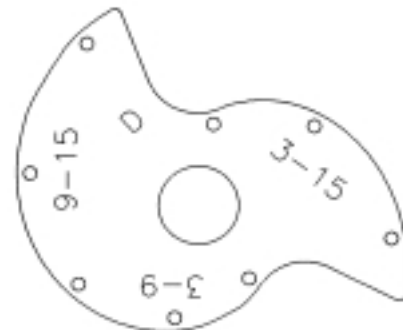


## APEX Rotary Actuator Cam Options

### Introduction:

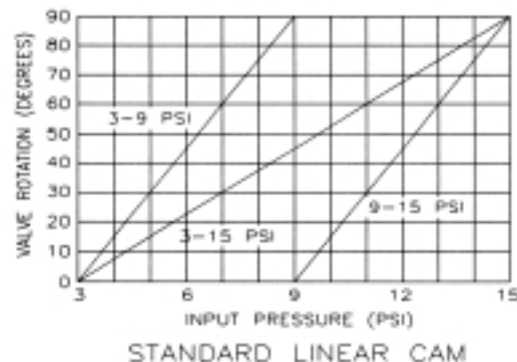
Automax offers four rotary actuator cam options for the Apex positioner family. Each of these options changes valve rotation characteristics relative to input signal. The table below shows graphs of valve rotation vs input signal for each range of each cam.



### Applications:

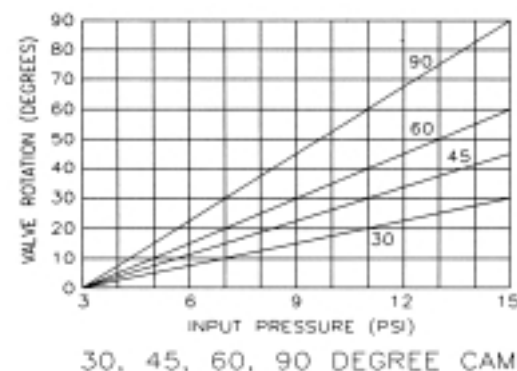
#### Standard Linear Cam

Our standard linear cam provides full valve rotation under three different input ranges as shown in the figure. The 3-15 psi range is the most commonly used input range. The 3-9 and 9-15 psi ranges allow split ranging. This involves using one signal to operate two separate positioners. These two ranges are also “connected” so that this cam can provide 180 degree rotation with 3-15 psi input.



#### 30, 45, 60, 90 Degree Cam

This cam option provides four ranges of limited valve travel for full 3-15 psi input. This option is commonly used on specialty valves and actuators. It may also be used on oversized quarter-turn valves that do not need to be opened all the way. In this case, the cam makes the positioner more sensitive to input signal changes, improving valve package performance.



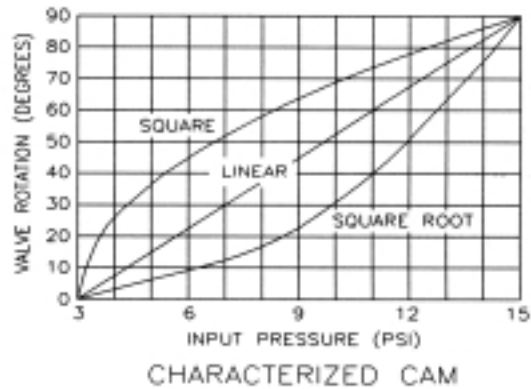
Flowserve Corporation  
Flow Control Division  
www.flowserve.com

1350 N. Mountain Springs Parkway  
Springville, Utah 84663-3004  
Phone: 801 489 8611

1978 Foreman Dr.  
Cookeville, TN 38501  
Phone: 931 432 4021

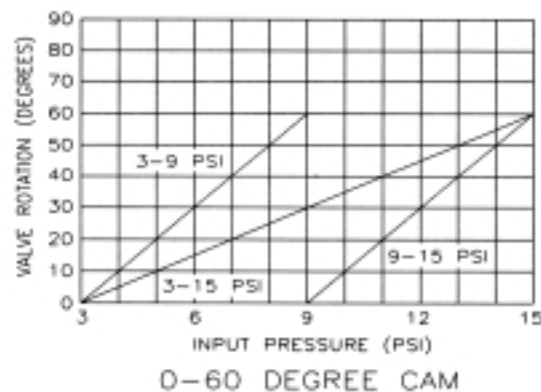
**Characterized Cam**

The characterized cam provides three different valve opening characteristics for 3-15 psi input. The square range causes valves to open faster near the seat and slower near full open. It will cause slow-opening valves, such as ball valves, to have more linear flow characteristics. The square root range has the opposite effect. It causes valves to open slower near the seat and faster near full open. This range is commonly used to stabilize oversized valves which normally operate near the seat, but must be capable of full 90 degree travel.



**60 Degree Butterfly Valve Cam**

Our butterfly valve cam limits valve rotation to 60 degrees. This is often desirable on butterfly valves, since their disks can be affected by hydrodynamic forces above 60 degrees resulting in instability or oscillation. Use of this cam also improves sensitivity to input signal changes. The cam provides 3-15 psi input as well as split ranging with 3-9 and 9-15 psi ranges.



**How to Order:**

All Apex Figure numbers have a meaningful character for cams. Referring to the Table of Contents page, simply specify the character corresponding to the proper cam (characters are also shown below). To order a replacement cam, simply specify the part number shown in the table below.

Cam	Meaningful Character	Replacement Cam Part Number
Standard	A	XM0077
30, 45, 60, 90	B	XM0144
Characterized	C	XM0143
60 Degree	D	XM0145