

FUNDAMENTAL MANUFACTURING PROCESSES

Sheet Metal Stamping Presses - SP

SCENE 1.

SP15A, CGS: Mechanical Presses
white text, centered on background
FMP BKG, motion background

SCENE 2.

SP16A, **SME4003**, **02:12:03:00-02:12:15:00**
large mechanical press
SP16B, **SME2766**, **05:02:43:00-05:02:50:00**
bench top mechanical press

multiple, tandem line press

NARRATION (VO) :

MECHANICAL SHEET METAL STAMPING PRESSES
VARY WIDELY IN SIZE. BENCH TOP PRESSES
ARE AMONG THE SMALLEST, AND ARE RATED AS
LOW AS FIVE TONS CAPACITY. EXTREMELY
LARGE, MULTIPLE OR TANDEM PRESS LINES,
RATED IN THOUSANDS OF TONS, ARE USED FOR
STAMPING VERY LARGE, COMPLICATED
WORKPIECES.

SCENE 3.

, **SME2764**, **01:07:42:00-01:07:55:00**
slow press stroke speed
very fast press stroke feed
very fast press stroke feed

NARRATION (VO) :

PRESS STROKE SPEEDS CAN VARY FROM 8 OR
10 STROKES PER MINUTE...,
TO OPERATING SPEEDS OF UP TO 1800
STROKES PER MINUTE. HIGH SPEED STAMPING
OPERATIONS REQUIRE DIE SET PROTECTION
SYSTEMS INCORPORATING SENSORS AND
CAMERAS TO MONITOR PUNCH AND DIE
ALIGNMENT AND THE FORCE GENERATED AS THE
DIE SET CLOSES.

SCENE 4.

, **SME2693**, **01:02:16:00-01:02:40:00**
tilt of mechanical gap-frame press
, CGS: Gap-Frame Press
mechanical straightside press

NARRATION (VO) :

BOTH MECHANICAL AND HYDRAULIC PRESSES
ARE COMMONLY CLASSIFIED BY THE DESIGN OF

, CGS: Straightside Press

THE FRAME THAT SUPPORTS THE MOVING
ELEMENTS OF THE PRESS. THE TWO
PREDOMINANT PRESS CONFIGURATIONS ARE THE
GAP-FRAME, SOMETIMES CALLED THE 'C'
FRAME...,
AND THE STRAIGHTSIDE PRESS.

SCENE 5.

SP19A, SME4428, 16:33:29:00-16:33:42:00
mechanical gap-frame press, showing 'c'
shape.

NARRATION (VO) :

THE PRINCIPAL FEATURE OF THE GAP-FRAME
CONFIGURATION IS ITS C-SHAPED THROAT
OPENING.

SCENE 6.

SP20A, SME4421, 12:09:27:00-12:09:41:00
mechanical gap-frame press
SP20B, SME2693, 01:24:37:00-01:24:45:00
mechanical straightside press
SP20C, SME2693, 01:01:48:00-01:02:12:00
mechanical gap-frame press, operating

NARRATION (VO) :

ADVANTAGES OF THE GAP-FRAME PRESS ARE
EASE OF ACCESS TO THREE SIDES OF THE DIE
AREA, AS WELL AS THE NEED FOR LESS FLOOR
SPACE THAN THE STRAIGHTSIDE PRESS. IN
PRESS FORCE CAPACITIES RANGING FROM 35
TO 60 TONS, GAP FRAME PRESSES MAY COST
APPROXIMATELY HALF AS MUCH AS
STRAIGHTSIDE PRESSES.

SCENE 7.

continue previous shot

ANI: 'c' frame mechanical press
experiencing angular deflection
SP021C, SME4421, 12:12:34:10 - 12:12:50:29
robust framed mechanical press, operating

NARRATION (VO) :

THE MAIN DISADVANTAGE OF THE GAP FRAME
PRESS IS AN UNAVOIDABLE ANGULAR
MISALIGNMENT THAT OCCURS DURING STAMPING
OPERATIONS. THIS DEFLECTION OF THE 'C'
FRAME CAN ONLY BE LIMITED BY VERY ROBUST
FRAME CONSTRUCTION, WHICH ADDS TO THE
WEIGHT AND COST OF THE MACHINE. IN MANY
APPLICATIONS, HOWEVER, THIS MISALIGNMENT

, **SME2760, 03:13:10:00-03:13:18:00**
'c' frame mechanical press experiencing
angular deflection

IS NOT A PROBLEM.

SCENE 8.

, **SME2760, 03:26:10:00-03:26:23:00**
wide, open back inclinable gap frame
press, zoom into base
, CGS: Open Back Inclinable
, **SME2692, 01:08:18:00-01:08:28:00**
wide, open back stationary gap frame press
producing parts
, CGS: Open Back Stationary
, **SME2755, 01:26:54:00-01:27:06:00**
parts blasted away from die with air

NARRATION (VO) :

THE FRAME OF THE OPEN BACK INCLINABLE,
OR 'OBI' STYLE OF GAP FRAME PRESS,
PIVOTS AT THE BASE. THIS FEATURE AIDS IN
FINISHED PART OR SCRAP DISCHARGE.
GENERALLY HOWEVER, THE OPEN BACK
STATIONARY, OR 'OBS' STYLE OF GAP
FRAME PRESS IS USED MORE OFTEN, WITH
PARTS REMOVED FROM THE DIE BY TIMED
BLASTS OF AIR, AUTOMATIC UNLOADING
DEVICES, OR CONVEYORS.

--- TOUCH BLACK ---

SCENE 9.

, **SME2756, 02:04:22:00-02:04:35:00**
mechanical straightside press constructed
with prestressed tie rods

NARRATION (VO) :

STRAIGHTSIDE PRESSES DERIVE THEIR NAME
FROM THE VERTICAL COLUMNS OR UPRIGHTS
LOCATED ON EITHER SIDE OF THE MACHINE.

SCENE 10.

continue previous shot,
ANI: straightside press constructed with
tie rods, dissolve to **(need to find)**
ANI: prestressed tie rods appear on
image **(need to find)**

NARRATION (VO) :

THE HOUSING, OR FRAME, OF MOST
STRAIGHTSIDE PRESSES IS HELD TOGETHER IN
COMPRESSION BY PRESTRESSED TIE RODS;
ALTHOUGH SOME STRAIGHTSIDE PRESSES HAVE
SOLID FRAMES.

SCENE 11.

, **SME2764, 01:01:36:00-01:01:56:00**
mechanical straightside press, operating,
zoom into die

NARRATION (VO) :

ANGULAR DEFLECTION DURING STAMPING IS
NOT AN ISSUE WITH STRAIGHTSIDE PRESSES.
FOR THAT REASON, DIMENSIONAL ACCURACY OF

STAMPED PARTS AND THE NEED FOR DIE
MAINTENANCE OFTEN IMPROVE WITH THE
SELECTION OF A STRAIGHTSIDE PRESS.

SCENE 12.

SP026A, SME4428 16:14:09:10 - 16:14:32:00
still, mechanical straightside press

SP026B, SME4428 16:14:55:00 - 16:15:05:00
mechanical straightside press, crown
highlighted(**need to find**)
, CGS: Crown

Cont. shot SP026A
mechanical straightside press, columns
highlighted(**need to find**)
, CGS: Columns

SP026C, SME4428 16:13:23:00 - 16:13:48:00
mechanical straightside press, bed
highlighted(**need to find**)
, CGS: Bed

Cont. shot SP026C
mechanical straightside press, bolster
highlighted(**need to find**)
, CGS: Bolster

NARRATION (VO) :

THE MAIN STRUCTURAL COMPONENTS OF A
STRAIGHTSIDE PRESS INCLUDE THE CROWN...,
THE COLUMNS...,
BED...,
AND BOLSTER.

SCENE 13.

, **SME2693, 01:10:07:00-01:10:28:00**
mechanical straightside press crown, shot
of motor, flywheel, clutch & brake in
crown, tilt down of columns

NARRATION (VO) :

THE CROWN SERVES MANY FUNCTIONS,
DEPENDING UPON THE DESIGN OF THE
MACHINE. TYPICALLY, THE MOTOR, FLYWHEEL,
CLUTCH AND BRAKE MOUNT ON THE CROWN. THE
CRANKSHAFT END BEARINGS MAY ALSO BE
LOCATED IN THE CROWN, OR IN SOME CASES,
IN THE COLUMNS.

SCENE 14.

, **SME2764, 01:19:03:00-01:19:07:00**
tilt, mechanical straightside press
columns up to crown
, **SME2764, 01:12:13:00-01:13:20:00**
c.u. gibs guiding slide
, CGS: Gib
, **SME2764, 01:03:28:00-01:03:43:00**
mechanical straightside press running

NARRATION (VO) :

THE COLUMNS SUPPORT THE CROWN, AND HAVE
ATTACHED, ADJUSTABLE GUIDES CALLED GIBS
THAT GUIDE THE SLIDE. THE GIBS ENSURE
PROPER PARALLELISM, SQUARENESS AND
SLIDING FIT BETWEEN PRESS COMPONENTS.

SCENE 15.
continue previous shot

NARRATION (VO) :

THE BED IS THE BASE OF THE MACHINE. IT
MUST REST ON A SOLID LEVEL FOUNDATION TO
ENSURE PROPER MACHINE FUNCTIONING.

SCENE 16.
, **SME2764, 01:09:57:00-01:10:07:00**
mechanical straightside press during
stamping
SP030B, SME4138, 09:06:17:10 - 09:06:31:20
mechanical straightside press bolster with
t-slots, worker securing die half

NARRATION (VO) :

THE BOLSTER ADDS STIFFNESS TO THE PRESS
BED AND ASSISTS IN SPREADING THE LOAD
EVENLY OVER THE BED'S STRUCTURAL
MEMBERS. THE BOLSTER HAS 'T' SLOTS OR
TAPPED HOLES TO PERMIT SECURE FASTENING
OF THE DIE.

--- TOUCH BLACK ---

SCENE 17.
, **SME2693, 01:11:51:00-01:12:13:00**
tilt of mechanical press, from motor to
slide

NARRATION (VO) :

IN A MECHANICAL PRESS, AN ELECTRIC MOTOR
SUPPLIES THE ENERGY NEEDED TO STAMP
PARTS. THERE ARE A NUMBER OF MOVING
PARTS THAT STORE, CONTROL AND TRANSMIT
THAT ENERGY TO THE DIE AND WORKPIECE.
THESE PARTS INCLUDE THE FLYWHEEL...,
GEARS...,
CLUTCH...,
CRANKSHAFT...,
PITMAN...,
CONNECTION...,
SLIDE OR RAM...,
COUNTERBALANCE...,
AND BRAKE.

ANI: press (**need to find**)
ANI: press feature highlighted(**need to find**)
, CGS: Flywheel
ANI: press feature highlighted(**need to find**)
, CGS: Gears
ANI: press feature highlighted, add
arrow(**need to find**)
, CGS: Clutch
ANI: press feature highlighted(**need to find**)
, CGS: Crankshaft
ANI: press feature highlighted(**need to find**)
, CGS: Pitman
ANI: press feature highlighted, add
arrows(**need to find**)
, CGS: Connection

ANI: press feature highlighted(**need to find**)
, CGS: Slide/Ram

ANI: press feature highlighted(**need to find**)
, CGS: Counterbalance

ANI: press feature highlighted, add arrows(**need to find**)
, CGS: Brake

SCENE 18.
, **SME2766**, 04:00:42:00-04:00:50:00
c.u. flywheel running
, CGS: Flywheel

NARRATION (VO) :

THE FLYWHEEL STORES THE ENERGY SUPPLIED
BY THE MOTOR.

SCENE 19.
, **SME2695**, 03:16:08:00-03:16:19:00
c.u. gears turning
, CGS: Gears

NARRATION (VO) :

THE GEARS REDUCE THE SPEED AND INCREASE
THE TORQUE DELIVERED BY THE FLYWHEEL
THROUGH THE CLUTCH. THIS IS KNOWN AS
GEAR REDUCTION.

SCENE 20.
, **SME2764**, 01:19:39:00-01:19:43:00
c.u. clutch running
, CGS: Clutch
, **SME2695**, 03:16:21:00-03:16:27:00
crankshaft turning
, CGS: Crankshaft
, **SME2756**, 03:01:22:00-03:01:28:00
c.u. eccentric drive
, CGS: Eccentric Drive

NARRATION (VO) :

THE CLUTCH CONTROLS THE COUPLING AND
TRANSMISSION OF THE FLYWHEEL'S ENERGY TO
THE CRANKSHAFT...,
OR ECCENTRIC DRIVE ON ECCENTRIC STYLE
PRESSES.

SCENE 21.
, **SME2695**, 03:16:45:00-03:16:54:00
c.u. pitman, connection working
, CGS: Pitman
, CGS: Connection
SP035B, **SME4421**, 12:38:30:15 - 12:38:49:00
c.u. eccentric drive running
, CGS: Eccentric Strap

NARRATION (VO) :

THE PITMAN TRANSMITS THE MOTION OF THE
CRANKSHAFT TO THE SLIDE BY MEANS OF A
BEARING KNOWN AS THE CONNECTION. ON
ECCENTRIC PRESSES THE ECCENTRIC STRAP
TRANSMITS THE MOTION.

SCENE 22.
, **SME2693**, 01:26:14:00-01:26:20:00

NARRATION (VO) :

wide, slide in operation
, CGS: Slide/Ram

THE SLIDE, OR RAM, IS WHAT THE UPPER DIE
IS FASTENED TO.

SCENE 23.
, **SME2693, 01:12:02:00-01:12:12:00**
c.u. counterbalance in operation
, CGS: Counterbalance

NARRATION (VO) :

THE COUNTERBALANCE OFFSETS THE WEIGHT OF
THE SLIDE, UPPER DIE AND ATTACHED
LINKAGE DURING PRESS OPERATION.

SCENE 24.
, **SME2694, 02:05:33:00-02:05:40:00**
brake stopping press, press beginning to
run, add arrow
, CGS: Brake

NARRATION (VO) :

THE BRAKE STOPS THE PRESS AND HOLDS THE
SLIDE AND ATTACHED MECHANISMS IN PLACE.

SCENE 25.
SP039A, SME4428, 16:13:32:15 - 16:13:45:00
straightside press
SP039B, SME4428, 16:31:19:00 - 16:31:33:15
wide of gap-frame press

NARRATION (VO) :

VARIOUS PRESS PARTS, SUCH AS THE PITMAN,
CONNECTION AND BOLSTER HAVE SIMILAR
FUNCTIONS IN BOTH STRAIGHTSIDE...,
AND GAP-FRAME PRESSES.

--- TOUCH BLACK ---

SCENE 26.
SP040A, SME4428 16:15:50:00 - 16:16:07:00
mechanical press motor

NARRATION (VO) :

SEVERAL DRIVE ARRANGEMENTS ARE USED ON
MECHANICAL PRESSES TO TRANSFORM THE
ROTARY MOTION OF THE DRIVE MOTOR,
THROUGH THE CRANKSHAFT, TO THE
RECIPROCATING MOTION OF THE SLIDE. THESE
ARRANGEMENTS INCLUDE:
DIRECT DRIVE,
SINGLE GEAR REDUCTION,
AND DOUBLE GEAR REDUCTION PRESSES.

, CGS: Direct Drive
Single Gear Reduction
Double Gear Reduction

SCENE 27.
, CGS: Direct Drive

NARRATION (VO) :

ANI: direct drive arrangement

IN NONGEARED OR DIRECT DRIVE PRESSES, THE FLYWHEEL IS MOUNTED TO THE END OF THE CRANKSHAFT AND DRIVEN BY BELTS FROM THE MOTOR. HIGHER OPERATING SPEEDS ARE POSSIBLE WITH THIS ARRANGEMENT THAN WITH GEARED TYPE DRIVES.

SCENE 28.
, **SME2760, 03:12:05:00-03:12:20:00**
mechanical press with direct drive,
stamping parts

NARRATION (VO) :

OTHER ADVANTAGES OF THIS SIMPLE DESIGN INCLUDE FEWER MOVING PARTS TO WEAR OUT AND LESS FRICTIONAL LOSS OF MECHANICAL ENERGY.

SCENE 29.
continue previous shot
, **SME2755, 01:22:29:00-01:22:46:00**
tilt of direct drive press from crown to
slide during downstroke

NARRATION (VO) :

CERTAIN FACTORS LIMIT APPLICATION OF THE DIRECT DRIVE, HOWEVER. THE FULL-RATED FORCE OF THE MACHINE IS ONLY AVAILABLE VERY CLOSE TO THE BOTTOM OF THE STROKE; AND THE ABILITY TO DELIVER RATED FORCES IS SUBSTANTIALLY REDUCED IF THE PRESS OPERATES AT LESS THAN FULL SPEED.

SCENE 30.
, CGS: Single Gear Reduction
ANI: single gear reduction drive

NARRATION (VO) :

IN SINGLE GEAR REDUCTION PRESSES, THE FLYWHEEL IS MOUNTED ON THE BACKSHAFT AND POWER IS TRANSMITTED THROUGH A PINION TO A MAIN GEAR MOUNTED ON THE CRANKSHAFT.

SCENE 31.
continue previous shot
ANI: angular misalignment
ANI: front of press, focus on ram tipping
alignment

NARRATION (VO) :

A PROBLEM OCCURS WITH SINGLE-END DRIVE PRESSES, HOWEVER. ANGULAR MISALIGNMENT,

PROPORTIONAL TO THE TORQUE TRANSMITTED THROUGH A CRANKSHAFT WITH TWO THROWS, CAUSES THE SIDE OF THE RAM NEAREST THE DRIVEN END OF THE CRANKSHAFT TO REACH BOTTOM DEAD CENTER BEFORE THE OTHER SIDE. THIS RESULTS IN A RAM-TIPPING ALIGNMENT ERROR.

SCENE 32.

ANI: angular misalignment remedy, crankshaft driven equally on both ends

ANI: angular misalignment remedy, eccentric drive
, CGS: Eccentric Gear

NARRATION (VO) :

ANGULAR MISALIGNMENT OF THE CRANKSHAFT IS AVOIDED WHEN THE CRANKSHAFT IS DRIVEN EQUALLY ON BOTH ENDS. THIS PROVIDES MORE ACCURATE ALIGNMENT UNDER LOAD THAN WITH SINGLE-END DRIVE SYSTEMS. ADDITIONALLY, THIS ANGULAR MISALIGNMENT IS NOT AN ISSUE ON ECCENTRIC-GEAR PRESSES, IN WHICH AN ECCENTRIC IS FASTENED TO THE MAIN GEARS, THEREBY ELIMINATING THE USE OF A CRANKSHAFT ALTOGETHER.

SCENE 33.

, CGS: Double Gear Reduction

ANI: double gear reduction drive arrangement
SP047B, SME4427, 15:02:07:00 - 15:02:18:00
deep draw operation

NARRATION (VO) :

DOUBLE GEAR REDUCTION PRESSES HAVE TWO GEAR REDUCTIONS FROM THE FLYWHEEL TO THE CRANKSHAFT. THESE MACHINES NORMALLY ACHIEVE A SPEED RANGE FROM 8 TO 20 STROKES PER MINUTE AND ARE USED FOR DIFFICULT APPLICATIONS SUCH AS HEAVY DEEP DRAWING, COLD FORGING AND FLANGING OF LARGE PARTS.

--- TOUCH BLACK ---

SCENE 34.

SP048A, SME4423, 13:31:29:15 - 13:31:51:15
mechanical stamping press operating
, **SME2764, 01:20:18:00-01:20:34:00**
clutch disengaged, press stopped
, **SME2764, 01:28:45:00-01:29:00:00**
pullout, clutch engaged, then disengaged

NARRATION (VO) :

CLUTCHES AND BRAKES ARE VITAL ELEMENTS OF A PRESS. VIRTUALLY ALL MECHANICAL PRESSES TRANSMIT THE ENERGY STORED IN THE FLYWHEEL TO THE SLIDE BY MEANS OF A CLUTCH MECHANISM. OTHERWISE THE SLIDE WOULD CYCLE CONTINUOUSLY WHENEVER POWER WAS APPLIED TO THE FLYWHEEL. WHEN THE CLUTCH IS NOT ENGAGED, THE SLIDE IS STOPPED AND MAINTAINED IN A STATIONARY POSITION BY A BRAKE.

SCENE 35.

, **SME2760, 03:07:25:00-03:07:36:00**
c.u. full revolution clutch, operating

NARRATION (VO) :

MANY OLDER PRESSES USE A MECHANICAL FULL-REVOLUTION CLUTCH WHICH, WHEN ACTIVATED, CANNOT BE DISENGAGED UNTIL THE CRANKSHAFT MAKES ONE COMPLETE REVOLUTION.

SCENE 36.

SP050A, SME4423, 13:30:35:14 - 13:31:05:15
air friction clutch
Continue shot SP050A above
air friction clutch

NARRATION (VO) :

MOST MODERN PRESSES ARE EQUIPPED WITH AN AIR FRICTION CLUTCH AND BRAKE ARRANGEMENT COMMONLY CALLED A PARTIAL REVOLUTION CLUTCH, WHICH CAN BE DISENGAGED AT ANY POINT IN THE STROKE BEFORE THE CRANKSHAFT HAS COMPLETED A FULL REVOLUTION. THE AIR FRICTION CLUTCH PERMITS RAPID, DEPENDABLE STOPPING AND ENGAGEMENT IN MID-STROKE.

--- TOUCH BLACK ---

SCENE 37.

ANI: mechanical press a specified distance
above bottom of stroke
, CGS: Force Capacity
SP051B, SME4428, 16:23:10:15 - 16:23:36:25
mechanical stamping presses operating
Cont, shot SP051B above
c.u. mechanical stamping presses operating

NARRATION (VO) :

THE FORCE CAPACITY OF A MECHANICAL PRESS
IS THE MAXIMUM FORCE THAT CAN BE EXERTED
AT A SPECIFIED DISTANCE ABOVE THE BOTTOM
OF THE STROKE BY THE DIES AGAINST A
WORKPIECE. IT IS EXPRESSED IN TONS OR
KILO-NEWTONS, AND IS OFTEN THE MAJOR
CONSIDERATION IN THE SELECTION OF A
PRESS.

SCENE 38.

continue previous shot
, CGS: Flywheel Energy
Torque Capacity

NARRATION (VO) :

OTHER CRITERIA THAT DETERMINE FORCE
CAPACITY OF A PRESS ARE FLYWHEEL ENERGY,
AND TORQUE CAPACITY.

SCENE 39.

SP053A, SME4423 13:30:34:00 - 13:31:08:00
c.u. flywheel turning, clutch engaged,
turning, stopping, flywheel turning,
clutch engaged, turning, stopping

NARRATION (VO) :

THE FLYWHEEL RECEIVES AND STORES ENERGY
FROM THE MOTOR UNTIL A CERTAIN AMOUNT IS
REMOVED BY EACH WORKING STROKE OF THE
PRESS. ONCE THE FLYWHEEL IS UP TO SPEED
AND THE PRESS IS NOT BEING CYCLED, THE
MOTOR NEED ONLY SUPPLY ENOUGH ENERGY TO
MAKE UP FOR FRICTIONAL LOSSES UNTIL THE
NEXT STROKE.

SCENE 40.

, **SME2693, 01:02:55:00-01:03:18:00**
pan through geared mechanical press
operating, from the flywheel, to the
gears, clutch, crankshaft, connection, and
slide, into the die

NARRATION (VO) :

TORQUE CAPACITY IS THE ABILITY TO
TRANSMIT THE ENERGY OF THE FLYWHEEL
THROUGH THE GEARS, CLUTCH, CRANKSHAFT,

CONNECTION AND SLIDE INTO THE DIE
WITHOUT EXCEEDING THE SAFE WORKING
CAPACITY OF ANY COMPONENT.

SCENE 41.

, **SME2694**, 02:05:22:00-02:05:30:00
flywheel on geared mechanical press

Split Screen

SP055A, SME4423, 13:31:26:00 - 13:31:50:00
gears of mechanical press operating

SP055B, SME, 13:31:59:02 - 13:32:24:00
Mechanical press operating

NARRATION (VO) :

GEARED PRESSES ALLOW THE FLYWHEEL TO BE
ROTATED FASTER WHILE THE SLIDE SPEED IS
REDUCED. GEARING DOES NOT INCREASE FORCE
OR ENERGY CAPACITY. THE GEAR RATIO IS
PRIMARILY A MEANS FOR OBTAINING AN
EFFICIENT FLYWHEEL SPEED.

--- TOUCH BLACK ---

SCENE 42.

, **SME2773**, 01:01:02:00-01:01:18:00
high speed mechanical press operating at
about 300 parts per minute

NARRATION (VO) :

THE DEFINITION OF HIGH-SPEED MECHANICAL
PRESS OPERATION, IN TERMS OF STROKES PER
MINUTE, IS NOT UNIVERSALLY AGREED UPON.
AS A GENERAL RULE, HIGH-SPEED OPERATION
INVOLVES PRESS SPEEDS OF 300 STROKES PER
MINUTE OR GREATER.

SCENE 43.

, **SME2773**, 01:08:01:00-01:08:27:00
high speed mechanical press producing
small parts at about 1000 parts per minute

NARRATION (VO) :

THE PRESS SPEED FOR SMALL HIGH-VOLUME
PARTS CAN EXCEED 2000 STROKES PER
MINUTE. HOWEVER, SUCH PRESSES GENERALLY
OPERATE AT 1000 TO 1400 STROKES PER
MINUTE FOR IMPROVED DIE LIFE AND
PERFORMANCE, MORE CONSISTENT WORKPIECE
QUALITY AND EASIER MATERIAL HANDLING.

SCENE 44.

, **SME2773**, 01:05:08:00-01:05:28:00

NARRATION (VO) :

high speed mechanical press producing parts

MACHINE SIZE AND PART CONFIGURATIONS ARE FACTORS AFFECTING PRESS SPEEDS, AS ARE INERTIA AND VIBRATION OF MOVING PARTS OF THE PRESS.

SCENE 45.

, **SME2773**, 01:03:35:00-01:03:57:00

high speed mechanical press, c.u. press & die operating

NARRATION (VO) :

COMMON FACTORS IN PRESSES DESIGNED FOR HIGH-SPEED OPERATION INCLUDE COMPACT ROBUST CONSTRUCTION, WITH SPECIAL ATTENTION GIVEN TO CLOSE FIT AND LUBRICATION OF BEARING SURFACES. EXCELLENT ALIGNMENT OF BOTH THE PRESS AND THE DIE IS CRITICAL, WITH THE PRESS AND DIE CONSIDERED AS A SINGLE SYSTEM.

--- FADE TO BLACK ---