

High Purity High Performance High Pressure Regulator

L20 Series

The Crown L20 Series High Pressure Regulator is designed to provide the optimum in performance and cleanliness for high purity semiconductor applications.

The L20 Series is capable of controlling pressure for intermediate flow rates at source cylinder applications.

The L20 Series is manufactured, cleaned and tested to rigorous standards using the most advanced technology available. Assembly, testing and packaging of all Crown high purity products are completed in a state-of-the-art Class 10 Clean Tunnel.



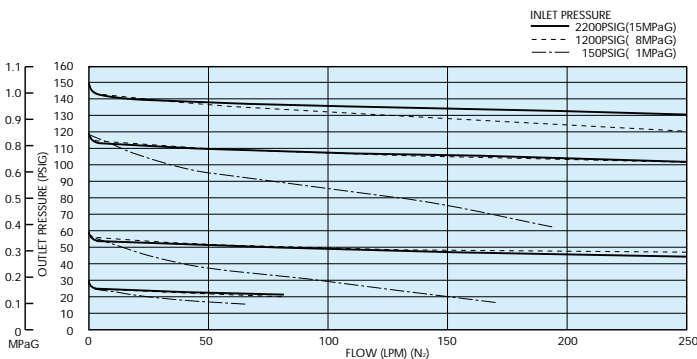
An ISO 9001 Certified Company

Features

- ▶ 1/4" High Purity, High Performance and High Pressure Regulator for intermediate flow rates at source cylinder applications.
- ▶ 1/4" Male Face Seal(Standard). Other connections available.
- ▶ True metal to metal diaphragm to body seals.
- ▶ Standard "Free Poppet" design. Optional "Tied Diaphragm" design for positive shutoff also available.
- ▶ 316L Stainless Steel construction or Hastelloy® C-22 available.
- ▶ 32 μin.(0.80 μm)Ra finishes are Standard. 7 μin.(0.18 μm) Ra full internal electropolish available as option.
- ▶ Delivers precise and stable pressure control by square load spring.
- ▶ Certified Class 10 Clean Tunnel for cleaning, assembly, test and packaging operations.
- ▶ Cleaning is a multi-step process performed in a Class 100 clean room. Parts are initially cleaned ultrasonically with a wetting agent and then progressively with DI water. Cleaned parts are then blown dry with pure hot air prior to being baked completely dry in a vacuum oven.
- ▶ Each regulator is individually assembled, pressure tested, functionally tested, helium leak tested and particle tested.
- ▶ Final packaging includes double bagging with N₂ purge and vacuum sealing in a Class 10 Clean Tunnel.

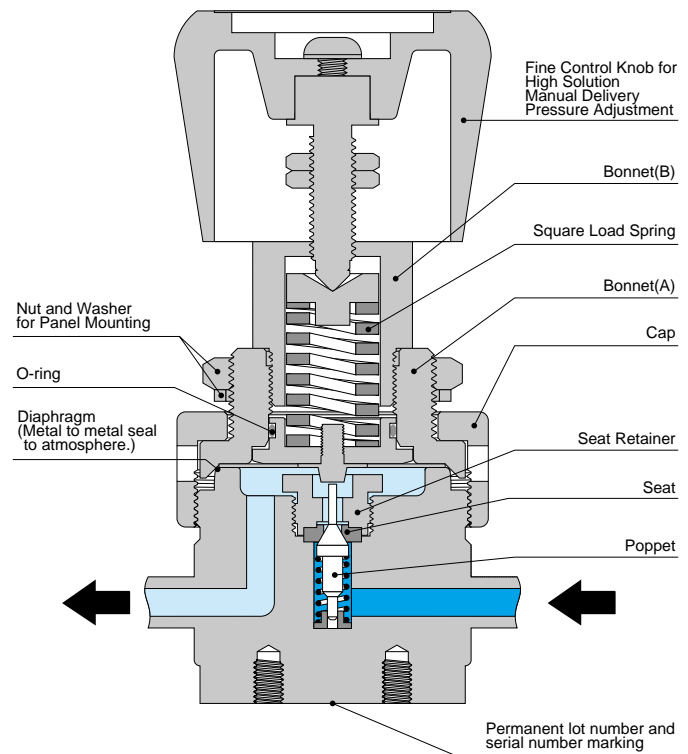
Flow characteristics

MODEL:L20

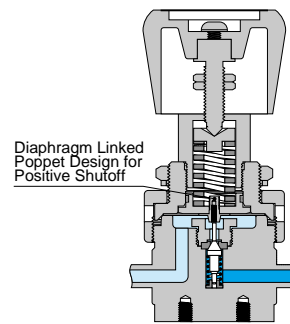


[NOTE] These tests were performed at ambient conditions .

Cross sectional drawing



Tied Diaphragm (Optional)



[NOTE]

1. No filter in this unit.
2. Avoid turning the control knob excessively.
3. Operating the Tied Diaphragm Type: In order to minimize premature wear of regulator & internal parts. Be sure not to close regulator while under pressure.

Materials of construction

MODEL & TYPE	L20SS	L20SH
Wetted Parts		
Body	316L Stainless Steel	316L Stainless Steel
Poppet & Seat Retainer	316L Stainless Steel	Hastelloy® C-22
Diaphragm	Hastelloy® C-22	Hastelloy® C-22
Seat	PCTFE	PCTFE
Spring	316 Stainless Steel	Co-Ni Alloy
Non-wetted Parts		
Bonnet(A)	316 Stainless Steel	316 Stainless Steel
Bonnet(B)	Nickel Plated Brass	Nickel Plated Brass
Cap	304 Stainless Steel	304 Stainless Steel
Control Knob	ABS Resin	ABS Resin
O-ring	VITON®	VITON®

Operating conditions

Inlet Pressure	Max. 3,500 PSIG (Max. 24 MPaG)
Outlet Pressure	0 PSIG to 140 PSIG (0 MPaG to 0.99 MPaG)
Supply Pressure Effect	0.03 PSIG (0.00021 MPaG) per 14.5 PSIG (0.1 MPaG)
Proof Pressure	3,215 PSI (22.2 MPa)
Burst Pressure	8,575 PSI (59.2 MPa)
Temperature	-40°F to +104°F (-10°C to +40°C)

[NOTE]

1MPa = 10.2 kgf/cm² = 144.84 PSI

1MPa = 7504.36 mmHg = 295.4 inHg

Wetted surface finishes

Standard Ra (GRADE ^① B ^② & C ^③)	32 μ in.(0.80 μ m) or less
Optional Ra (GRADE ^① A ^④)	7 μ in.(0.18 μ m) or less

Standard connections

1/4" Face to face length3.70in.(94mm)

1/4" Tube stubs and other connections available as options.

[NOTE]

- Any combination of Face Seal male and/or female fittings are available for inlet and outlet.
- Size and configuration of pressure gauge port is 1/4" Face Seal male.

Functional performance

Inboard Leakage	1x10 ⁻¹¹ Pa · m ³ /sec. He (1x10 ⁻¹⁰ atm · cc/sec. He)
Outboard Leakage	1x10 ⁻¹⁰ Pa · m ³ /sec. He (1x10 ⁻⁹ atm · cc/sec. He)
Leakage Across Seat	8x10 ⁻¹⁰ Pa · m ³ /sec. He (8x10 ⁻⁹ atm · cc/sec. He)
Certified Particle Counts	GRADE ^① A ^② :0.3 μ m or less GRADE ^① B ^③ :0.5 μ m or less GRADE ^① C ^④ :Not certified.
Internal Volume	4.67 cc (0.28 in ³) w/o fittings
Installation	Threaded holes on the rear surface or Panel mounting

Approximate weight

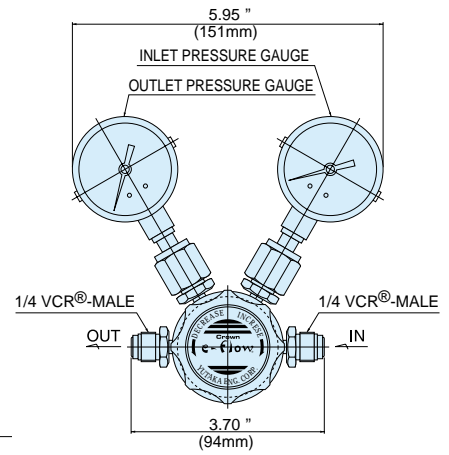
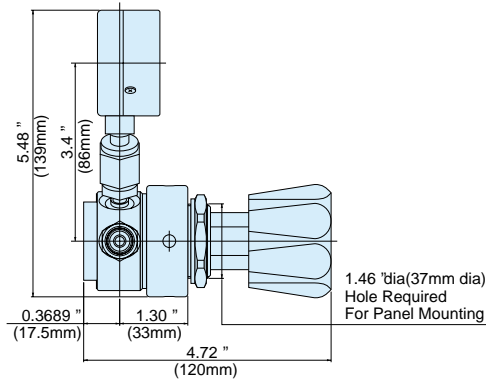
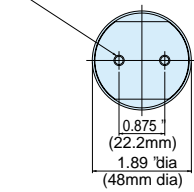
2lbs.14 oz.(1.29 kg)

Approvals

- ▶ An ISO 9001 certified quality system since 1996. The first Japanese high purity regulator manufacturer to receive ISO certification.
- ▶ MITI(Ministry of International Trade and Industry, Japanese Government) certified self-inspecting manufacturer of regulators, N-II fittings and gas heaters according to the Fifth Procedural Manual of the High Pressure Gas Safety Law(License No.MAB-472).
- ▶ MHW(Ministry of Health and Welfare, Japanese Government) certified medical equipment manufacturer (License No.(東用)No.2755).

Outline drawing

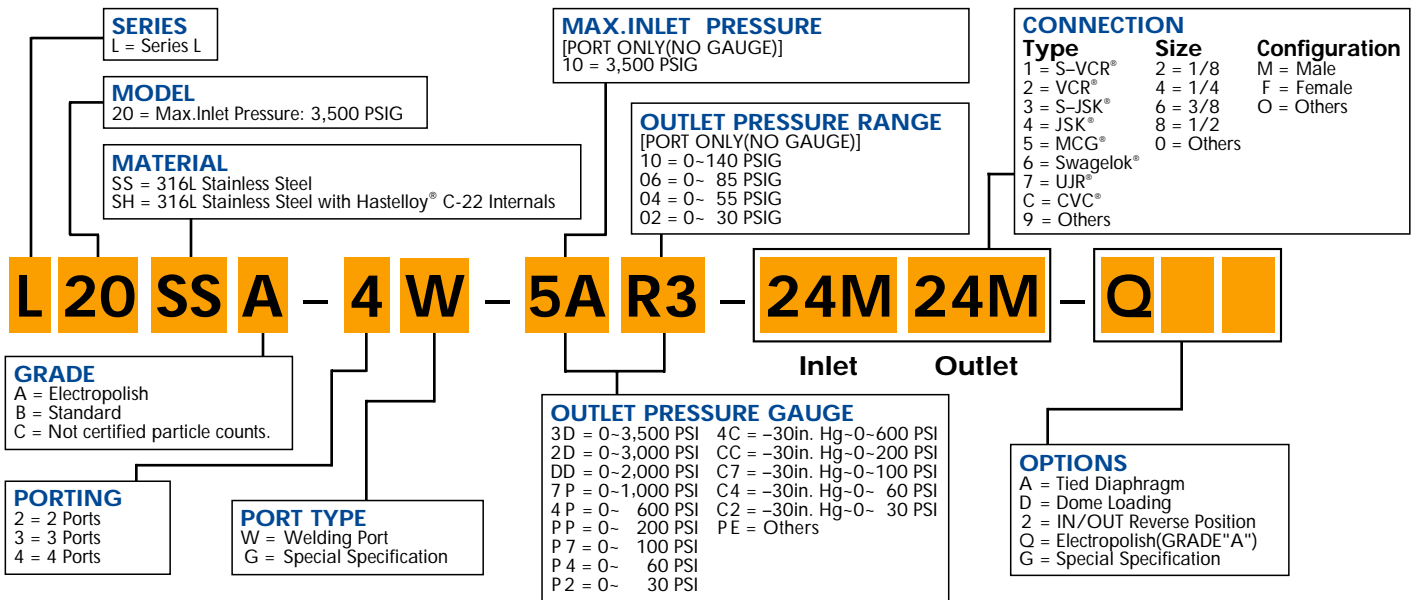
Threaded holes for the rear surface installation.
2-M5X0.8-7.0mm(0.276in.)deep.



[NOTE]

Dimensions are in inches and (mm) for reference only. Subject to change without notice.

Ordering information



[NOTE]

- ▶ Product availability and specifications contained herein are subject to change without notice. Consult local distributor or factory for potential revisions.
- ▶ Bonnet vent relief porting(Optional).
- ▶ Dome loading(Optional).
- ▶ Pressure Sensor available in place of pressure gauge.
- ▶ To complete ordering information, select "SS" or "SH" in the "MATERIAL" category.
- ▶ Series L25 is recommended for Chlorine(Cl₂) service and Nitrous Oxide(N₂O) service.
- ▶ Crown/YUTAKA® and e-flow® are registered trademarks of YUTAKA ENGINEERING CORPORATION.
- ▶ Hastelloy® is a registered trademark of Haynes International, Inc.
- ▶ VITON® is a registered trademark of DuPont Company.

- ▶ S-VCR®, VCR® and Swagelok® are registered trademarks of Swagelok Marketing CO.
- ▶ S-JSK® and JSK® are registered trademarks of SANKO KOGYO CO., LTD.
- ▶ MCG® is a registered trademark of TOYOKO KAGAKU CO., LTD.
- ▶ UJR® is a registered trademark of Fujikin Incorporated.
- ▶ CVC® is a registered trademark of Benkan Corporation.
- ▶ When selecting a regulator, the total system design must be considered to assure safe, trouble-free regulator performance. Regulator function, materials compatibility, adequate ratings, proper installation, operation and maintenance are the responsibility of the system designer and user.
- ▶ Custom fittings, porting, testing and dimension options are also available upon customer request.
- ▶ Do not mix or interchange parts with those of other manufacturers.

For additional information on
Crown products contact :

An ISO 9001 Quality System Certified Company
MITI Certified Self-Inspecting Manufacturer(No.MAB-472)
MHW Certified Medical Equipment Manufacturer((東用)No.2755)

TOTAL ENGINEERING OF GAS REGULATING EQUIPMENT
YUTAKA ENGINEERING CORPORATION

ADDRESS : 5-17-5, KUGAHARA, OHTA-KU, TOKYO 146-0085, JAPAN
PHONE : 81-3-3753-1651
FAX : 81-3-3751-5177