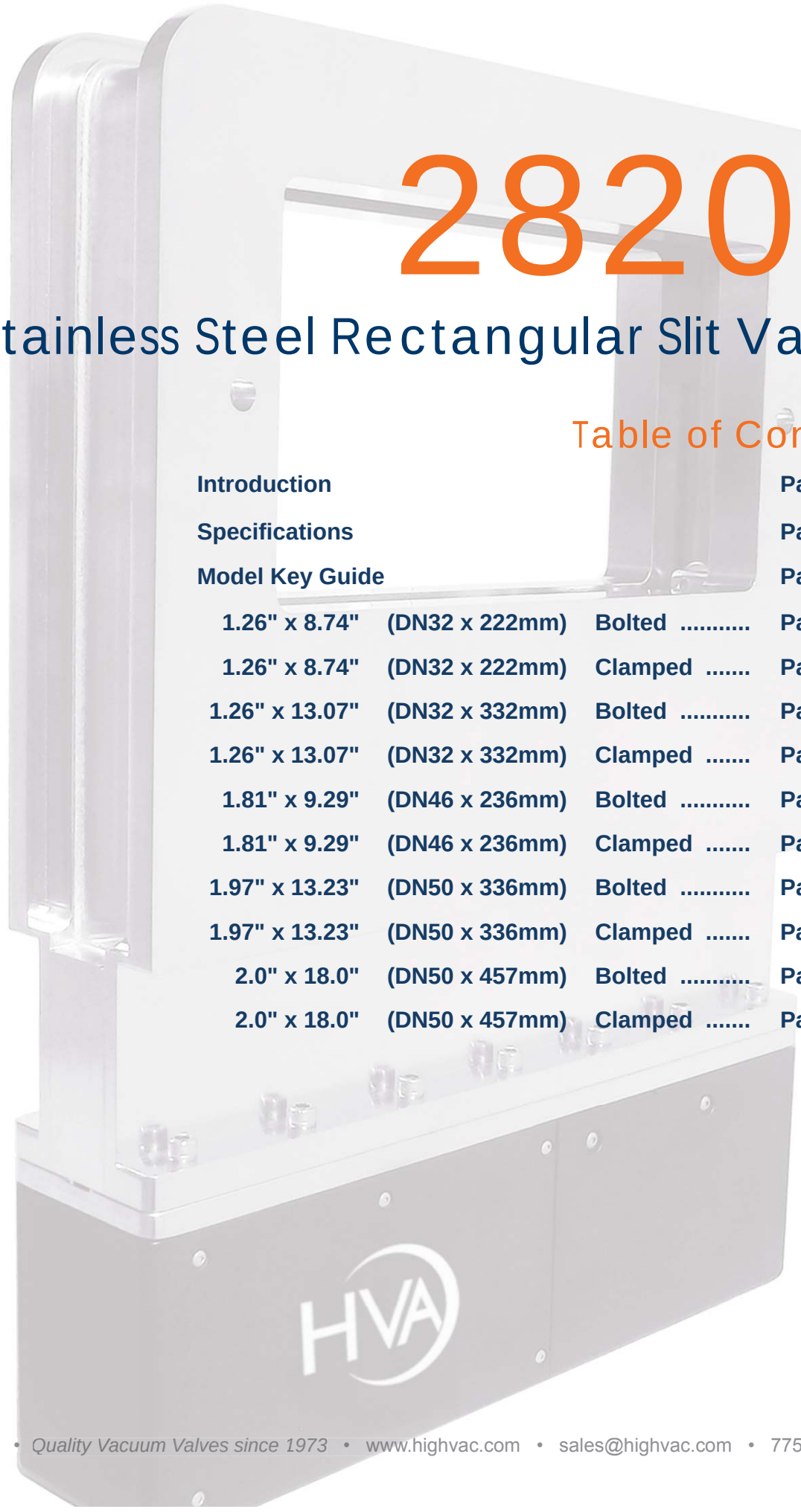


28200

Stainless Steel Rectangular Slit Valves

Table of Contents

Introduction

Model Number 28210-0510RXK
5” x 10" (DN120 x 250) Clamped

Product Features

- HV and UHV with stainless steel body and internal components
- > 1,000,000 cycles
- Sizes: Height ≤ 6” ID (DN150) / Width ≤ 78” ID (DN2000)
- Very customizable to work with almost any application
- Stainless steel welded bellows
- Standard MESC bolted and clamped configurations
- Patented low profile actuator design
- Low vibration due to patented driveshaft design
- High temperature options up to 250°C
- Designed, manufactured and assembled in the USA

Description

The HVA 28200 Series Direct Drive Rectangular Gate Valves provide one of the smallest interior surface areas in the vacuum valve industry. The body and internal components are vacuum furnace brazed at 1100°C, at $1x10^{-6}$ mbar, ensuring maximum joint integrity. This eliminates the possibility of virtual leaks or entrapment areas while minimizing body distortion, which can occur in conventionally welded valves. Furnace brazing 304 stainless steel reduces outgassing, which results in obtaining a system base pressure in a shorter time.
In the open position, the seal plate O-ring is completely out of sight preventing any particulate or media flow to accumulate on the sealing surface. In the closed position the one piece solid block design prevents any material buildup on the back side of the valve mechanism dramatically reducing service and maintenance requirements.

Application

This valve design is especially engineered to meet the mechanical interface and vacuum containment requirements of the industry. The 28200 Series Valve/Interface incorporates a Direct Drive Gate. Direct Drive eliminates mechanical linkages and greatly reduces internal valve components. Significant improvements in the gate valve design have resulted in exceptional uptime cycles and lower particulate generation even well past one million cycles.The valves have been tested for 1,000,000+ cycles with no failures.
In operation, the HVA 28200 Series Valves are quiet and reliable. Because they seal with lower pressure, they last longer, and there is less stress in making a perfect seal.To meet the specific needs of modular integrated processing systems, the HVA valves are designed to isolate vacuum pressure on either side of the gate.
They can be used singly or in pairs to provide appropriate pass through or seal for any part of the system. A narrow profile design, including both actuator and controller, allows tight mounting between central, load-lock, handling and process chambers.

Specifications

Standard Specifications

Materials

Valve body and mechanism	304 stainless steel
Welded bellows shaft seal	AM-350
Drive shaft and pins	440C hardened stainless steel
Bonnet / gate seals	
HV	Viton® elastomer
UHV	OFHC copper / Viton® elastomer

Vacuum

Pressure range	
HV	1 x 10^{-9} mbar
UHV	1 x 10^{-10} mbar
Leak rate	< 2 x 10^{-9} mbar l/s
Differential pressure	1 bar in either direction
Maximum Δ pressure before opening	≤ 30 mbar

Temperature

without solenoid

Elastomer sealed bonnet	150°C
Metal sealed bonnet	
Valve open	200°C
Valve closed	150°C
Actuator	
Pneumatic	60°C

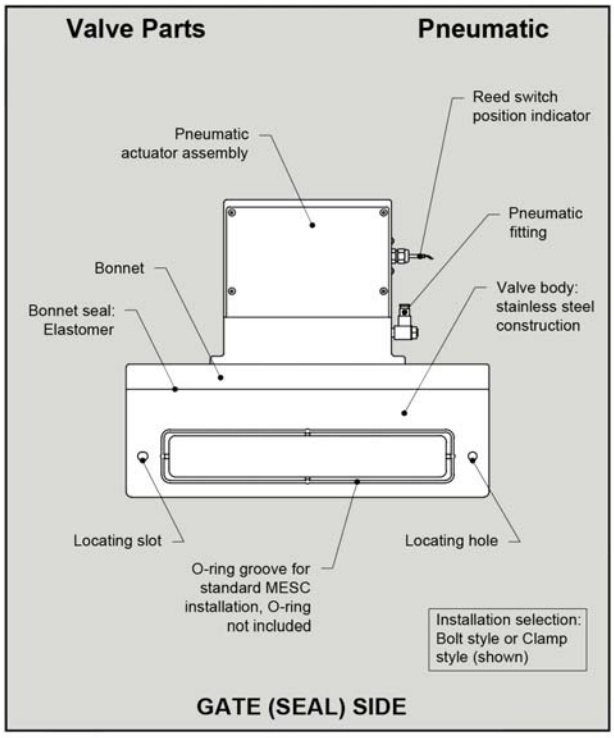
Mechanism

Air service	80 psig (5.5 bar)
Solenoid	4.0 Watts
Latching-type solenoid, valve to remain in the same position upon power loss	
supplied voltage	120 VAC 50/60 Hz
optional voltage	24, 200, 240 VAC 50/60 Hz or 12, 24 VDC
Position indicator, max.	115 VAC or 28 VDC, 20 mA

Cycles Until Service

> 1,000,000

(Application dependent)



Notes

- Dimensions given in U.S. System and [metric]
- Conductance ratings based on air, given in liters per second
- Due to ongoing product development, prices, dimensions and specifications are subject to change without notice

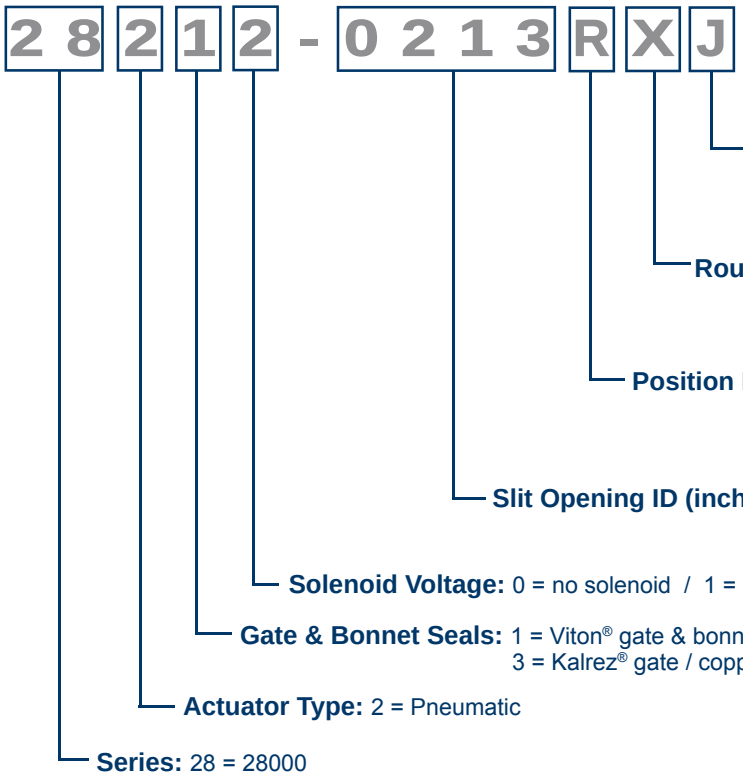
Options

All 28200 Series Valves may be equipped with alternative flanges, solenoids and seals. Contact HVA to discuss your requirements.

- Alternate voltages
- Custom body configurations
- Custom size openings
- Microswitches position indicators
- High temperature components, including O-rings, position indicator and actuator
- Water cooled body
- Custom materials, such as Inconel® or Kalrez®
- Gauge ports, roughing ports and purge ports
- Special solenoid or position indicator connectors

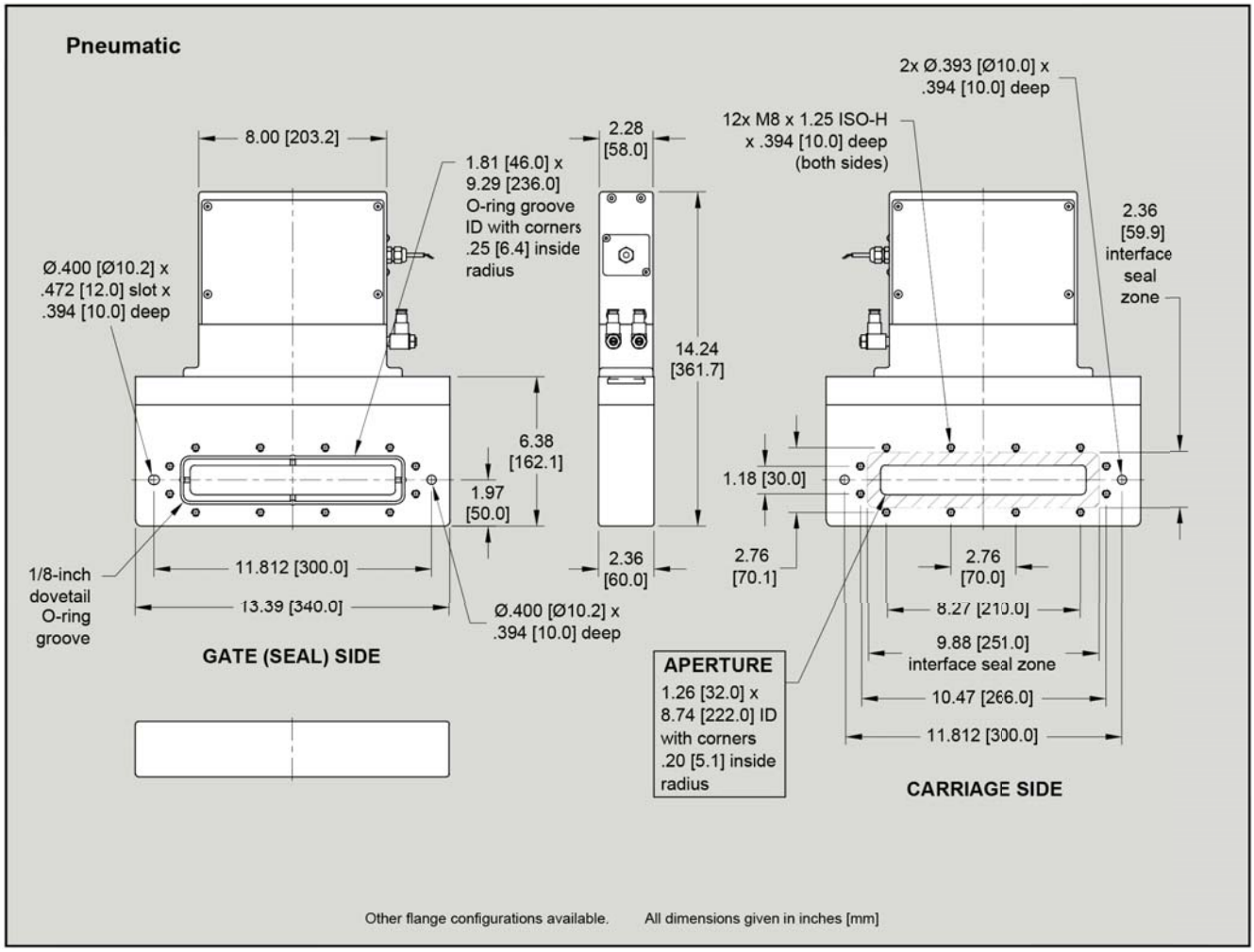
Model Key Guide

Example: 28212-0213RXJ = 28200 Series rectangular slit valve, pneumatic actuator, Viton gate & bonnet seals, 120VAC solenoid, 1.97” x 13.23” (50 x 336mm) opening with a bolted body configuration, reed switch position indicator



Note

• A suffix of -001 to -999 at the end of or a ‘9’ or ‘S’ within a Model Number indicates a valve with custom configuration.



28200

Specifications

HV Pressure Range: 1 x 10^{-9} mbar
UHV Pressure Range: 1 x 10^{-10} mbar
Helium Leak Rate: Materials: < 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening: ≤ 30 mbar
Materials:
Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum
Operating Temperature:
Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C*

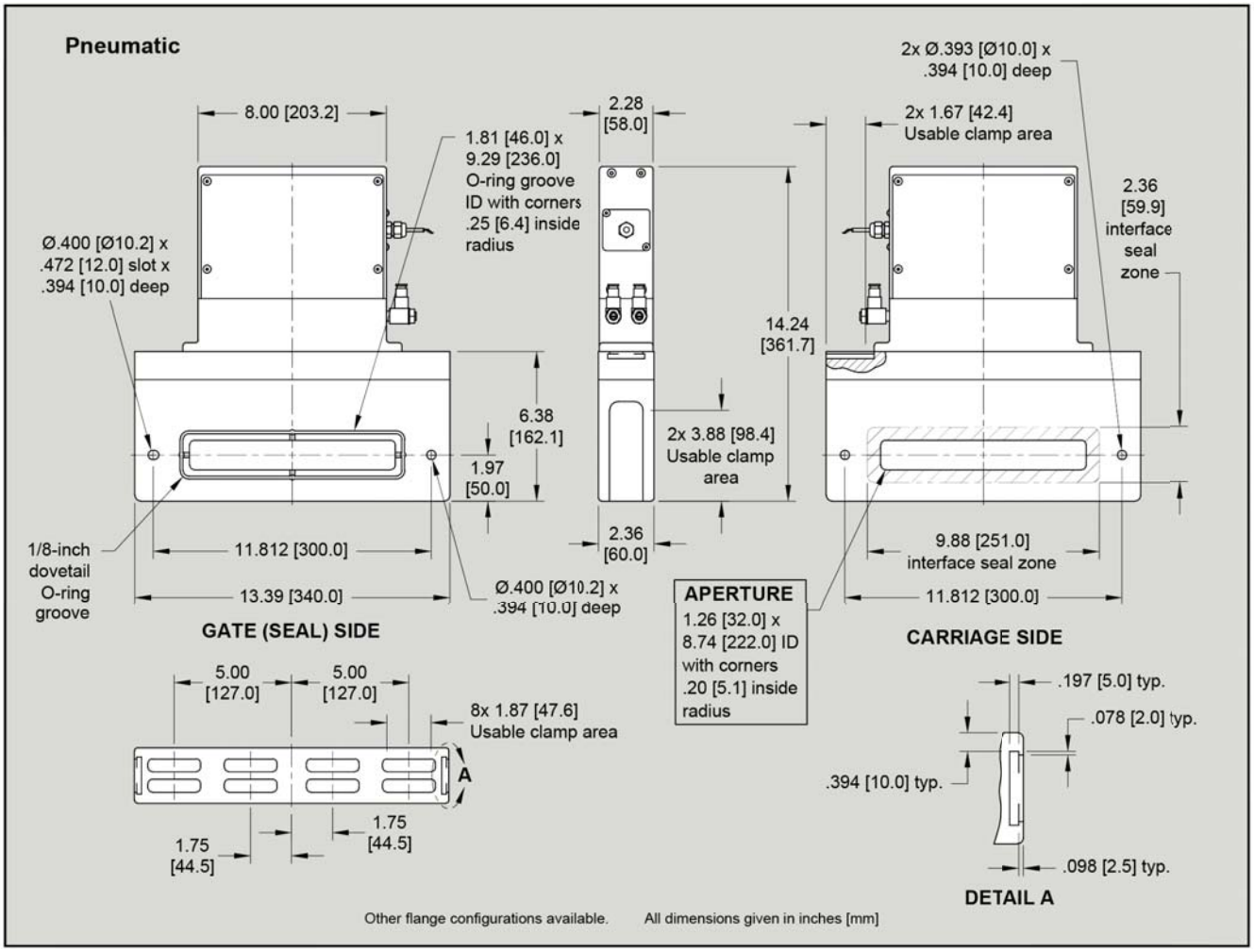
**250°C options available on request.*

MESC Flanges		32x222-mm 1x9-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Bolt	110 [50]	28212-0109RXJ

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional

28200 Series Stainless Steel Rectangular Slit Valves

32x222-mm 1.26x8.74-inch Clamped Style



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

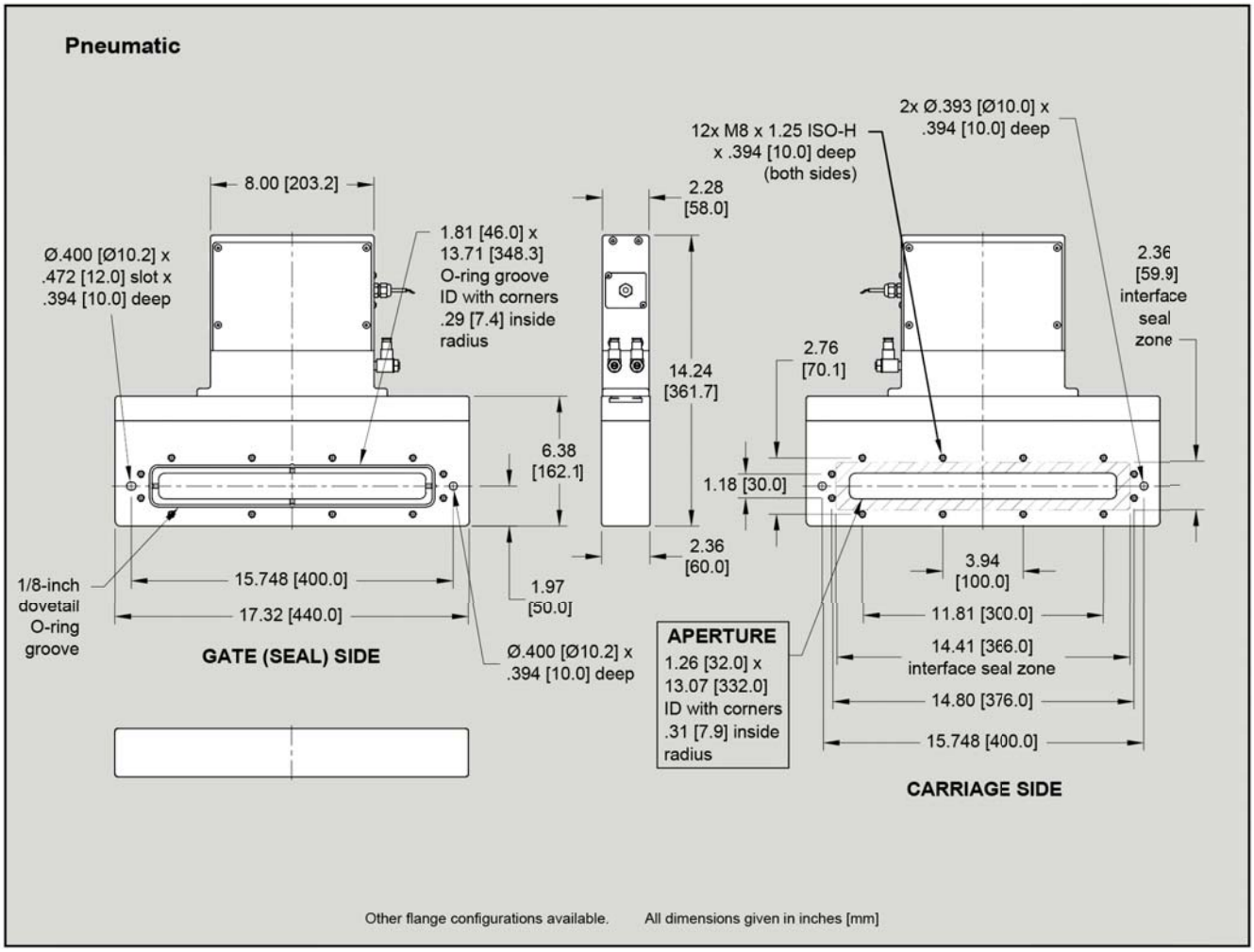
Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

**250°C options available on request.*

MESC Flanges		32x222-mm 1x9-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Clamp	110 [50]	28212-0109RXK

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional



28200

Specifications

HV Pressure Range: 1 x 10^{-9} mbar
UHV Pressure Range: 1 x 10^{-10} mbar
Helium Leak Rate: Materials: < 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening: ≤ 30 mbar
Materials:
Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum
Operating Temperature:
Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C*

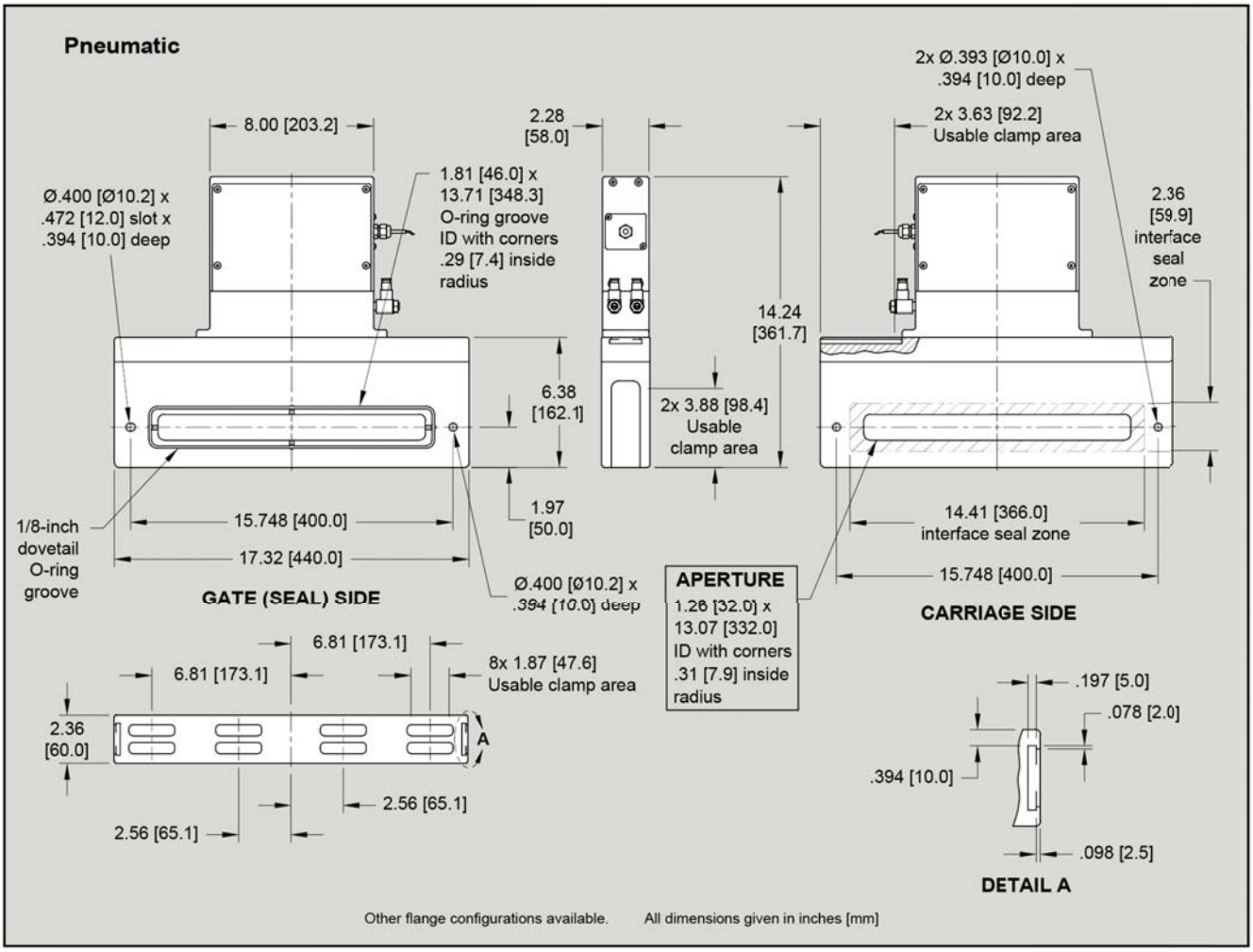
**250°C options available on request.*

MESC Flanges		32x332-mm 1x13-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Bolt	115 [53]	28212-0113RXJ

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional

28200 Series Stainless Steel Rectangular Slit Valves

32x332-mm 1.26x13.07-inch Clamped Style



Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

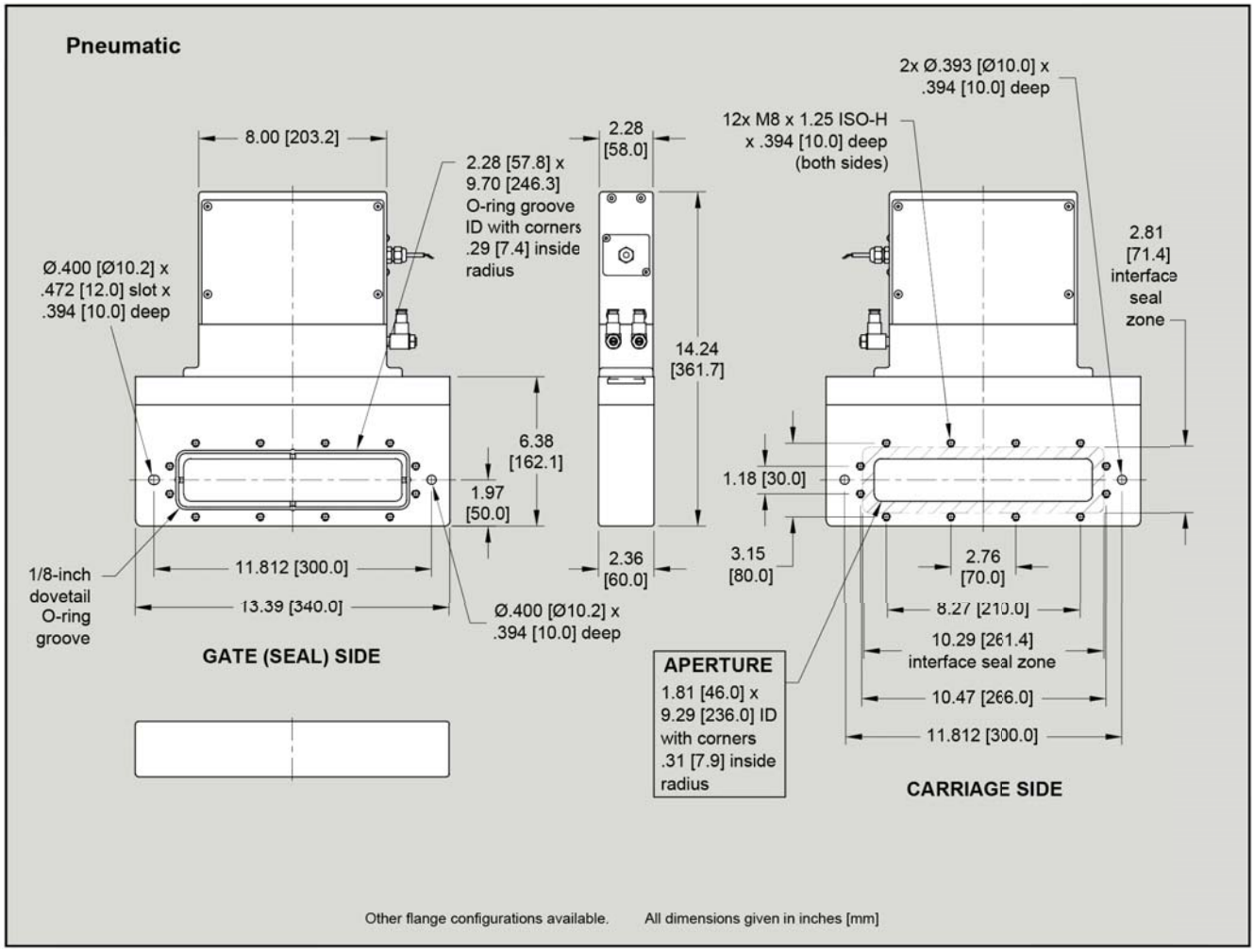
Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

**250°C options available on request.*

MESC Flanges		32x332-mm 1x13-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Clamp	115 [53]	28212-0113RXK

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional



28200

Specifications

HV Pressure Range: 1 x 10^{-9} mbar
UHV Pressure Range: 1 x 10^{-10} mbar
Helium Leak Rate: Materials: < 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening: ≤ 30 mbar
Materials:
Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum
Operating Temperature:
Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C*

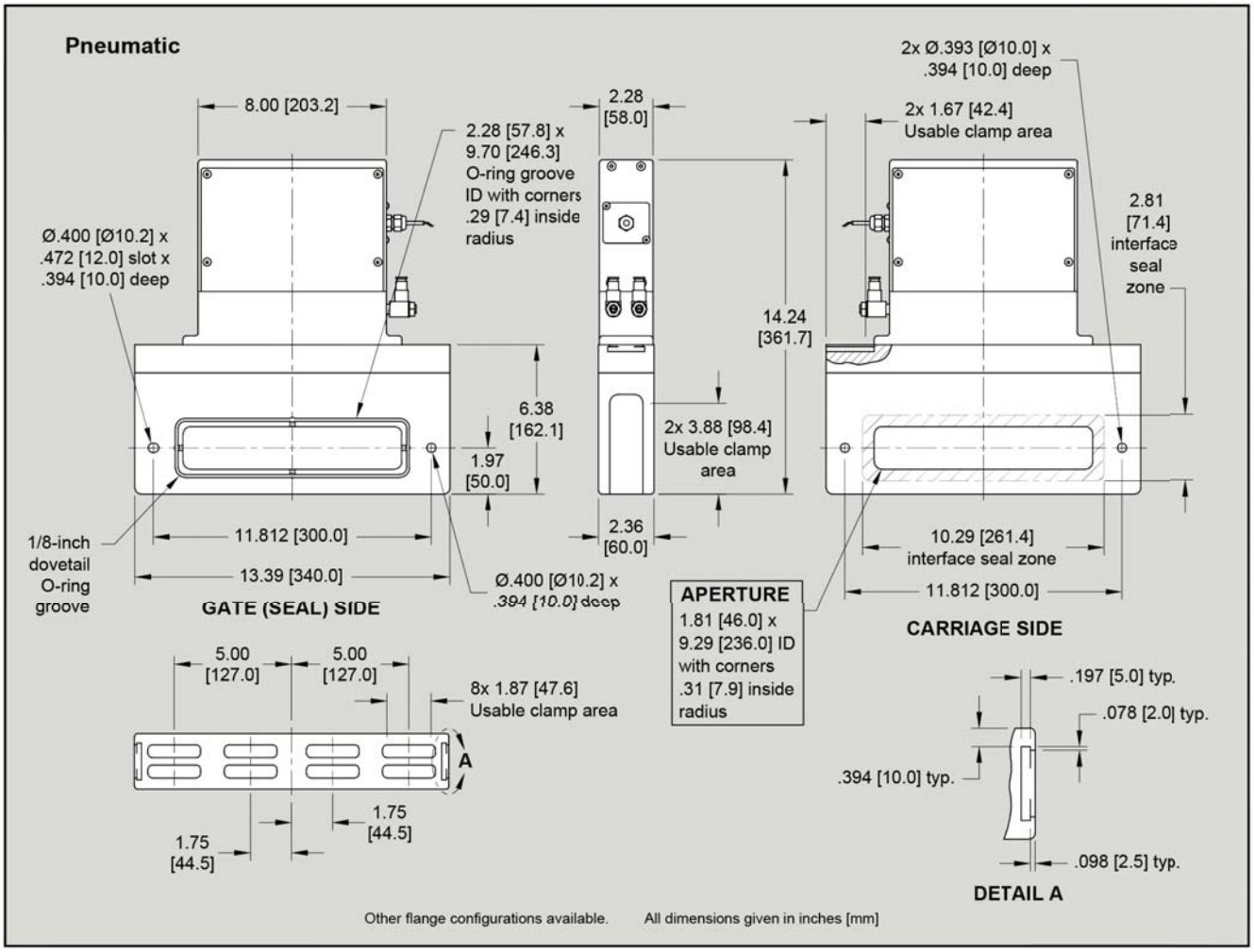
**250°C options available on request.*

MESC Flanges		46x236-mm 2x9-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Bolt	115 [53]	28212-0209RXJ

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional

28200 Series Stainless Steel Rectangular Slit Valves

46x236-mm 1.81x9.29-inch Clamped Style



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

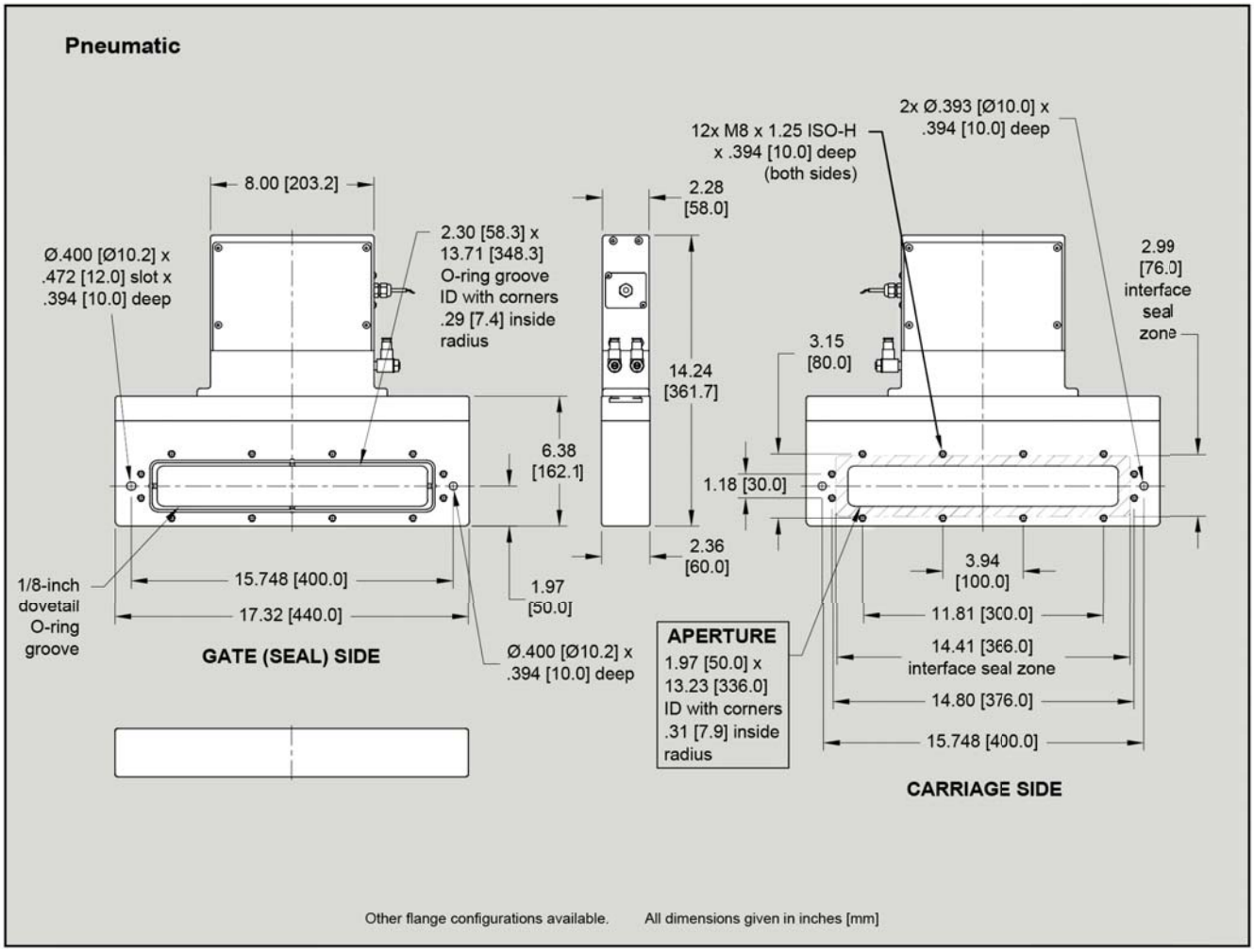
Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

**250°C options available on request.*

MESC Flanges		46x236-mm 2x9-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Clamp	115 [53]	28212-0209RXK

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

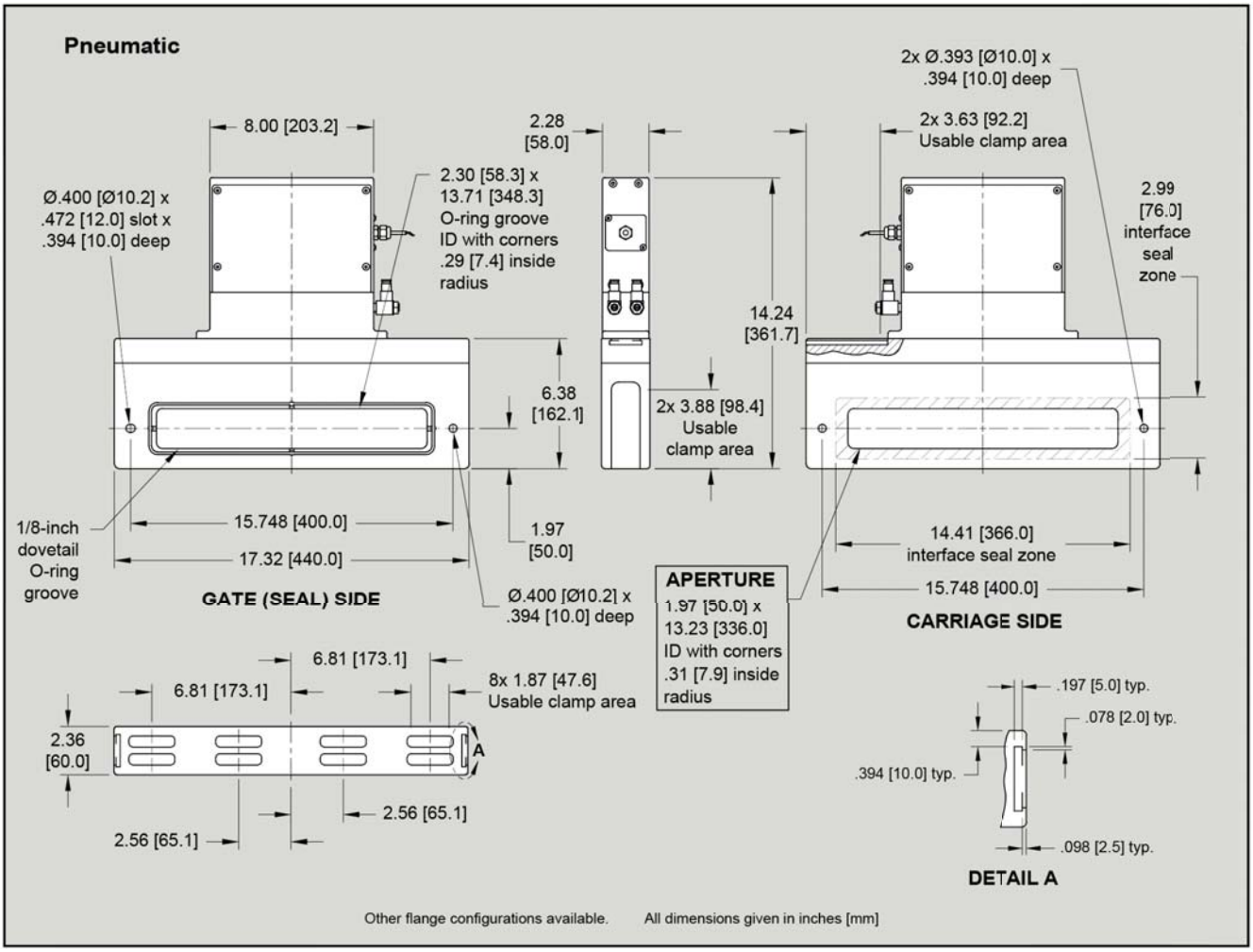
**250°C options available on request.*

MESC Flanges		50x336-mm 2x13-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Bolt	124 [57]	28212-0213RXJ

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional

28200 Series Stainless Steel Rectangular Slit Valves

50x336-mm 1.97x13.23-inch Clamped Style



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

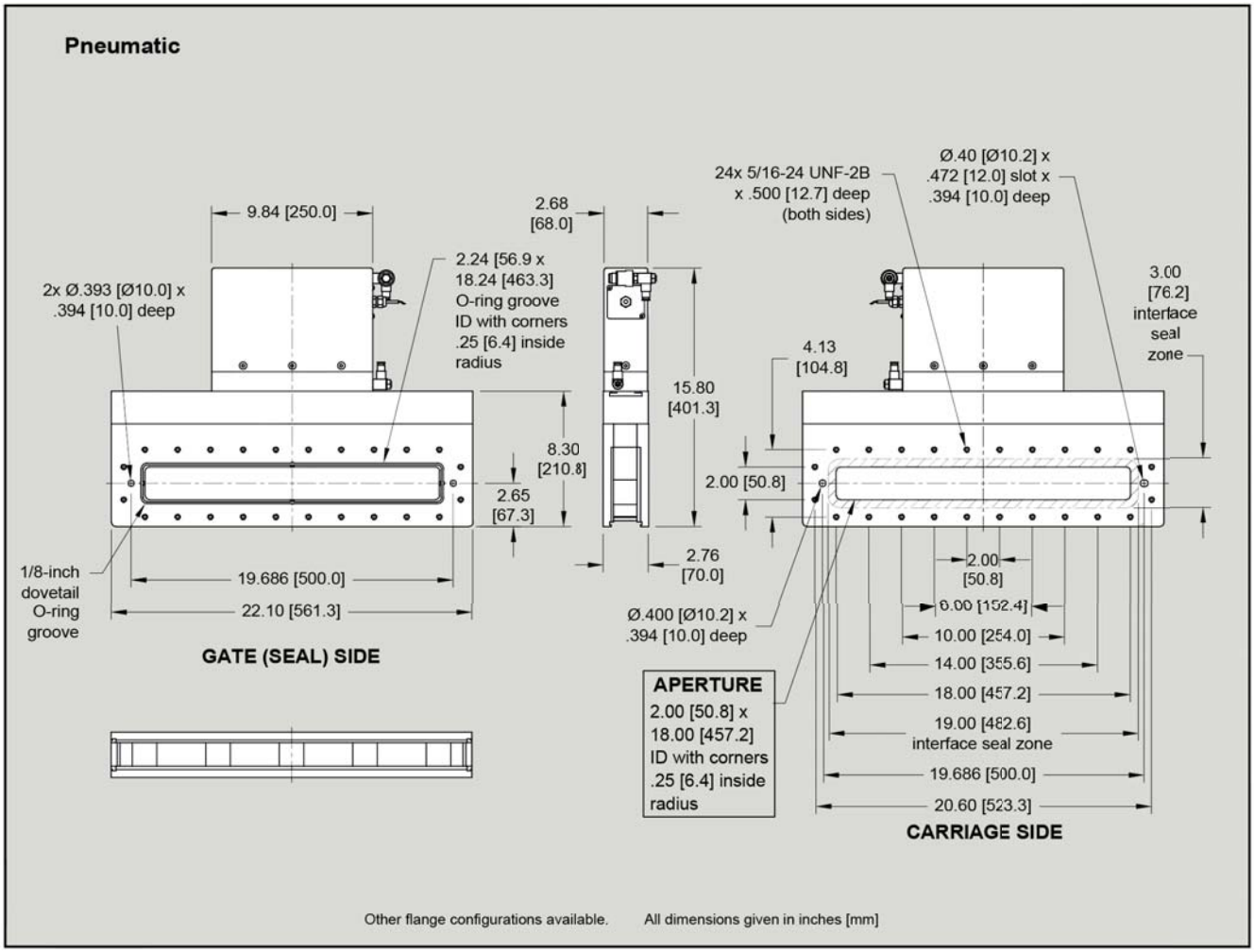
Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

**250°C options available on request.*

MESC Flanges		50x336-mm 2x13-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Clamp	124 [57]	28212-0213RXK

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C*

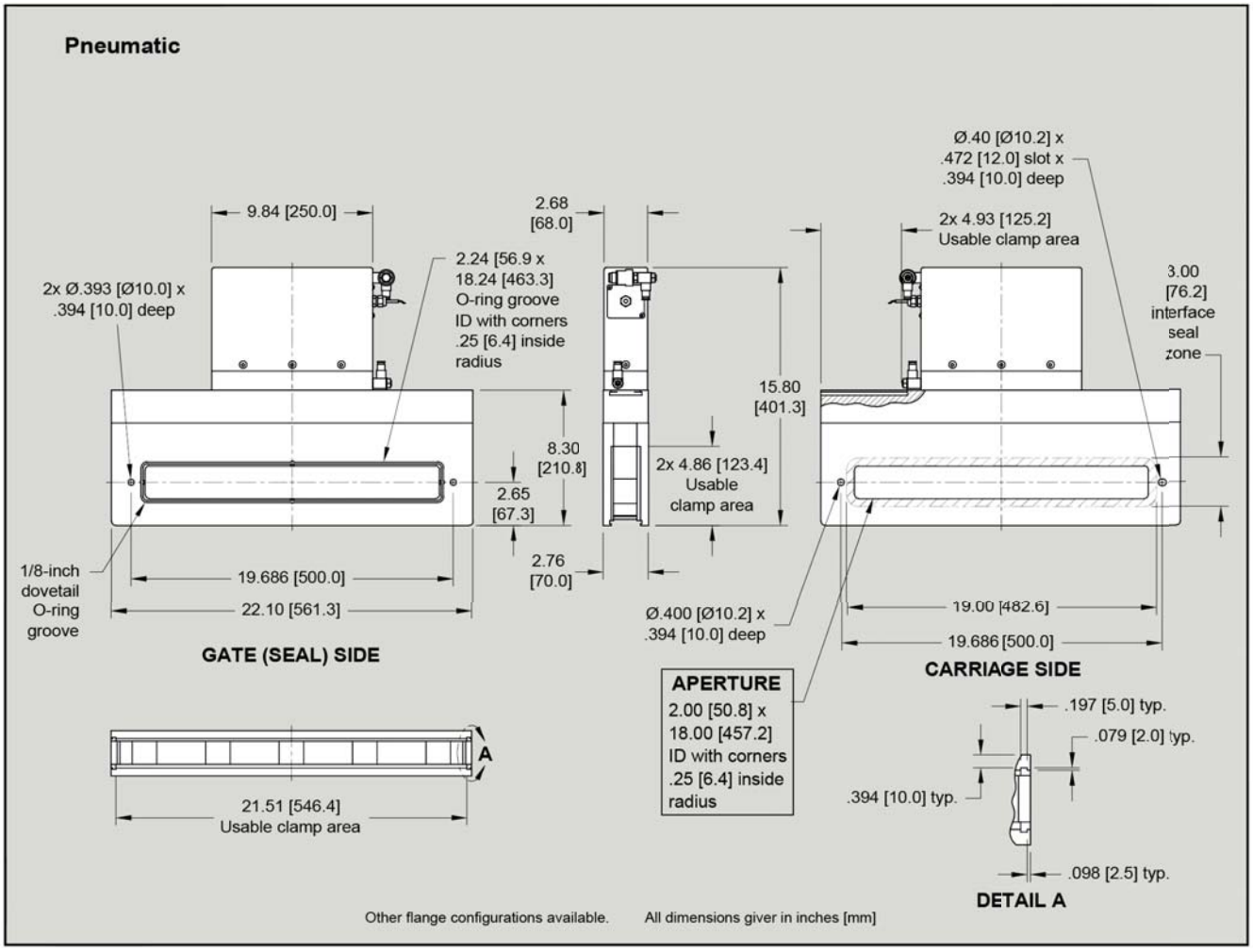
**250°C options available on request.*

MESC Flanges		50x457-mm 2x18-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Bolt	166 [75]	28212-0218RXB

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional

28200 Series Stainless Steel Rectangular Slit Valves

50x457-mm 2.0x18.0-inch Clamped Style



28200

Specifications

HV Pressure Range:	1 x 10^{-9} mbar
UHV Pressure Range:	1 x 10^{-10} mbar
Helium Leak Rate: Materials:	< 2 x 10^{-9} mbar l/s
Maximum Δ Pressure Before Opening:	≤ 30 mbar

Materials:

Body = 304 Stainless Steel
Gate = 304 Stainless Steel
Bellows = AM-350
Actuator = 6061-T6 Aluminum

Operating Temperature:

Body, Gate Open (Viton® / Copper bonnet) =	150°C / 200°C*
Body, Gate Closed (Viton® / Copper bonnet) =	150°C / 150°C*
Actuator w/out solenoid (Viton® / Copper bonnet) =	60°C / 60°C*
Position Indicator (Viton® / Copper bonnet) =	150°C / 150°C*

**250°C options available on request.*

MESC Flanges		50x457-mm 2x18-inch	
Bonnet-Gate	**Flange Type**	**Ship Wt. lbs [Kg]**	**Model Number ***
Pneumatic			
Viton-Viton (HV)	Clamp	166 [75]	28212-0218RXC

* For pneumatic valves,
R = Reed switch, standard
M = Microswitch, optional