



**Keats**

**Southwest**  
El Paso, Texas

# LEAN MANUFACTURING SINGLE MINUTE EXCHANGE OF DIES REDUCTION OF SETUP TIME



## BACKGROUND

Keats Southwest was founded in 1994 at El Paso, Texas. Keats produces high precision small metal stampings used in a variety of applications including automotive, power distribution, consumer goods, medical and appliance.



## PROBLEM

Longer setup times on progressive die presses.

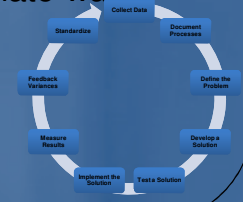


## OBJECTIVE

Develop and implement a process for reduction of setup times on progressive die presses by 50%.

## METHODOLOGY

- Single Minute Exchange of Die (SMED)
  - Videotape process
  - Brainstorming
  - Convert internal to external elements
  - Identify and eliminate waste
- Principles of 5S
  - Standardize



## RESULTS

Setup time reduction of 75.41 minutes, 84% from the original time.

| Seq No | Event                                     | Elapsed Time | Event Time |
|--------|-------------------------------------------|--------------|------------|
| 1      | Remove small plate                        | 3.0          | 3.0        |
| 2      | Attach small plate                        | 4.5          | 1.5        |
| 3      | Remove all work from plate & from machine | 6.1          | 1.6        |
| 4      | Remove clamps (4)                         | 7.1          | 1.0        |
| 5      | Remove die                                | 8.2          | 1.1        |
| 6      | Remove all work from plate & from die     | 9.4          | 1.2        |
| 7      | Attach new work from plate to new die     | 12.5         | 2.9        |
| 8      | Attach new die                            | 22.1         | 9.6        |
| 9      | Feed all material                         | 31.6         | 9.5        |
| 10     | Inspect raw material                      | 45.3         | 13.7       |
| 11     | Place material in container (1)           | 60.3         | 15         |
| 12     | Place material in container (2)           | 62.3         | 2.0        |
| 13     | Get material from container               | 80.8         | 18.5       |
| 14     | Place material in container on board      | 88.8         | 8.0        |
| 15     | Feed material into die & get output       | 89.6         | 8.1        |
| Total  |                                           | 89.6 min     |            |

| Seq No | Event                                         | Elapsed Time | Event Time |
|--------|-----------------------------------------------|--------------|------------|
| 1      | Get material                                  | 0.23         | 0.23       |
| 2      | Remove all work from plate & from machine     | 0.39         | 0.16       |
| 3      | Remove clamps (4)                             | 1.39         | 1.0        |
| 4      | Remove die                                    | 1.97         | 0.58       |
| 5      | Attach new die                                | 5.25         | 3.28       |
| 6      | Feed all material (5 min) (same as with No 5) | 2.41         |            |
| 7      | Inspect raw material                          | 9.35         | 4.10       |
| 8      | QC inspection                                 | 13.86        | 4.51       |
| 9      | Feed material into die & get output           | 14.19        | 0.33       |
| Total  |                                               | 14.19 min    |            |

- 4 activities were eliminated.
- 3 activities were converted from internal to external.

## TEAM MEMBERS



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