Feeding
white text, centered on background
FMP BKG, motion background

SCENE 2.

, **SME2757, 01:04:58:00-01:05:20:00**
pull back of stamping operation with sheet
metal fed to die
SP074A, SME4393, 03:09:29:26 - 03:09:55:07
sheet metal part fed from die
SP074B, SME4314A, 06:06:08:13-06:06:31:07
sheet metal part fed between presses

NARRATION (VO) :

NO MATTER WHAT TYPE OF PRESS IS USED,
SHEET-METAL STAMPING CANNOT BEGIN UNTIL
STOCK IS FED INTO THE DIE. A WIDE
VARIETY OF EQUIPMENT IS AVAILABLE TO
TRANSFER SHEET METAL MATERIAL TO...,
FROM...,
OR BETWEEN PRESSES.

SCENE 3.

, **SME2694, 02:11:24:00-02:11:32:00**
manually feeding blanks to press
, **SME2764, 01:02:42:00-01:03:02:00**
manually feeding blanks to press, hand
guards used while feeding

NARRATION (VO) :

THE FEEDING OF BLANKS OR PREVIOUSLY
FORMED STAMPINGS TO PRESSES IS
ACCOMPLISHED IN SEVERAL WAYS. ONE OF THE
MOST COMMON IS MANUAL FEEDING, WHICH IS
GENERALLY LIMITED TO LOW-VOLUME
PRODUCTION. MANUAL FEEDING REQUIRES THE
USE OF POINT-OF-OPERATION GUARDING OR
HAND FEEDING TOOLS TO KEEP OPERATORS'
HANDS AND FINGERS OUT OF THE DIE AREA.

SCENE 4.

, **SME2757, 01:04:45:00-01:04:56:00**
magazine/vacuum cup feeding blanks to
press by transfer unit
, **SME2757, 01:07:58:00-01:08:05:00**
robotic press loading
, **SME2757, 01:17:53:00-01:17:57:00**
robotic press unloading

NARRATION (VO) :

MAGAZINES HOLDING STACKS OF BLANKS CAN
BE FED AUTOMATICALLY ONE AT A TIME BY
VACUUM CUPS AND MOVED TO THE DIE BY

TRANSFER UNITS.

ROBOTS ARE ALSO USED FOR PRESS

LOADING...,

AND UNLOADING.

SCENE 5.

, **SME2756, 02:02:17:00-02:02:24:00**

sheet metal coil, wide

sheet metal coil

, **SME2756, 02:09:55:00-02:10:00:00**

sheet metal coil, thin

, **SME2760, 03:09:30:00-03:09:50:00**

coil stock feeder automatically feeding
press

NARRATION (VO) :

SHEET METAL STOCK IS OFTEN USED IN COIL
FORM. COILS ARE AVAILABLE IN VARIOUS
WIDTHS AND A RANGE OF THICKNESSES. COIL
STOCK IS FED INCREMENTALLY BETWEEN THE
DIE HALVES WITHIN THE PRESS BY A STOCK
FEEDER THAT OPERATES AUTOMATICALLY IN
SYNCHRONIZATION WITH THE PRESS CYCLE.

SCENE 6.

, **SME3548, 21:08:07:00-21:08:19:00**

pan, coil line feeding sheet metal to
press

NARRATION (VO) :

THE FEEDING OF SHEET METAL COIL STOCK IS
MORE EFFICIENT THAN FEEDING INDIVIDUAL
CUT BLANKS SINCE COILED MATERIAL ALLOWS
CONTINUOUS PROCESSING.

SCENE 7.

, **SME3528, 02:12:17:00-02:12:38:00**

pan of coil processing line

NARRATION (VO) :

USE OF COIL STOCK FOR FEEDING, HOWEVER,
REQUIRES INVESTMENT IN A COIL PROCESSING
LINE. SUCH LINES CAN VARY IN COST AND
COMPLEXITY, DEPENDING UPON THE
SOPHISTICATION OF THE COMPONENTS USED,
BUT ARE NECESSARY TO HANDLE THE WEIGHT
OF COILED MATERIAL.

SCENE 8.

, **SME3528, 02:28:18:00-02:28:27:00**

uncoiling of sheet metal

, CGS: Uncoiling

, **SME3528, 02:27:14:00-02:27:22:00**

NARRATION (VO) :

THE BASIC FUNCTIONS OF MOST COIL-

coil being straightened
, CGS: Straightening/
Leveling
, **SME3528, 02:24:46:00-02:24:54:00**
c.u. coil being fed to press
, CGS: Feeding
, **SME3528, 02:21:41:00-02:21:52:00**
zoom in, coil skeleton being chopped up
, CGS: Scrap Processing

PROCESSING LINES INCLUDE UNCOILING...,
STRAIGHTENING OR LEVELING THE COIL
STOCK...,
FEEDING COIL STOCK FOR PARTS
PROCESSING...,
AND SCRAP PROCESSING.

--- TOUCH BLACK ---

SCENE 9.
, CGS: Uncoiling
, **SME3529, 03:01:35:00-03:01:42:00**
uncoiling of sheet metal
, **SME3529, 03:12:19:00-03:12:31:00**
loading coil onto pay-off reel
, **SME3547, 20:19:44:00-20:19:52:00**
loading coil into cradle

NARRATION (VO) :

THE UNCOILING OF SHEET METAL ROLLS
BEGINS WITH LOADING COILS ONTO PAY-OFF
REEL SPINDLES...,
OR INTO CRADLES USING A VARIETY OF COIL
HANDLING DEVICES AND EQUIPMENT.

SCENE 10.
, CGS: Pay-Off Reels
, **SME3527, 01:04:07:00-01:04:20:00**
zoom out, pay-off reel dispensing coil
stock
, **SME3528, 02:26:18:00-02:26:23:00**
vertical pay-off reel
, **SME3528, 02:08:12:00-02:08:20:00**
horizontal pay-off reel
, **SME3533, 08:20:39:00-08:20:47:00**
vertical powered pay-off reel dispensing
coil stock
, **SME2755, 01:01:50:00-01:01:58:00**
non-powered pay-off reel dispensing coil
stock

NARRATION (VO) :

PAY-OFF REELS HOLD COILS ON THEIR INSIDE
DIAMETERS AND ARE USED EXTENSIVELY FOR
UNCOILING. PLATES OR ARMS ARE PROVIDED
TO CONTAIN STOCK IN THE REEL. PAY-OFF
REELS ARE AVAILABLE IN A VARIETY OF
STYLES AND ORIENTATIONS...,
AND CAN ALSO BE POWERED...,
OR NON-POWERED.

SCENE 11.
, CGS: Cradles
, **SME3548, 21:04:09:00-21:04:24:00**
cradle dispensing thick coil stock
, **SME3547, 20:25:40:00-20:25:55:00**
tilt up, cradle dispensing coil stock

NARRATION (VO) :

UNCOILING CRADLES SUPPORT COILS ON THEIR
OUTSIDE DIAMETERS WITH AIR- OR
HYDRAULIC-CUSHIONED SUPPORT ROLLS.
CRADLES ARE BEST SUITED FOR COILS OF

THICKER STOCK AND APPLICATIONS IN WHICH PROTECTION OF THE STOCK SURFACE IS NOT CRITICAL. CRADLES MAY BE POWERED OR NON-POWERED.

--- TOUCH BLACK ---

SCENE 12.

, CGS: Straightening/
Leveling

, **SME2755, 01:03:26:00-01:03:40:00**

pan from coil to stock
straightener/leveler, stock advancing
through

, **SME2760, 03:03:30:00-03:03:36:00**

c.u. stock straightener/leveler, stock
advancing through

, **SME3533, 08:06:55:00-08:07:11:00**

zoom in, coil stock running between
opposing rollers

NARRATION (VO) :

SHEET METAL STOCK, AS IT IS UNCOILED, HAS A SET, OR CURVATURE, WHICH THE STRAIGHTENER OR LEVELER REMOVES BY FLEXING THE MATERIAL BETWEEN OPPOSING, ADJUSTABLE ROLLERS AS IT MOVES TOWARD THE PRESS, THUS PROVIDING FLAT MATERIAL FOR FEEDING INTO THE STAMPING DIE.

--- TOUCH BLACK ---

SCENE 13.

, CGS: Feeding

, **SME2757, 01:07:58:00-01:08:05:00**

zoom out, slide feeding of coil stock

, CGS: Slide/Gripper Feeds

, **SME2760, 03:10:26:00-03:10:32:00**

press driven roll feeding of coil stock

, CGS: Roll Feeds

NARRATION (VO) :

THERE ARE NUMEROUS METHODS OF AUTOMATICALLY FEEDING SHEET METAL COIL STOCK, WITH THE PRIMARY TYPES BEING: SLIDE, OR GRIPPER, FEEDS..., AND ROLL FEEDS.

SCENE 14.

, CGS: Slide Feeds

, **SME2766, 04:05:25:00-04:05:39:00**

zoom out, slide feed, feeding coil

, **SME3547, 20:11:38:00-20:11:57:00**

zoom out, air slide feed reciprocating
along guide rod

NARRATION (VO) :

TYPICALLY, SLIDE FEEDS HAVE A GRIPPER ARRANGEMENT WHICH CLAMPS AND FEEDS THE COIL STOCK DURING ITS FORWARD MOVEMENT AND THEN RELEASES IT AND RETURNS FOR THE NEXT CYCLE. TO INSURE ACCURACY, MOST SLIDE FEEDS RECIPROCATE ON GUIDE RODS OR

SLIDES BETWEEN ADJUSTABLE POSITIVE
STOPS.

SCENE 15.
, **SME3547, 20:05:15:00-20:05:42:00**
pan, air slide feed processing coil to
press
, CGS: Press-Driven
Air
Hydraulic
Independently-Driven

NARRATION (VO) :

SLIDE FEEDS ARE AVAILABLE IN VARIOUS
TYPES INCLUDING:
PRESS-DRIVEN,
AIR,
HYDRAULIC,
AND INDEPENDENTLY DRIVEN SLIDE FEEDS.

--- TOUCH BLACK ---

SCENE 16.
, CGS: Roll Feeds
, **SME3533, 08:10:41:00-08:11:21:00**
zoom out, roll feeding on press

NARRATION (VO) :

ROLL FEEDS ARE THE MOST PREDOMINATE FEED
TYPE USED. ROLL FEEDS ADVANCE COIL STOCK
BY PRESSURE EXERTED BETWEEN
INTERMITTENTLY DRIVEN OPPOSED ROLLS,
WHICH ALLOW THE STOCK TO DWELL DURING
THE WORKING PART OF THE PRESS STROKE.

SCENE 17.
, **SME3533, 08:05:20:00-08:05:46:00**
zoom out, independently-powered
servomotor-driven roll feed
, **SME2760, 03:09:27:00-03:09:45:00**
zoom out, intermittent rotation of roll
feed

NARRATION (VO) :

ROLL FEEDS ARE AVAILABLE IN SEVERAL
TYPES AND A WIDE VARIETY OF SIZES
SUITABLE FOR ALMOST ANY WIDTH AND
THICKNESS OF STOCK. THEY CAN FEED IN
SHORT OR LONG LENGTHS, WITH HIGH SPEEDS
FOR SHORT INCREMENTS.

SCENE 18.
continue previous shot
, **SME3534, 09:04:13:00-09:04:37:00**
zoom out, independently-powered roll feed

NARRATION (VO) :

INTERMITTENT ROTATION, OR INDEXING OF
THE FEED ROLLS IN ONLY ONE DIRECTION,

CAN BE PRESS ACTUATED...,
OR BE INDEPENDENTLY POWERED.

SCENE 19.
continue previous shot
, CGS: Electric Motor
 Air
 Hydraulic
, **SME3528, 02:24:25:00-02:24:40:00**
zoom in, independently-powered servomotor-
driven roll feed

NARRATION (VO) :

INDEPENDENTLY POWERED ROLL FEEDS HAVE
SELF-CONTAINED ELECTRIC MOTOR,
AIR,
OR HYDRAULIC POWER DRIVES.
MOST POPULAR, HOWEVER, IS THE
SERVOMOTOR-DRIVEN, DIGITALLY CONTROLLED
ROLL FEED.

SCENE 20.
continue previous shot
, **SME3529, 03:03:01:00-03:03:19:00**
zoom out, servomotor roll feed running
independent of press

NARRATION (VO) :

BY COMBINING ADVANCED ELECTRONIC
CONTROLS WITH USER-FRIENDLY OPERATING
PROGRAMS, THE SERVOMOTOR-DRIVEN,
DIGITALLY CONTROLLED ROLL FEED BECOMES
AN INTELLIGENT ACCESSORY WITHOUT ANY
MECHANICAL INTERLOCK TO THE PRESS, THUS
PROVIDING THE FLEXIBILITY TO OPERATE
INDEPENDENTLY OF THE PRESS.

SCENE 21.
, **SME3528, 02:01:03:00-02:01:35:00**
zoom out, zig-zag feed coil being used in
stamping operation
, **SME3528, 02:11:07:00-02:11:34:00**
zoom in, zig-zag feed coil being used
, CGS: Joggle
 Zig-Zag
 Oscillating
 Shuttle

NARRATION (VO) :

TO PERMIT BETTER MATERIAL UTILIZATION,
VARIOUS FEED TYPES ARE USED IN
CONJUNCTION WITH SERVOMOTOR AND OTHER
INDEPENDENT FEEDERS. THESE FEEDS
INCLUDE:

JOGGLE,

ZIG-ZAG,

OSCILLATING,

AND SHUTTLE FEEDS.

SCENE 22.
continue previous shot
, **SME3529, 03:14:23:00-03:14:39:00**
zoom out, c.u. coil stock from zig-zag
feed

NARRATION (VO) :

THESE FEED UNITS SIMULTANEOUSLY ADVANCE
THE MATERIAL AND SHUTTLE IT FROM SIDE-
TO-SIDE SO THAT TWO OR MORE STAGGERED OR
NESTED BLANKS ARE PRODUCED, ONE PER
PRESS STROKE, ACROSS THE COIL WIDTH.

SCENE 23.
, **SME3529, 03:06:09:00-03:06:32:00**
zoom in, shuttle feed coil being used

NARRATION (VO) :

USING A WIDER COIL TO PRODUCE
INTERSPERSED BLANKS RESULTS IN A
REDUCTION IN SCRAP COMPARED TO USE OF A
NARROWER COIL THAT WOULD PRODUCE A
SINGLE BLANK WITH HIGHER UNIT MATERIAL
COSTS. THIS IS ESPECIALLY TRUE WHEN
PRODUCING ROUND OR IRREGULARLY SHAPED
BLANKS.

--- TOUCH BLACK ---

SCENE 24.
, CGS: Scrap Processing
, **SME3534, 09:05:56:00-09:06:14:00**
zoom out, coil be cut into scrap using the
die
, **SME2760, 03:12:03:00-03:12:16:00**
zoom out, press actuated scrap cutter

NARRATION (VO) :

ONCE COIL STOCK IS PROCESSED, IT IS
NECESSARY TO DISPOSE OF THE REMAINING
SKELETON AS SCRAP. SCRAP PROCESSING CAN
BE A FUNCTION OF THE STAMPING DIE
ITSELF, BUT CAN ALSO BE PERFORMED USING
SCRAP CUTTERS, OR CHOPPERS THAT HAVE
UPPER AND LOWER BLADES TO SHEAR UP THE
REMAINING MATERIAL.

SCENE 25.
, **SME2760, 03:11:10:00-03:11:30:00**

NARRATION (VO) :

press actuated scrap cutter
, **SME2755, 01:07:50:00-01:08:06:00**
free-standing scrap cutter cutting up coil
skeleton

SCRAP CUTTERS ARE TYPICALLY PRESS
ACTUATED...,
BUT ARE ALSO AVAILABLE AS FREE-STANDING
UNITS WITH INDEPENDENT POWER.

--- FADE TO BLACK ---