

AGS Flow Solution Pte. Ltd.

PRODUCT TECHNICAL SPECIFICATIONS & STANDARD FEATURES

Company: AGS Flow Solution Pte. Ltd. (ISO 9001:2015 Certified)

Document Type: Technical Catalog Supplement — Instrumentation Valves, Safety & Control Devices, and Valve Automation Systems

Design Standards Compliance: ASME, API, ISO, IEC, ISA, MSS SP, BS, EN, AWWA, NACE MR0175 / MR0103

1. Needle & Instrumentation Valves

High-Pressure Barstock Needle Valves (Non-Cryogenic)

Specification Item	Technical Details & Standard Features
Design Standards	ASME B16.34, MSS SP-99, MSS SP-105, BS 4368, API 598
Size & Pressure Range	NPS 1/8" ~ 2" (DN6 ~ DN50); Class 1500LB ~ 10,000 psi (up to 690 bar)
Stem & Tip Designs	Non-rotating hardened stem tip (Vee tip standard; soft Kel-F/PEEK tip optional for bubble-tight shutoff; regulating tip for precision metering)
End Connections	NPT / BSPT / BSPP Threaded (ASME B1.20.1), Two-Ferrule Compression Tube Fittings, Socket Weld (ASME B16.11)
Materials	SS316 / SS316L, Super Duplex (UNS S32750), Hastelloy C-276, Monel 400, Inconel 625
Standard Features	• Metal-to-metal seating with rolled stem threads to eliminate galling and extend cycle operating life. • Below-thread packing design isolates lubricant and actuation threads from line media. • Backseat design prevents stem blowout and provides secondary atmospheric containment. • Panel mount bracket and lock-pin handle arrangements standard for high-vibration skids.

Extended Bonnet Cryogenic Needle Valves

Specification Item	Technical Details & Standard Features
Design Standards	ASME B16.34, BS 6364, MSS SP-134, ISO 21011
Size & Temperature Range	NPS 1/4" ~ 1" (DN8 ~ DN25); Class 1500LB ~ 6000 psi; Service temperatures down to -196°C (LNG, Liquid Nitrogen, LOX)
Bonnet Configuration	One-piece welded or bolted extended stem column establishing a stable insulating vapor buffer zone to maintain gland packing at ambient temperature
Materials	Low-temperature forged 316/316L, F304L stainless steel; PCTFE / Kel-F or Stellite hardfaced tipped stems
Standard Features	• Precision cleaned and degreased per ASTM G93 Level C / CGA G-4.1 for clean oxygen-safe service. • Chevron-style live-loaded PTFE/Graphite packing with Belleville spring washers to compensate for cryogenic thermal contraction. • Non-rotating micro-metering needle profile eliminates seat galling during cold throttling cycles. • Extended bonnet length sized strictly in accordance with BS 6364 recommendations for vertical and horizontal installations.

2. Air Relief & Vacuum Breaker Valves

Combined Triple-Action Air Relief & Vacuum Breaker Valves

Specification Item	Technical Details & Standard Features
Design Standards	AWWA C512, EN 1074-4, API 598
Size & Pressure Range	NPS 1" ~ 12" (DN25 ~ DN300); Class 150LB ~ 300LB / PN10 ~ PN40
Body Structures	Aerodynamic ductile iron (QT450 / GGG40), WCB carbon steel, or CF8M stainless steel body coated with fusion bonded epoxy (FBE)
End Connections	Flanged to ASME B16.5, EN 1092-2, or Threaded NPT/BSPT for

Specification Item	Technical Details & Standard Features
	sizes $\leq 2"$
Float & Trim Materials	Precision cylindrical SS304/SS316 floats, resilient EPDM or NBR lip-seal seats with anti-adhesion design
Standard Features	• Triple Action Operation: Rapidly expels massive air volume during pipeline filling, draws in air to prevent catastrophic vacuum collapse upon pump trip/drainage, and continuously discharges entrained micro-air bubbles under working line pressure. • Aerodynamic kinetic float mechanism prevents dynamic air blow-by and premature closure under high-velocity air discharge. • Integrated test point and optional built-in isolation valve assembly for online operational verification.

3. Overpressure Safety & Relief Valves

Spring-Loaded & Pilot-Operated Safety Relief Valves (PSV)

Specification Item	Technical Details & Standard Features
Design Standards	API 520, API 526, API 527, ASME Boiler & Pressure Vessel Code Section VIII Division 1
Size & Orifice Ratings	Standard API Orifices "D" through "T"; Inlet NPS 1" to 8", Outlet NPS 2" to 10"; Class 150LB ~ 2500LB
Bonnet Configurations	Open Bonnet (steam/clean gas), Closed Conventional Bonnet, or Balanced Inconel Bellows (cancels backpressure variations and isolates guide from toxic fluids)
Seat & Disc Construction	Precision micro-lapped metal-to-metal seating (Stellite hardfaced) or interchangeable resilient soft seat (Viton, Kalrez, PTFE) ensuring zero leakage up to 95% of set pressure
Materials	Body/Bonnet: WCB, LCB, CF8M, WC6, Inconel; Trim: 316SS with

Specification Item	Technical Details & Standard Features
	Stellite, Monel, Hastelloy
Standard Features	• Certified high-flow nozzle-to-body guided structure with dual blowdown adjustment rings for precise overpressure and blowdown calibration. • Pilot-operated safety valve (POSV) options available for operating pressures up to 98% of set pressure without simmering or leakage. • Compliant with NACE MR0175 / ISO 15156 requirements for sour gas and harsh hydrocarbon installations. • Full-nozzle inlet configuration isolates body cavity from process fluid exposure during non-relieving operation.

4. Industrial Control Valves

Globe-Style & Rotary Throttling Control Valves

Specification Item	Technical Details & Standard Features
Design Standards	IEC 60534, ISA-75, ASME B16.34, ANSI/FCI 70-2 (Seat Leakage)
Size & Pressure Range	NPS 1/2" ~ 16" (DN15 ~ DN400); Class 150LB ~ 2500LB
Flow Characteristics	Linear, Equal Percentage, Quick Opening, Modified Parabolic, or Custom Characterized Trims
Shutoff Leakage Classes	Class IV (standard metal-to-metal), Class V (high shutoff differential pressure), Class VI (resilient soft seat bubble-tight)
Severe Service Trims	Multi-hole low-noise cages, multi-stage tortuous path pressure drop discs (cavitation elimination and acoustic energy attenuation)
Standard Features	• Quick-change cage-retained seat ring allows seamless maintenance and fast characteristic changes without pulling the body from the line. • Precision live-loaded PTFE V-ring or pure graphite packing

Specification Item	Technical Details & Standard Features
	arrangements compliant with ISO 15848-1 low-fugitive emissions standards. • Rigid post or cage guiding minimizes vibration and ensures tight alignment through full travel stroke. • Universal direct-mounting pad compliant with NAMUR / IEC standards for smart digital positioners.

5. Valve Automation & Actuators

Pneumatic Rack & Pinion and Scotch Yoke Actuators

Specification Item	Technical Details & Standard Features
Design Standards	ISO 5211, DIN 3337, VDI/VDE 3845 (NAMUR), ATEX Directive 2014/34/EU, SIL 3 Capable (IEC 61508)
Torque Range	• Rack & Pinion: 5 Nm ~ 10,000 Nm • Heavy-Duty Scotch Yoke: 500 Nm ~ 350,000 Nm (Symmetric or Canted torque profiles)
Operating Modes	Double Acting (DA) or Spring Return Fail-Safe (SR — Fail Open / Fail Close)
Operating Medium & Pressure	Clean, dry compressed air, instrument air, or non-corrosive gases; 2.5 bar to 8.0 bar working pressure
Construction & Materials	Extruded hard-anodized aluminum or epoxy-coated ductile iron / forged carbon steel; electroless nickel-plated pinion/shaft
Standard Features	• Bi-directional mechanical travel stop bolts adjustable by $\pm 5^\circ$ at open and close positions (0° and 90°). • Pre-compressed encapsulated safety spring cartridges guarantee maximum safety during field disassembly and overhaul. • Universal NAMUR interface allowing direct plug-and-play mounting of solenoid valves, switchboxes, and positioners.

Specification Item	Technical Details & Standard Features
	• Low-friction composite guide bearings minimize maintenance and maximize cycle endurance (>1,000,000 cycles).

Intelligent Multi-Turn & Quarter-Turn Electric Actuators

Specification Item	Technical Details & Standard Features
Design Standards	EN 15714-2, ISO 5211, IP68 (submersible to 8m for 72 hrs), ATEX / IECEx Ex d IIC T4 Gb
Power Supply	3-Phase (380V/415V/480V AC), 1-Phase (110V/230V AC), or 24V DC configurations
Operating Duty	On/Off & Inching (S2 - 15/30 min) or Continuous Modulating (S4 - up to 1200 starts/hour, 50% duty cycle)
Torque / Thrust Range	Quarter-turn: 50 Nm ~ 35,000 Nm; Multi-turn: 15 Nm ~ 3,000 Nm (Direct) / Up to 100,000 Nm with bevel/spur gearbox
Interface & Commissioning	Non-intrusive setup via infrared / Bluetooth setting tool; High-resolution multilingual LCD display showing valve position, torque, and diagnostics
Standard Features	• Double-sealed terminal enclosure prevents moisture and dust ingress even during terminal cover removal for on-site cabling. • Dynamic electronic torque sensing independent of voltage/temperature variations, providing over-torque motor trip protection. • Declutchable manual handwheel override with automatic motor-preference reset upon electrical signal initiation. • Standard 4–20 mA analogue positioning card, configurable alarm relay contacts, and optional digital fieldbus protocols (Modbus RTU, Profibus-DP, Foundation Fieldbus, HART).