SPIROL®

WHITE PAPER

How to Control Shim Tooling Costs

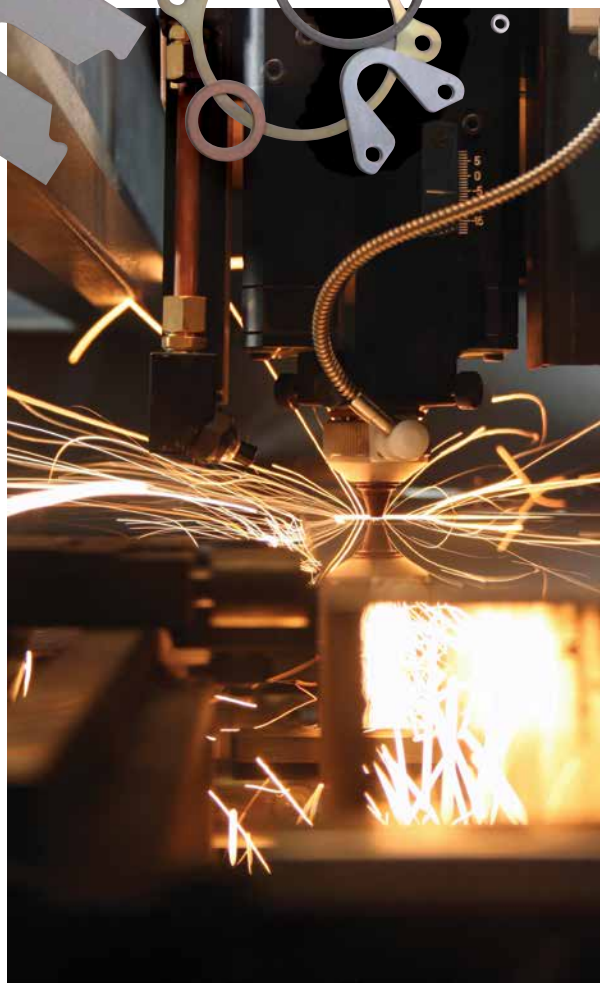
by Christie L. Jones, Market Development Manager
SPIROL International Corporation

SPIROL *has several manufacturing methods that eliminate or greatly reduce tooling expenditures.*

Shim tooling costs are one of the quickest ways to drive a prototype or short-run production project over budget. **SPIROL** has several manufacturing methods that eliminate or greatly reduce tooling expenditures. Whether a project is for prototype, short run or long term requirements, **SPIROL** has a solution to minimize the installed component costs by controlling tooling costs. The following explains some of **SPIROL**'s production technologies that are used to manufacture Shims, and when each is most advantageous:

S.W.A.T.
(Stamping Without A Tool)

SPIROL's proprietary stamping process produces burr-free thin metal parts from .001" to .010" thick with simple or complex shapes. S.W.A.T. is great for aluminum, brass, steel or stainless steel parts. S.W.A.T. is ideal for dimensional repeatability and low volume production. S.W.A.T. can produce parts from 1" to 21" in diameter. This process is ideal for production runs in the 10 to 3,000 part range.



CNC Laser Cutting

SPIROL utilizes two lasers that provide a great alternative to tooling for unique configuration parts, short runs and prototypes. Thicker parts from .010" to .250" thickness can be produced with CNC controls that ensure precise accuracy throughout the entire lot. Laser cutting is suitable for aluminum, brass, steel and stainless steel. **SPIROL**'s lasers can accommodate parts up to 47" x 95". **SPIROL**'s laser cutting is good for any quantity of parts.

CNC High-Speed Profile Cutting

SPIROL's CNC machining centers produce precision solid or laminated parts with superior edge quality. When used on Laminated Shims, there is no separation of laminations from stamping shock and the layers are easy to peel. **SPIROL**'s CNC High-Speed Profile Cutting is ideal for odd configuration laminated parts from .012" to .250" thick. Parts from .500" diameter to 15" x 23" can be produced. **SPIROL**'s High-Speed Profile Cutting is best for production runs of 1 to 500 pieces.

Operational Setup and OD/ID Combo Tooling

SPIROL has accumulated thousands of common “free-float” and combo tooling, capable of producing one and two hit special-dimension washers and OD/ID parts. Operational setup utilizes standard tools to produce a two-hit washer or OD/ID part. OD/ID combo tooling produces a wide variety of special dimension washers with one-hit. OD/ID combo tooling is the preferred method when statistical capability is a criteria.

Compound Tooling

For products with a long life cycle, one-hit compound tooling will guarantee product quality and repeatability over the life of the tool. **SPIROL**’s die shop produces quality tools at competitive pricing utilizing the latest CNC and EDM production technology. Compound tooling is ideal for long run parts with complex configurations.

How does one know whether Tool-Less Technology or tooling is the best approach?

Tool-Less Technology is almost always the most cost effective solution for prototype and short run Shims. But, as quantities and project life expectancy increase, there is a point where tooling may be the preferred method.

Here is a simple formula to determine which method is best for each project. Remember to calculate the quantity of parts needed over the lifetime of the project.

Tool-less Technology part: ***(quantity x piece price)*** **=** ***total cost***

vs.

Tooled part: ***(quantity x piece price) + (tooling cost)*** **=** ***total cost***

Whichever results in the lower total cost will usually be the best choice.

Original article written by Guy Prentice.

SPIROL’s cost estimating staff will analyze potential production methods to determine which is the best based on the life expectancy of parts and volume requirements.

Certified to:
IATF 16949
ISO 9001
AS9100C
Nadcap Chemical Processing - AS7108 Rev G
Nadcap Laser Beam Machining - AC7116 Rev B and AC7116/4 Rev C
Caterpillar MQ11005

Technical Centres

Europe

SPIROL United Kingdom
17 Princewood Road
Corby, Northants
NN17 4ET United Kingdom
Tel. +44 1536 444800
Fax. +44 1536 203415

SPIROL France
Cité de l’Automobile ZAC Croix Blandin
18 Rue Léna Bernstein
51100 Reims, France
Tel. +33 3 26 36 31 42
Fax. +33 3 26 09 19 76

SPIROL Germany
Ottostr. 4
80333 Munich, Germany
Tel. +49 89 4 111 905 71
Fax. +49 89 4 111 905 72

SPIROL Spain
08940 Cornellà de Llobregat
Barcelona, Spain
Tel. +34 93 669 31 78
Fax. +34 93 193 25 43

SPIROL Czech Republic
Sokola Tůmy 743/16
Ostrava-Mariánské Hory 70900
Czech Republic
Tel. +420 417 537 979

SPIROL Poland
Aleja 3 Maja 12
00-391 Warszawa, Poland
Tel. +48 510 039 345

Americas

SPIROL International Corporation
30 Rock Avenue
Danielson, Connecticut 06239 U.S.A.
Tel. +1 860 774 8571
Fax. +1 860 774 2048

SPIROL Shim Division
321 Remington Road
Stow, Ohio 44224 U.S.A.
Tel. +1 330 920 3655
Fax. +1 330 920 3659

SPIROL Canada
3103 St. Etienne Boulevard
Windsor, Ontario N8W 5B1 Canada
Tel. +1 519 974 3334
Fax. +1 519 974 6550

SPIROL Mexico
Avenida Avante #250
Parque Industrial Avante Apodaca
Apodaca, N.L. 66607 Mexico
Tel. +52 81 8385 4390
Fax. +52 81 8385 4391

SPIROL Brazil
Rua Mafalda Barnabé Soliane, 134
Comercial Vitória Martini, Distrito Industrial
CEP 13347-610, Indaiatuba, SP, Brazil
Tel. +55 19 3936 2701
Fax. +55 19 3936 7121

Asia Pacific

SPIROL Asia Headquarters
1st Floor, Building 22, Plot D9, District D
No. 122 HeDan Road
Wai Gao Qiao Free Trade Zone
Shanghai, China 200131
Tel. +86 21 5046 1451
Fax. +86 21 5046 1540

SPIROL Korea
160-5 Seokchon-Dong
Songpa-gu, Seoul, 138-844, Korea
Tel. +86 21 5046-1451
Fax. +86 21 5046-1540

email: info-uk@spirol.com

SPIROLShims.com