



# Series 225 Auto-Soft

## A SIMPLE DEVICE FOR AUTOMATIC SOFT STARTS

Auto-Soft has a vane that pivots about an off-center axis. A pair of coil springs hold the vane open when the pressure differential is low enough. When the roughing system goes into operation, the initial flow closes the vane assembly, automatically throttling the roughing pump.

Initial pumpdown occurs through small openings around the vane. This reduces the effective pumping speed, which minimizes turbulence and extends pumpdown time. When the pressure differential reaches the level determined by the springs, the springs open the vane and full pumping speed is restored.

When installing the Auto-Soft, adequate space is needed, the amounts are listed in the specifications table. The user can adjust the closed conductance of the valve over a limited range by bending tabs adjacent to the vane.

The Auto-Soft should be installed between the vacuum system and the roughing valve. Trapping of contamination before the Auto-Soft will help to ensure a long life.

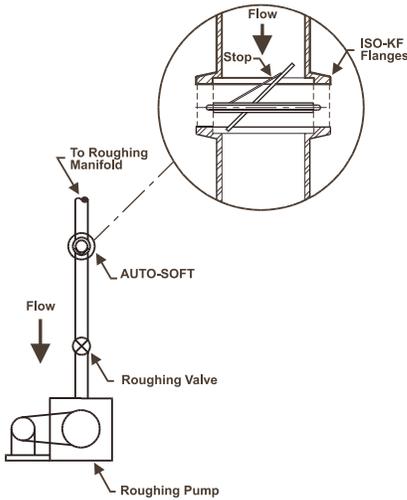
## Features & Benefits

- Reduces particulate contamination by reducing system turbulence during venting
- Prevents displacement or breakage of substrates
- Replaces expensive pressure controlled bypass systems
- Operates automatically without electrical or other external power
- Replaces ISO-KF centering ring for easy installation
- Available in two sizes for use with the most common pumps
- Operates up to 100,000 cycles

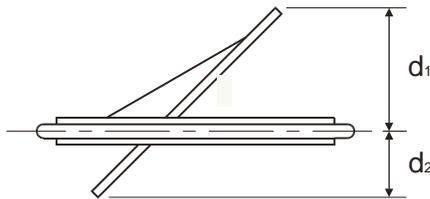


# Specifications, Dimensions and Ordering Information

## Installation Example



## Dimensions



## Application

The MKS Series 225 Auto-Soft is a flow actuated check valve used for throttling roughing pumps during initial evacuation. Auto-Soft closes very quickly at the start of system evacuation and opens automatically upon reaching a set pressure differential. This leaves the pumping line open for the balance of the pumping process.

In the semiconductor, thin film, and other industries, Auto-Soft replaces pressure controlled bypass valves to provide a soft start. The soft start then reduces turbulence in the vacuum system. Particles resident in the system are not stirred up and the work in progress is not damaged.

During pumpdown, the pressure differential across products in the system can displace or break them. Auto-Soft slows the pumpdown process, eliminating the wide pressure differential. Auto-Soft can be used when venting a system. Used with a vent valve, Auto-Soft will reduce turbulence and extreme pressure differentials while venting the system. Auto-Soft can be used in many other applications.

When used with potting compounds, Auto-Soft prevents excessive foaming. Auto-Soft used in a vacuum glove box avoids the rupture of filters. When used on a system with a mechanical pump, Auto-Soft reduces exhaust oil mists.

## Specifications

### Maximum Operating Temperature

100°C

### Materials

O-Ring  
Ring, Tabs, Stop & Axel  
Vane  
Springs  
Bearing

Viton®  
Type 304 stainless steel  
Inconel® 625  
Elgiloy®  
Teflon®

### Pumpdown Time

Typical increase in pumpdown time is 3 times. Times were measured using a pump capacity of 27 CFM for NW 40, 70 CFM for NW 50 and a volume of 100 liters.

Nominal Size (Tube OD)	Required Clearance		Closing Flow/ liters per second*	Closing Time (ms)*	Open Area in <sup>2</sup> (cm <sup>2</sup> )*		Adjustable Area in <sup>2</sup> (cm <sup>2</sup> )*	Opening Pressure (Torr)*
	d <sup>1</sup> inches (mm)	d <sup>2</sup> inches (mm)			Open Position	Closed Position		
NW 40 (1.5")	.70 (17.8)	.30 (7.6)	6 CFM / 2.8 ltr/sec	10	.67 (4.4)	.02 (.13)	.04 (.26)	2
NW 50 (2.0")	1.00 (25.4)	.40 (10.2)	12 CFM / 5.7 ltr/sec	12	1.30 (8.4)	.03 (.19)	.11 (.71)	3

\* These values are approximate. The exact values depend on the specific system configuration.

## Ordering Information

Description	Part Number
NW 40 Auto-Soft	225-0040
NW 50 Auto-Soft	225-0050



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