

Pneumatic Cord and Yarn Grips | Catalog Number 2714-031

Instron®'s pneumatic cord and yarn grips provide a convenient method for clamping fiber, cord, yarns and fine wires to reduce the problem associated with testing these materials. A specially designed horn with a smooth finish and a contoured surface with a graduated cam allows for easy loading and a stress reduced clamping area on the specimen. The clamping mechanism can be activated either automatically or through a foot switch. This allows 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 which compensates for decay of the holding force due to specimen creep.

Features and Benefits

- Rated capacity: 50 N (5 kgf, 11 lbf)
- Pneumatic clamping of the specimen with follow up action
- Adjustable gripping force to reduce breakage at the clamping point
- Guide horn allows for easy loading with minimal specimen damage
- Suitable for a wide range of linear densities (denier and tex)
- 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

Application Range

- Type of loading: Tension. Not suitable for through zero/ reverse stress or fatigue testing
- Specimen material: Fine wires, cords, yarns, mono-filaments
- Specimen shapes: Round

Principle of Operation

Where the gripping area of mono-filaments, cord and yarn 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 cord and yarn grips have been designed specifically to overcome the problem of specimen failure by incorporating a capstan design which evenly distributes the gripping force over the surface of a curved half capstan through friction. 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 pneumatics 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, thus minimizing breakage of the specimen adjacent to the jaw face. The capstan also incorporates a polished guide horn, which assists in rapid specimen loading. The polished finish prevents damage to individual fibers during specimen insertion. The specimen is placed over the top of the horn and slides down to the proper gripping position on the contoured clamp. The grips may be closed or opened by a pneumatic footswitch for hands-free operation. An automatic air kit is also available for hands-free, automated, and pretension testing via software or system default settings.



Specifications

Catalog Number 2714-031

Maximum Capacity	N	50
	kgf	5
	lbf	11

Mechanical Connection

Upper Fitting	mm	6 clevis pin (Type Om)
Lower Fitting	mm	6 clevis pin (Type Om)
Overall Width (A)	mm	78
	in	3.07

Effective Length (B)

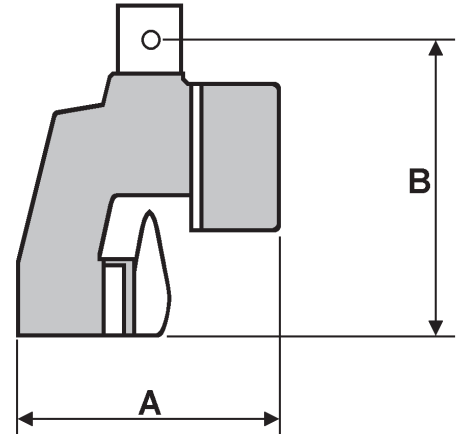
Upper Grip	mm	90
	in	3.54
Lower Grip	mm	90
	in	3.54
Weight (Upper Grip)	g	179
	lb	0.4
Temperature Range	°C	-10 to +80
	°F	+14 to +176
Working Principle		Pneumatic single moving face clamping
Gripping Force	N	258
	kgf	26
	lbf	58
Clamping Length	mm	20
	in	0.79
Gripping Surface		Smooth, polished
Maximum Air Pressure	bar	5.2
	PSI	75
Maximum Specimen Length at Zero Grip Separation	mm	95
	in	3.74
Maximum Specimen Diameter	mm	2.4
	in	0.094

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. Upper grip may require a flexible coupling for certain applications.
4. Automatic air control kit or pneumatic footswitch will be required for operation of these grips.
5. 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



Close-up of horn and clamping face



Pneumatic foot switch



Automatic air control kit for pre-tension control

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