



803, 803-C Invar Kits

English unit kits for a variety of uses

The **803** and **803-C Invar Kits** are designed as multipurpose kits. They are often used as scale extension tools - precisely extending the range of standard optical tooling scales for accurate measurement of larger dimensions, or to access previously unreachable points. They are also used with calibration scales such as our 6000-CE (and others) as calibration or scaling artifacts for three dimensional measurement systems.

Invar tubing is great for metrology because it has such a very low coefficient of thermal expansion, which effectively eliminates changes in length due to handling or environmental changes. This is particularly beneficial when measuring a system in its "hot" or running state.



	803	803-C
Invar tubes	12409 Series	12587 Series
Tube length tolerance	$\pm 0.0003"$	$\pm 0.0001"$
Total stackup error	$\pm 0.001"$	$\pm 0.0005"$

The 803 and 803-C Kits both contain exactly the same set of components; the only difference between them is that the Invar tubing is manufactured to different length tolerances. The Invar tubing in the 803 is manufactured to its stated length within $\pm 0.0003"$, and the Invar tubing in the

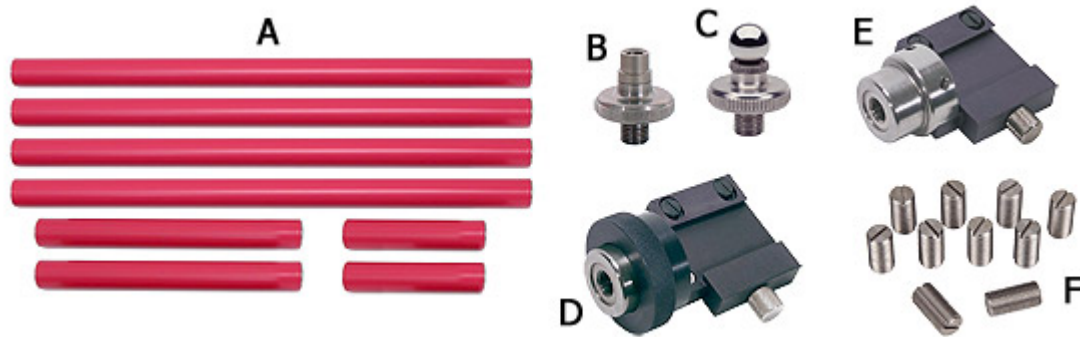
803-C is manufactured to its stated length within $\pm 0.0001"$. In each kit, the Invar tubing components are hand-picked so that the total Invar tube stackup error does not exceed the stated maximum.

This means that you can connect all of the tubes found in a given kit together end-to-end, and the stack will maintain the total length within the stackup error. (Table above summarizes this information.)

Individual components may be assembled to produce lengths from 2" to 112", in 5" increments. The end of each invar tube allows measuring to the tangents of shafts, and a tooling ball contact point offers the best repeatability on most machine surfaces. A special concave tip is included for use with tooling ball applications. The table below specifies all included components.



803, 803-C Kit Components



Picture legend	Part number	Description	803 Quantity	803-C Quantity
A	12409-20IN	20" Invar tube	4	-
	12409-10IN	10" Invar tube	2	-
	12409-5IN	5" Invar tube	2	-
	12587-20IN	20" Invar tube	-	4
	12587-10IN	10" Invar tube	-	2
	12587-5IN	5" Invar tube	-	2
B	12410-G2	Concave tip	2	2
C	12410-G1	Tooling ball tip	2	2
D	8665-G3	Rotating scale holder	1	1
E	8665-G1	Fixed scale holder	1	1
F	12406-G1	Stainless steel Invar system connectors	10	10
no photo available	12421-G1	Plastic case	1	1
n.a.	n.a.	NIST traceable certification for kit	yes	yes

Specifications

Approximate weight: kit and case, 17 lbs; shipping, 22 lbs

Invar thermal expansion coefficient:
 0.70×10^{-6} in./in./°F for temperature range of 0° F to 200°F.

Invar tubing: 1" diameter Invar with stainless steel end caps, having 3/8" x 24 internal threads on each end

Finish: Oil and stain resistant PVC jacket, red.

Case: Plastic case with foam insert

May be used with...

- Any of our optical tooling or calibration scales

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