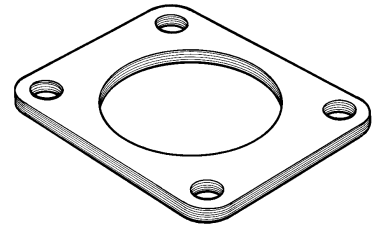


PRINCIPLES

Why use a laminated shim ?

Any mechanical assembly is built of parts manufactured to specified machining tolerances. In a complex assembly of several hundred or thousand parts these tolerances soon add up. Unpredictable and undesirable clearances will generally be discovered once the assembly is completed. Bad fit leads to harsh wear and tear in use and early, possibly catastrophic mechanical failure.



Before the invention of laminated shims engineers had resort to one of two possible solutions (which have today been rendered obsolete).

First method:

Precision case-by-case grinding of adjustment shims.

Principle: after measuring the clearance which demands compensation, technicians must individually grind down oversize spacers until they finally correspond to the missing dimensions. These accessories are named adjustment shims.

Disadvantage: the manufacturing process is a highly skilled, time intensive and costly operation. It requires the provision of a grinding machine and generally implies an outage of the production line.

Second method:

Solid shims.

Principle: technicians make a stack of metal plates which are inserted into the ailing mechanism.

Disadvantage: this method risks dangerous imprecision. It is very easy to accumulate dust, grease or material fragments as the metal plates are stacked. The quality of the final result remains very uncertain.

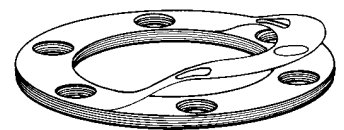


LAMECO's solution:

Laminated Shims.

LAMECO offers a third solution, the superior technology-oriented solution: the Laminated Shim.

Principle: precision manufactured from metals or high technology composites (*) which have the property of being easily peelable into micro fine strips of a few hundredths of a millimeter.



* INTERCOMPOSITE® - Trademark Registered, France: Patent No. FR 2 572 411 B1.

* X.FIBER® - Trademark Registered, Europe: Patent No. EP 1 444 094 B1, Canada: CA 2 464 337 C, US: Patent Pending.

* DUOPEEL® - Trademark Registered, France: Patent No. FR 2 944 990 B1, Europe: Patent Pending.

What are the advantages of a laminated shim ?

☞ Time saving, precision, repeatability, and predictability. Put that grinding machine to work elsewhere and enjoy the LAMECO laminated shim quality / price ratio.

SPEED:

LAMECO laminated shims are quickly and easily peeled using scalpel (or forefinger with INTERCOMPOSITE[®], DUOPEEL[®] or X.FIBER[®] shims – see the cards of these products). Therefore it instantly fulfills its function (whereas an adjustment shim has first to be submitted to grinding). It thus saves considerable time and spares idle time in production.

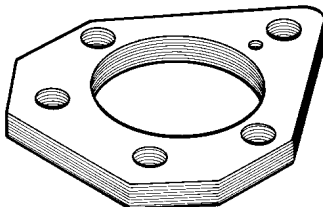
PRECISION:

The laminated shim guarantees an optimal precision (which pilings cannot achieve in any way).

STANDARDS:

Finally, various standards and numerous specifications have been drafted for the laminated shim definition, use and manufacturing. They result from the work of all industrial sectors involving precise machining and assemblies.

Nowadays, no engineering and design department can design any mechanical assembly without providing for the use of laminated shims.



☞ This is why, today, laminated metal and composite shims have become indispensable tools .

How is a laminated shim manufactured ?

An extremely fine resin film (in the order of 0.002 mm) is laid out between the material foils. A combination of enormous pressure and a prolonged thermal treatment bonds the sandwiched materials together.

By this long developed proprietary technique not only is the optimal hardening of the resin is achieved, but also the adhesive film's thickness is reduced to such proportions that it can no longer be measured.

ATTENTION !

The dimensions described in the hereafter documents correspond to our standard production .
All our shims are manufactured to order from customer drawings or descriptions.