



## ISO/PAS 17712 and ASTM FACT SHEET

Customs & Border Protection has asked importers, carriers, brokers and manufacturers to ensure the integrity of their maritime shipments through a voluntary program called C-TPAT (Customs-Trade Partnership Against Terrorism). It's a joint initiative between government and business, which is designed to protect global commerce from terrorism. As a requirement for participation, Customs requires that businesses apply for C-TPAT membership and, once accepted, agree to use high security seals for securing their container shipments that enter the United States.

Customs used ASTM F1157, the "Standard Practice for Classifying the Relative Performance of the Physical Properties of Security Seals," as the standard for determining a seal's physical strength characteristics. Initially, Customs selected Category "D" as the *minimum* requirement for high security seals that would be used on containers entering the United States. That range was modified within ISO/PAS 17712 to reflect the minimum global standard for high security seals. Customs has deferred to ISO/PAS 17712 as the standard for bolt and cable seal compliance for C-TPAT and ISO/PAS 17712.

Since no international standard for mechanical seals exists, criteria from ASTM F1157 were used to draft ISO/PAS 17712 - a publicly available specification to determine seal categories and their strength requirements that are appropriate for container shipments within international trade. The table below compares the strength characteristics of Brooks' Intermodal II, IV and V mechanical bolt seals against ISO/PAS' guidance. Customs' requirements, as determined by ASTM F1157, are included only as a guide. ISO/PAS 17712 is the reference for seal acceptance.

Test Type	Compliance Criteria		ASTM Grade "D" Range (For Minimum Compliance)	ASTM Minimum Grade Required	Actual Brooks' Seal Strength Results
	Brooks' Strength Tests Intermodal II IV & V	ISO/PAS 17712 Minimum Strength Requirements			
Tensile	16.7 kN (3,750 lbs)	10.0 kN (1) (2,205 lbs)	4.44 kN to 13.34 kN (1,000 - 3,000 ft-lbs)	D	E
Shear	2,502 kg-f (5,515 lbs)	341 kg-f (751 lbs)	340 kg-f to 435 kg-f (751 - 1,000 ft-lbs)	D	F
Bend: Rigid Bolt Flexible Bolt	(52 ft-lbs) 71 Nm -	(37 ft-lbs) 50 Nm 501 cycles	(36 - 50 ft-lbs) 68 Nm 501 - 1,000 cycles	D	E
Impact	41 J to 53 J (30-39 ft-lbs)	40.68J (30 ft-lbs)	40.68 J to 52.90 J	D	D

Kg-f = kilogram force

J = Joule

Nm = Newtonmeters

kN = kiloNewtons

[See Brooks C-TPAT Compliant Products](#)