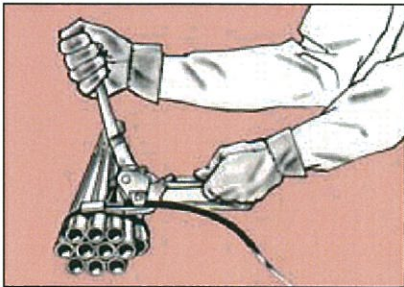


# Hand Tools

## Steel/Manual tensioners

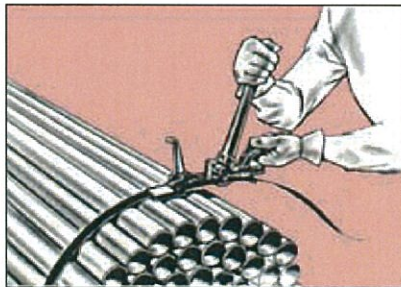
### Push type—for round or irregular bundles

The push-type tensioner also has a serrated feedwheel to engage the strap, but is designed for use on round or irregular-shaped packages. There is no limit to the amount of slack it can pull out of the strap. Fast and easy to use, it requires the use of painted and waxed strapping.



### Rack-and-pinion type—for heavy, round or irregular bundles

The rack-and-pinion tensioner uses a serrated gripping dog to hold the pulled strap end. It can be used with either dry or lubricated strapping on round or irregular-shaped packages. The tensioner has limited take-up.



### Windlass type for heavy-duty applications

The windlass tensioner simply winds one end of the strapping around a slotted windlass shaft. Primarily used with dry heavier strapping, for heavy-duty applications (e.g., carloading). It requires that strapping be pre-cut to desired lengths.



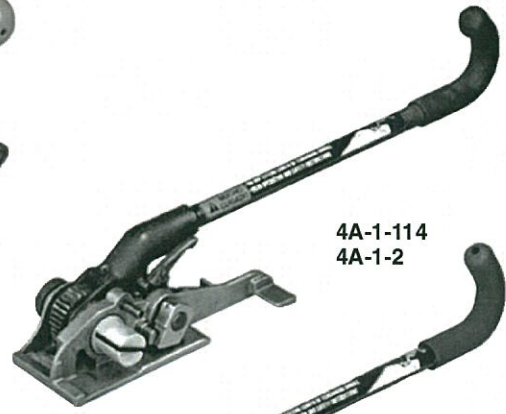
**PF**  
Unlimited strap take-up.  
Medium tension



**PFH**  
Unlimited strap take-up.  
High tension



**PH-2**  
5-3/8" (137mm) strap take-up



**4A-1-114**  
**4A-1-2**



**4A-1-114KR**  
For carloading paper rolls

### Manual tensioner specifications

Tensioner Model	Part Number	Description	Mechanical Advantage*	Strap Size				Strap Type	Strap Finish	Weight	
				Width		Thickness				lb	kg
				inch	mm	inch	mm				
PF	017900	Push Type Manual Tensioner	18	3/8-3/4	9.5-19.0	0.017-0.023	0.43-0.58	Apex Plus, Magnus	Painted & Waxed	4	1.8
PFH	017930		23	3/4-1-1/4	19.0-31.8	0.025-0.035	0.64-0.89	Apex Plus, Magnus	Painted & Waxed	7	3.2
4A-1-114	184125	Windlass Type	28	1-1/4	31.8	0.031-0.050	0.79-1.27	Magnus	Painted, Painted & Waxed	12	5.4
4A-1-114KR	184135		33	2	50.8	0.044-0.050	1.12-1.27	Magnus	Painted,	16	7.3
PH-2	010065	Rack & Pinion Type	22	3/4-1-1/4	19.0-31.8	0.017-0.035	0.43-0.89	Apex Plus, Magnus	Painted & Waxed	7	3.2

\*Mechanical advantage indicates approximately how many times the force applied to handle is multiplied to provide tensioning.