DUKANE

P215
P220

Pneumatic Press Trigger Mechanism

Application Note AN537

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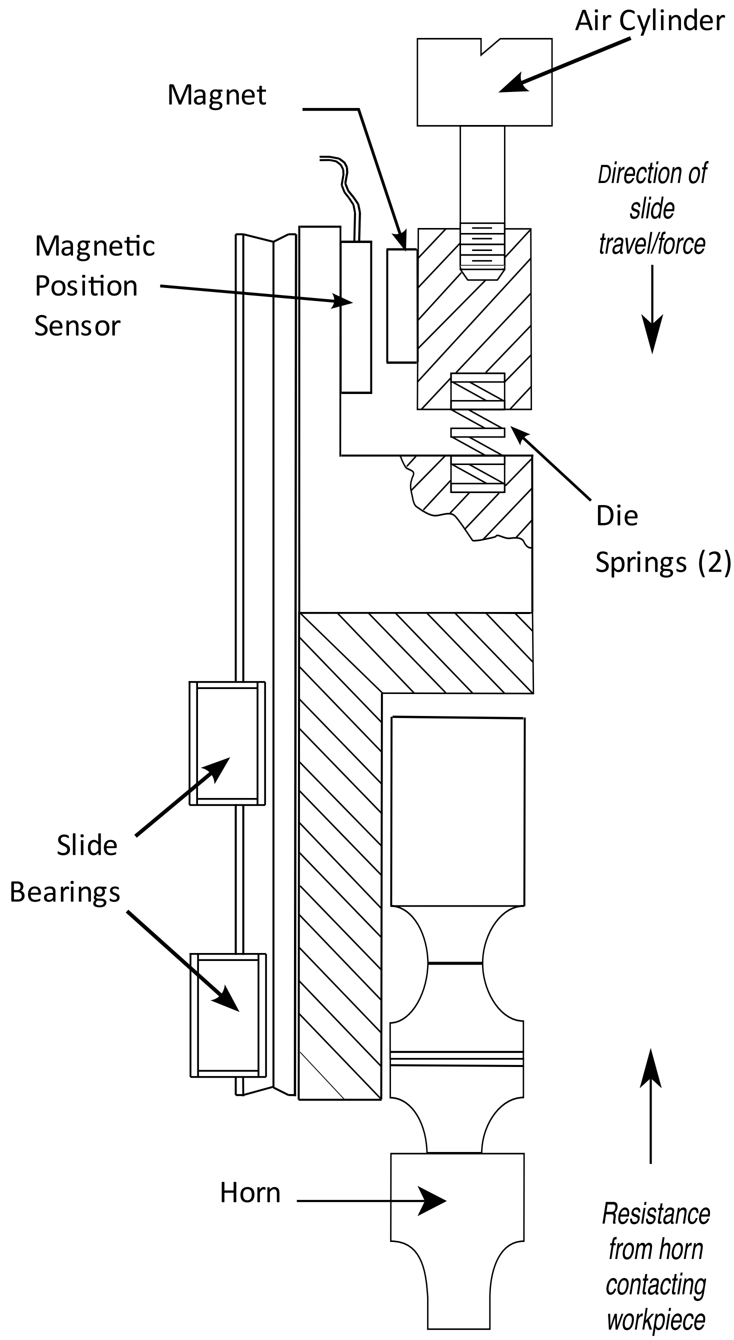
Pnuematic Thruster Advanced Trigger Mechanism

The P215 / P220 uses an advanced trigger mechanism to detect part contact. This advanced mechanism provides several advantages over previous methods.

These advantages are:

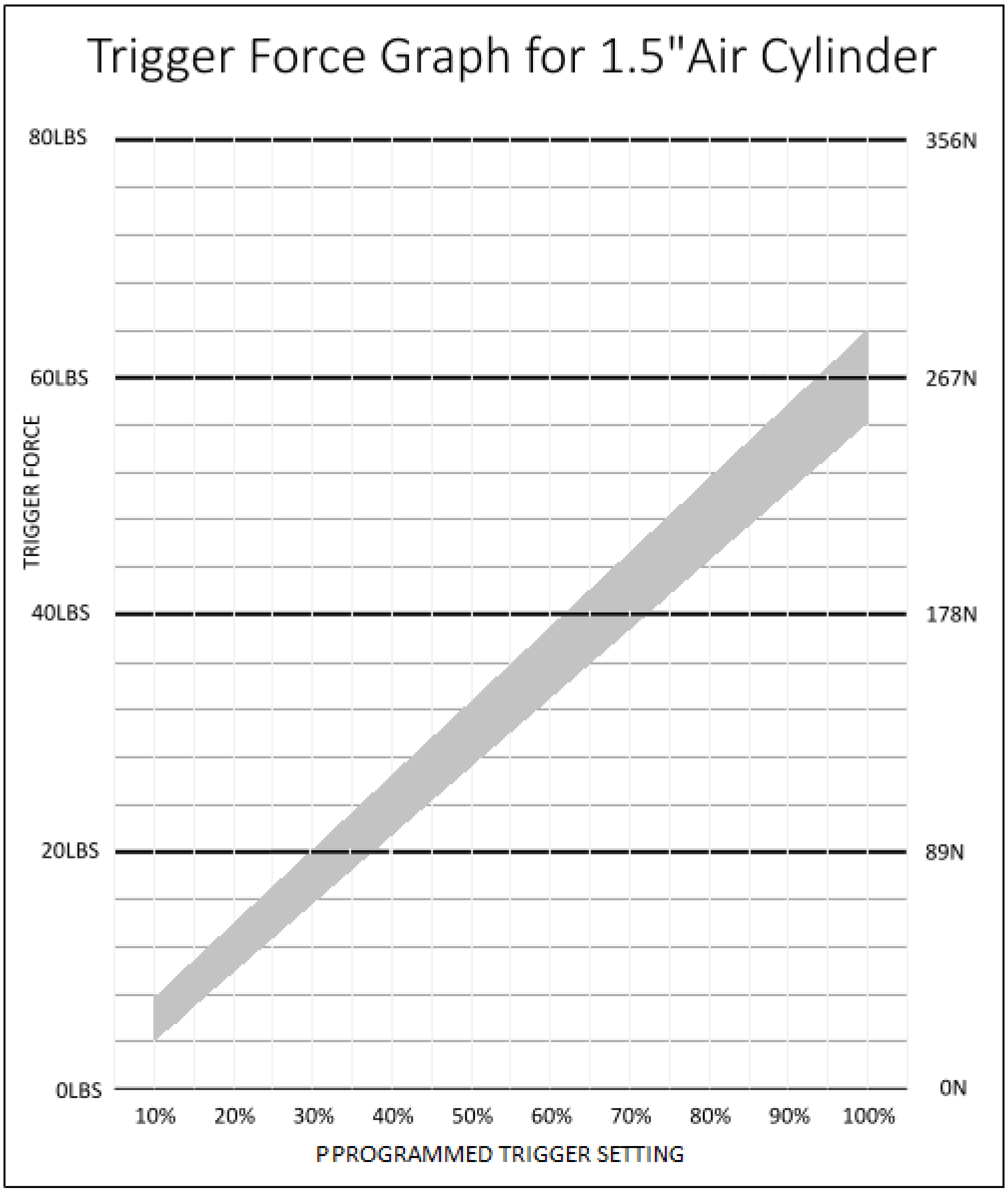
1. Reliability: No mechanical switch to fail.
2. Repeatability: Not dependent on the mechanics of the switch. This reduces sensor response time, and better consistency in sensing position.
3. The trigger value is programmable, so it can be password protected.
4. Allows for unique trigger setting stored with each setup - especially beneficial when running multiple setups.
5. The trigger value is automatically documented.



This mechanism uses precision die springs and a magnetic position sensor to sense the pressure against the part. As shown in diagram on the right, the air cylinder moves the horn down against the part. As the horn contacts the part, the cylinder continues to push down, collapsing the die springs. This moves the magnet down. The sensor measures the magnet's distance movement, which corresponds to the force required to collapse the springs. The programmed trigger percentage represents the percentage of the maximum spring collapse before Ultrasound is triggered.

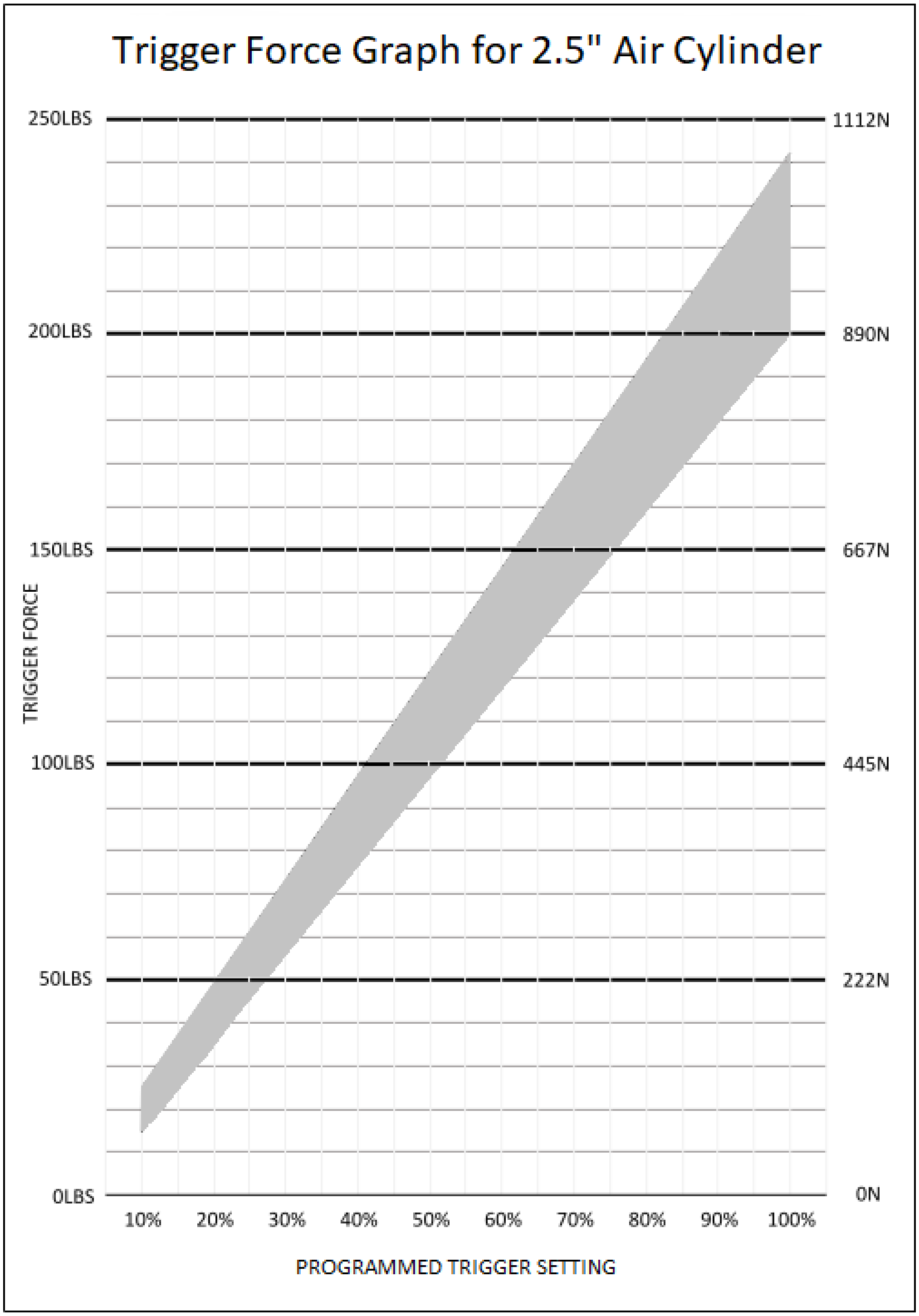
The following graphs represent a close approximation of the trigger force. It must be used for reference only. The system does not compensate for actual horn weight, therefore, the actual force against the part will deviate from the graph. However, repeatability of the trigger force for a given system from cycle to cycle is very high.

The Trigger Force Graph below represents the trigger settings for a P220 using a 1.5” air cylinder “MK” version. The programable trigger setting represents a percentage of the maximum trigger force. A setting of 100% will result in a trigger force of approximately 60 lbs (267 N).

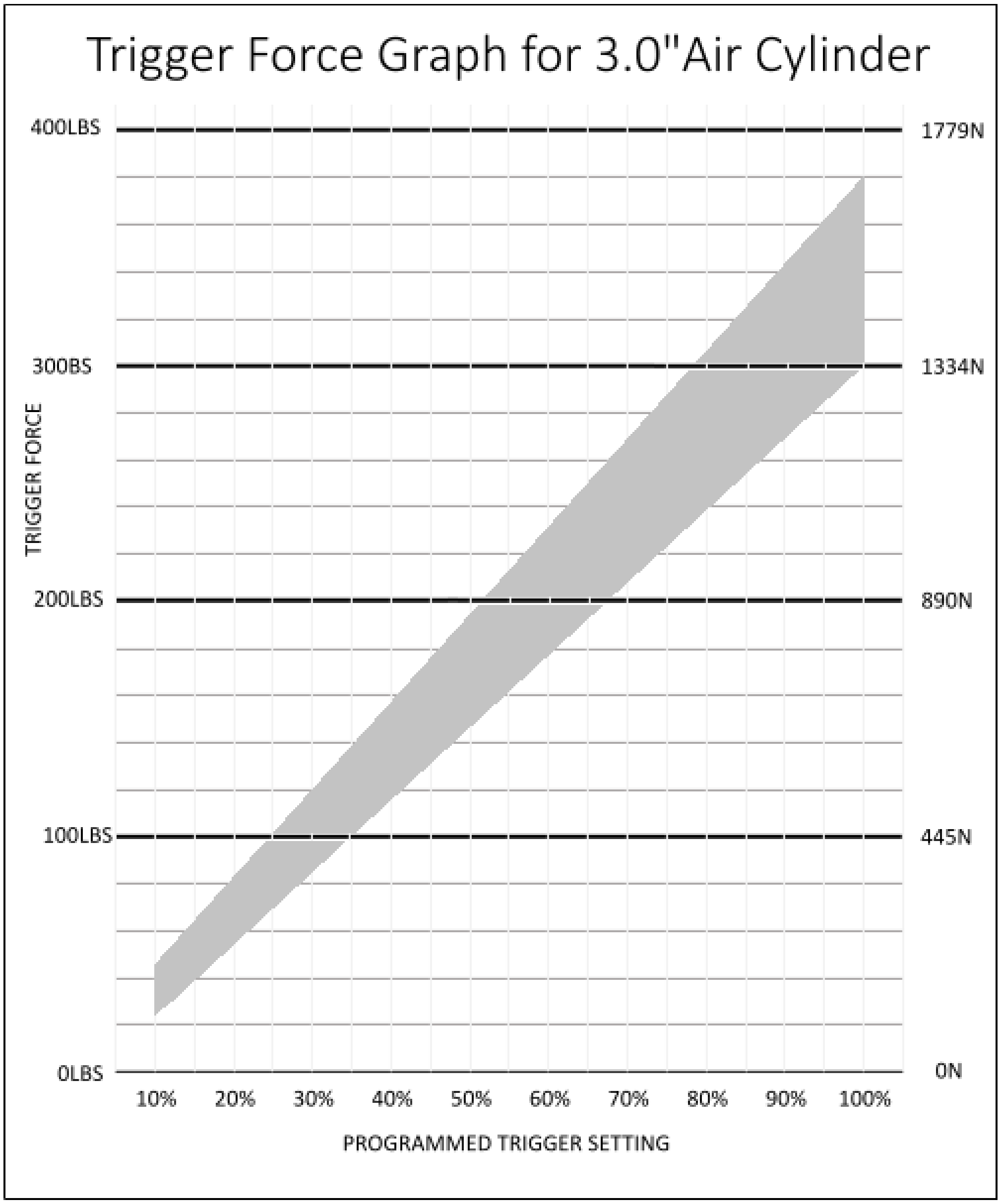


NOTE: For trigger settings less than 30%, it is critical to use a slow down speed, to prevent the inertia from the downward acceleration from causing a false trigger at top of stroke.

The graph below represents the trigger settings for a standard P220, which uses a 2.5“ air cylinder “ME” model. A trigger setting of 100% will result in a trigger force of approximately 220 lbs (981 N).



The P215 uses a 3” air cylinder. A trigger setting of 100% will result in a trigger force of approximately 340 lbs (1512 N).



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Website

The website has information about our products, processes, solutions, and technical data. Downloads are available for many kinds of literature.

This is the address for the main website:
www.dukane.com

Local Representative

You can locate your local representative at:
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