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Pneumatic Cord and Yarn Grips | Catalog Number 2714-010 and CP108524

The Instron® pneumatic tire cord grips provide a convenient method for clamping tire cord and braided wire during testing. A guide pin allows for easy loading onto a graduated radius cam, which provides a stress-reduced clamping area on the specimen. The clamping mechanism can be activated either automatically or through a footswitch, which allows for hands-free grip operation enabling the specimen to be held with both hands for easy loading. Pneumatic cord and yarn grips provide selectable clamping force to accommodate different materials and excellent follow-up action that compensates for decay of the holding force due to specimen creep.

Principle of Operation

Where the gripping area of mono-filaments, tire cord, and braided wire is small in relation to the strength, normal techniques using standard grip faces usually result in specimen failures adjacent to the jaw faces.

The pneumatic tire cord grips have been designed specifically to overcome the problem of jaw breaks by incorporating a capstan design that evenly distributes the gripping force over the surface of a curved half capstan through friction, as well as a groove throughout to keep the multi-strands bundled. In addition, the pneumatically-cushioned gripping force applied to the ends of the specimen compensates for the decay of force due to specimen creep.

The pneumatic grips activate a moveable face, which acts upon a contoured fixed gripping face. This serves as a capstan and provides support for the specimen, making the transition from the free stressed length of specimen to the rigidly clamped portion gradually rather than abruptly, ultimately minimizing breakage of the specimen adjacent to the jaw face. The capstan also incorporates a guide pin, which assists in rapid specimen loading. The polished finish prevents damage to individual fibres during specimen insertion. The specimen is placed over the top of the guide pin and clamped. This is then passed over one capstan onto the opposing capstan and over its guide pin. The specimen will naturally sit in the proper gripping position. The grips are operated by a pneumatic footswitch, for leaving both hands free for specimen insertion. An automatic air kit is also available for both hands-free, automated, and pretension testing via software or system default settings.

Features and Benefits

- Rated capacity: 5 kN (500 kgf, 1,125 lbf)
- Pneumatic clamping of the specimen with follow-up clamping action
- Adjustable gripping force to reduce breakage at the clamping point
- Suitable for testing a wide range of tire cords, braided wire, mono-filements, and multi-filaments
- Follow-up action to reduce slippage
- Quick grip release for increased productivity
- Optional automatic air kit with pretension and remote control for easy loading and improved efficiency

Specifications

Catalog Number		2714-010	CP108524
Maximum Capacity	kN	5	5
	kgf	500	500
	lbf	1125	1125
Mechanical Connection			
Upper Fitting	in	½ Clevis Pin (Type Dm)	½ Clevis Pin (Type Dm)
Lower Fitting	in	½ Clevis Pin (Type Dm)	½ Clevis Pin (Type Dm)
Overall Width (A)	mm	245	245
	in	9.6	9.6
Effective Length (B)			
Upper Grip	mm	248	248
	in	9.76	9.76
Lower Grip	mm	248	248
	in	9.76	9.76
Weight (Upper Grip)	kg	4.54	4.54
	lb	10	10
Temperature Range	°C	-10 to +80	-10 to +80
	°F	+14 to +176	+14 to +176
Working Principle		Pneumatic Single Moving Face Clamping	Pneumatic Single Moving Face Clamping
Gripping Force	kN	8.9	8.9
	kgf	908	908
	lbf	2000	2000
Clamping Length	mm	50	50
	in	1.97	1.97
Gripping Surface		Smooth, Polished	Surfalloy (Surfalloy surface provides a harder and more abrasive gripping area for tough bead wire or other materials that would slip with a smooth polished surface)
Maximum Air Pressure	bar	6.2	6.2
	PSI	90	90
Maximum Specimen Length at Zero Grip Separation	mm	760	760
	in	29.9	29.9
Maximum Specimen Diameter	mm	2	2
	in	0.07	0.07

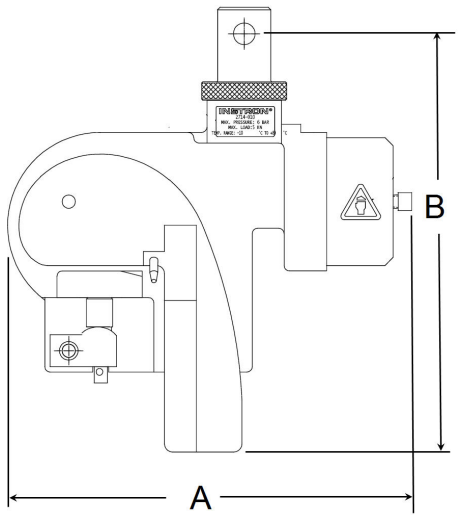
Notes:
1. Grip catalog No. provides two grips
2. Upper grip may require mechanical attachment coupling to connect to the load cell or machine base
3. Automatic air control kit or pneumatic footswitch will be required for operation of these grips
4. Alternate face sizes or surfaces are not available for this grip

Accessories

Catalog Number	Description
2810-018	Air Compressor, Portable 115 V AC
2810-060	Air Compressor, Portable 230 V AC
2701-004	Pneumatic Footswitch
2701-065	Automatic Air Control Kit for 3300, 4400, 5500, 5500A, 5800, 5900 (excluding 4411) and Upgrades (excluding 1130, 6000, 4500 and TTs)
2701-067	Automatic Air Control Kit for 4411 and Upgrades on 1130s

Application Range

- Type of loading: Tension; not suitable for through zero/reverse stress or fatigue testing
- Specimen material: Tire cord, braided wire, mono-filaments
- Specimen shapes: Round



Pneumatic Footswitch

Automatic Air Control Kit for Pre-Tension Control

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