

FUNDAMENTAL MANUFACTURING PROCESSES

Plastic Injection Molds

SCENE 1.

IM51A, GRAPHIC: Injection Mold Types
white text centered on black

SCENE 2.

IM52A, peter carey narration
IM52B, **tape 424, 18:01:33-18:01:41**
zoom out, cold-runner three plate
mold operating
IM52C, **tape 725, 12:28:53-12:29:02**
zoom out, hot runner mold operating
IM52D, **tape 424, 18:11:35-18:11:57**
zoom in, cold-runner two-plate mold
operating
IM52E, CGS: Cold-Runner Two-Plate
Mold
Cold-Runner Three Plate
Mold
Hot-Runner Mold
Insulated Runner Mold

NARRATION (VO) :

OVER TIME, MANY DIFFERENT MOLD TYPES HAVE BEEN
DEVELOPED THAT MEET SPECIFIC INJECTION MOLDING
REQUIREMENTS. THESE MOLD DESIGNS INCLUDE:
THE COLD-RUNNER TWO-PLATE MOLD,
THE COLD-RUNNER THREE PLATE MOLD,
THE HOT-RUNNER MOLD,
AND THE INSULATED RUNNER MOLD.

SCENE 3.

IM53A, CGS: Cold-Runner Two-Plate
Mold
IM53B, ANI: cold-runner two-plate
IM53C, **tape 399, 03:11:45-03:11:55**
parts separated from by-products
which are reground

NARRATION (VO) :

THE COLD-RUNNER TWO-PLATE MOLD CONSISTS OF TWO
PLATES WITH THE MOLD CAVITY AND CORE MOUNTED
IN THEM. THE COLD RUNNER SYSTEM MOLDS THE
SPRUE, RUNNERS AND GATE ALONG WITH THE PARTS.
AFTER EJECTION, THE PARTS ARE REMOVED FROM THE
RUNNER SYSTEM, WHICH IS REGROUND.

SCENE 4.

IM54A, CGS: Cold-Runner Three Plate
Mold
IM54B, **tape 424, 18:03:32-18:03:40**
cold-runner three-plate mold
operating
IM54C, GRAPHIC: cold-runner three-
plate mold
IM54D, GRAPHIC: cold-runner three-
plate mold, stripper plate
highlighted
IM54E, GRAPHIC: cold-runner three-
plate mold, middle plate highlighted
IM54F, GRAPHIC: cold-runner three-

NARRATION (VO) :

THE COLD-RUNNER THREE PLATE MOLD USES THREE
PLATES TO MOLD THE PART. THESE PLATES INCLUDE
THE STRIPPER PLATE, WHICH CONTAINS THE
SPRUE...,
THE MIDDLE OR CAVITY PLATE, WHICH HOLDS THE
CAVITY, RUNNER AND GATE...,

plate mold, movable plate
highlighted

AND THE MOVABLE PLATE, WHICH HOLDS THE MOLDED
PART.

SCENE 5.

IM55A, ANI: cold-runner three-plate
mold

NARRATION (VO) :

THIS TYPE OF COLD RUNNER MOLD DESIGN
AUTOMATICALLY SEPARATES THE RUNNER SYSTEM FROM
THE PART AS THE MOLD OPENS, AND IS VERY EASY
TO AUTOMATE.

SCENE 6.

IM56A, CGS: Hot-Runner Mold
IM56B, GRAPHIC: c.u. hot-runner mold
IM56C, GRAPHIC: arrow
IM56D, ANI: c.u. hot-runner mold,
runner area, zoom out as mold opens

NARRATION (VO) :

THE HOT-RUNNER MOLD USES AN ELECTRICALLY
HEATED MANIFOLD THAT KEEPS THE MOLTEN
THERMOPLASTIC IN THE RUNNERS AT THE SAME
APPROXIMATE TEMPERATURE AS THE HEATING
CYLINDER.

SCENE 7.

continue animation
IM57A, **tape 726, 13:06:01-13:06:11**
zoom out, hot-runner mold producing
part

NARRATION (VO) :

THE HEATED RUNNER SYSTEM IS CONTAINED IN A
PLATE OF ITS OWN AND DOES NOT OPEN DURING
EJECTION. BECAUSE OF THIS, HOT-RUNNER MOLDS
GENERATE NO RUNNERS OR SPRUES. FOR THIS REASON
HOT-RUNNER MOLDING, ALSO KNOWN AS 'RUNNERLESS'
MOLDING, IS FAST AND EFFICIENT, AND MAY REDUCE
CYCLE TIMES BY 25% OR MORE.

SCENE 8.

IM58A, CGS: Insulated Runner Mold
IM58B, ANI: wide, insulated runner
mold
IM58C, ANI: c.u. insulated runner
mold, runner area
IM58D, GRAPHIC: c.u. insulated
runner mold, runner area, last frame
of animation
IM58E, GRAPHIC: c.u. insulated
runner mold, runner area, thickened
runner

NARRATION (VO) :

THE INSULATED RUNNER MOLD IS MUCH LIKE THE
HOT-RUNNER MOLD BUT IT USES A LARGE DIAMETER
RUNNER, AND NO HEATERS. DURING INJECTION, THE
OUTER SURFACE OF THE RUNNER FREEZES. THIS
INSULATES THE CENTER MATERIAL, KEEPING IT AT

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THE MOLDING TEMPERATURE.

--- FADE TO BLACK ---