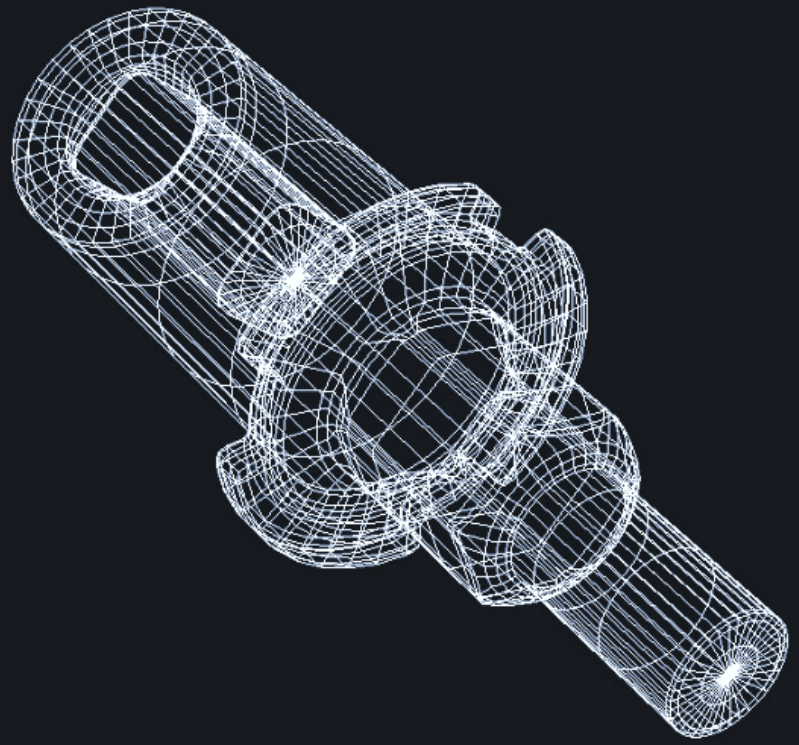
SOLUTIONS

VA / VE Case Studies



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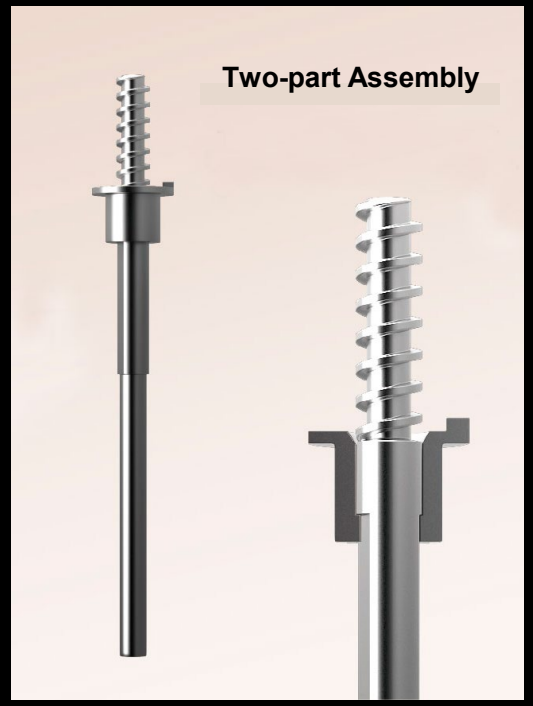
CASE1. Cost reduction

- Cost reduction through change from 2 part assembly to singularly formed piece

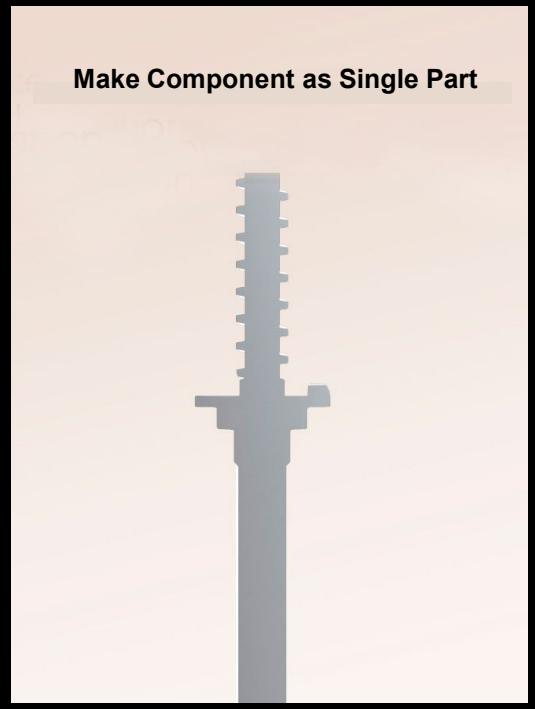
BEFORE (Orijinal Design)



This part was originally designed as a combined two-part assembly which led to cost and lead-time problems.

User Needs
I want to reduce costs for this product !

VAE PROPOSAL



After assessing the final usage of the part with the customer, it was concluded that a single-piece cold formed part could be used in place of the original two-piece machined assembly.

AFTER (Results)

Parts costs :
50% Reduction

Lead-time :
50% Reduction

CASE2. Accuracy Improvement

- A more accurate product through new two-part production and assembly

BEFORE (Orijinal Design)

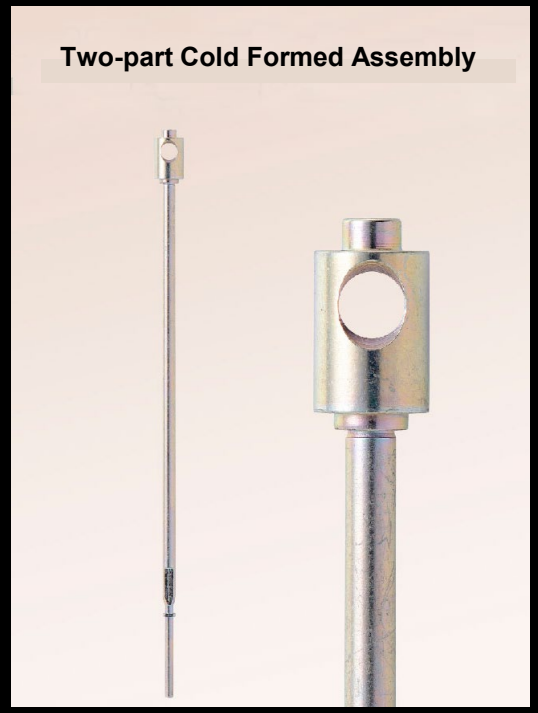
This part was prone to concentricity errors, which may have affected the functionality of the final product.

User Needs
I want to improve the precision of this part !

VAE PROPOSAL

A study was conducted to see if this component can be split into a head part and a shaft part, which, when assembled, may provide the required concentricity more dependably than the original single-piece component.

AFTER (Results)



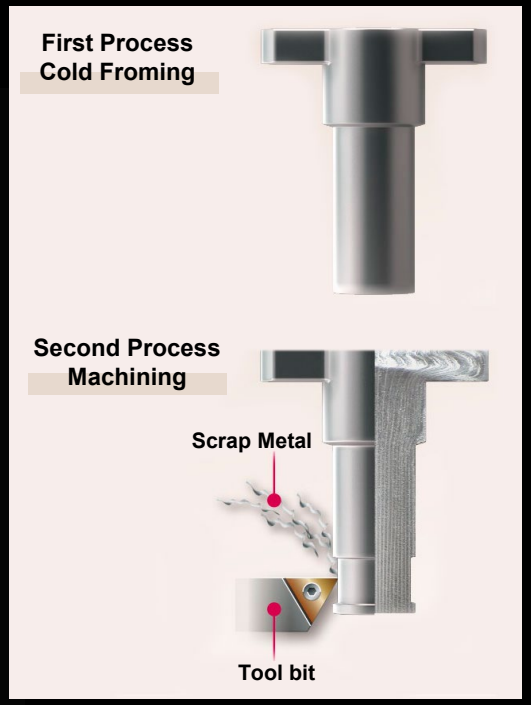
Precision Requirement :
No more concentricity issues.

Percentage of rejected parts by user :
0 %

CASE3. Eco-Friendly Production

- Increased eco-friendliness via singular cold forming process

BEFORE (Orijinal Design)



This part was originally manufactured in a two-step process, which led to increased scrap production and emissions.

User Needs
I want to make my product eco-friendly.

VAE PROPOSAL

Manufacture part on a single machine using cold forming.

AFTER (Results)

Annual reduction of scrap :

190 kg

CO_2 emission :

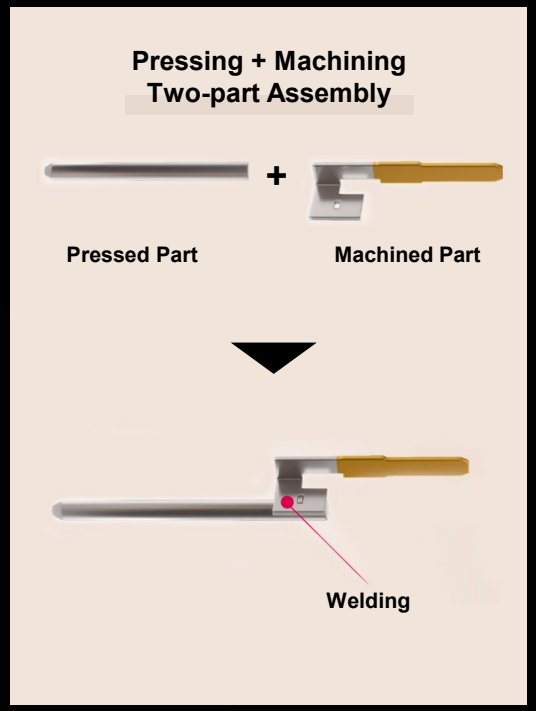
80% Reduction

*calculated by energy cost savings

CASE4. Quality Improvement

- Former two-part assembly consolidated to produce one simplified, quality part

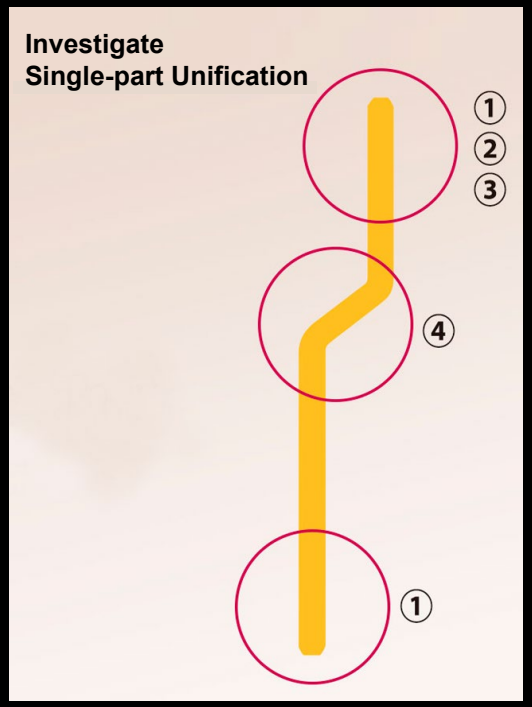
BEFORE (Orijinal Design)



This part was originally designed as a welded two-part assembly, which led to lead-time and durability problems.

User Needs
I want to improve the part's accuracy !

VAE PROPOSAL



Create a single cold formed part, and integrate the entire production process to be in-house.

① Chamfering
② Flattening
③ Trimming
④ Bending

AFTER (Results)

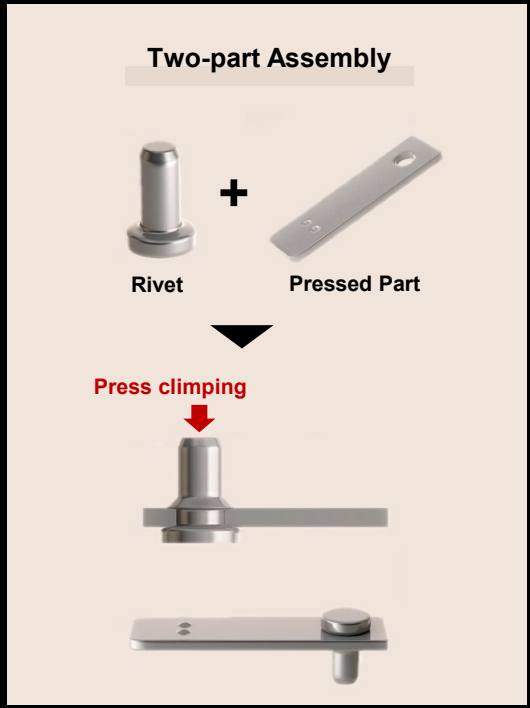
Lead-time :
60% Reduction

Endurance :
5x stronger part

CASE5. ECO Friendly Production

- Increased eco-friendliness through unification of separate parts into one formed piece

BEFORE (Orijinal Design)



Two-piece assembly where a stamped plate and a cold formed shaft were fastened together (crimped).

User Needs
I want to make my product eco-friendly.

VAE PROPOSAL

Create a single piece cold formed part to eliminate the need for crimping and reduce scrap.

AFTER (Results)

Scrap metal :
10.1t Reduction

CO_2 emission :
84.3% Reduction

*calculated by energy cost savings

CASE6. Cost reduction

- Cost and lead-time reduction through elimination of machining steps and mono-component process

BEFORE (Orijinal Design)

Two-part Assembly

【Manufacturing Process】

1. Machining

2. Machining

3. Pin insection

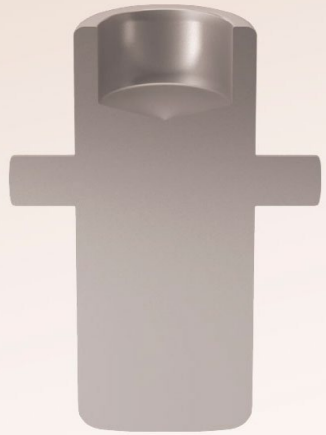
4. Stamping

This part was originally manufactured in a multi-step process, which led to cost and lead-time problems.

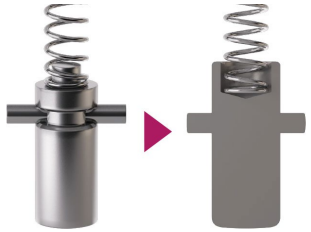
User Needs
I want to reduce costs for this product !

VAE PROPOSAL

Investigate
Single-part Unification



Simultaniously propose a new shape for the hole that holds the spring.



AFTER (Results)

Single Cold Formed Part

Parts cost :

30% Reduction

Lead-time :

50% Reduction

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