



Espinoza Trading

Next-generation trading between China and Latin America

Product catalog · 2026

Valves and actuators for the **natural gas** industry

51 families of valves, regulators, actuators and controls for transmission, compression, M&R stations, distribution, industry, LNG and CNG.

- | | |
|---|----------------------------|
| 1 Transmission and Trunk Pipelines | 5 LNG and CNG |
| 2 Compression, City Gate and M&R Stations | 6 Actuators |
| 3 Distribution: Steel and Polyethylene Networks | 7 Controls and Accessories |
| 4 Industrial and Commercial Installations | |

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Reference image. Product may vary.



How to read each data sheet

1

Overview

The full family and its main variants, to identify the valve or actuator type.

2

Detail

Close-up of the key part: seat, stem, connection, mechanism or mounting plate.

3

In use

Where and how it is installed: pipeline, station, distribution network, plant or skid.

4-7

Detailed data sheet

Second page: construction, materials, sizes, operation, connections, standards, applications, testing and 4 variant photos.

Quick entry

Accessories with no gas contact or a simple specification (operators, extensions, small instrumentation). Quick to quote and compare.

Technical validation

Valves and equipment that contain pressurized gas or go in classified areas. Before offering, we validate the standard, tests, certificates and your engineering approval.

Technical data

Size range, pressure, materials, ends, standards and typical lead time of each family. These are the ranges we quote; each proposal confirms the exact value.

Lead times in business days

Typical manufacturing time excludes freight: sea 30 to 58 business days, air 15 to 29 business days. Each quote states the actual time based on quantity and testing.

Reference images. Photos show the product type and may vary by model. Each quote includes photos, a data sheet and drawings from the proposed manufacturer.



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Typical buyer: Operations / M&R Station Maintenance

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Where each valve goes in the gas chain

From wellhead to burner: each stage with its Mexican standard and the families in this catalog used there.

1

Wellhead and associated gas

API 6A

09 API 6A wellhead

2

Pipeline transmission

NOM-020-ASEA-2024

01 Trunnion ball API 6D

02 Fully welded ball

03 Top-entry ball

04 Slab and expanding gate

05 Pipeline check

08 Vent and blowdown

20 Emergency shutdown (ESD)

3

Compression

NOM-020-ASEA-2024

05 Pipeline check

12 Wedge gate API 600

18 Globe control

19 Rotary control

20 Emergency shutdown (ESD)

17 Relief and safety

4

City gate and M&R

NOM-003-ASEA-2016

10 Floating ball

15 Station regulators

16 Overpressure shutoff

17 Relief and safety

06 Lubricated plug

07 Expanding plug DBB

21 Needle and manifolds

22 Instrument DBB

5

Steel and PE distribution

NOM-003-ASEA-2016

23 PE100 ball

24 Steel-PE transition

25 Steel ball for network

27 Excess flow (EFV)

6

Service line and meter

NOM-003-ASEA-2016 /
NOM-002-SECRE-2010

26 Service and curb

28 Meter valves

29 Service regulators

30 Seismic shutoff

7

Industry and commercial

NOM-002-SECRE-2010

31 Brass and steel ball

32 Gas solenoid valves

33 Valve trains

34 Burner regulators

13 Triple offset butterfly

5

LNG and CNG

35 Cryogenic Valves for LNG

Liquefaction, storage and regasification · NOM-013-ASEA-2021

36 High-Pressure Valves for CNG Stations

CNG fueling stations and modules · NOM-010-ASEA-2016

37 CNG Vehicle Components

CNG vehicles and fleets · NOM-011-SECRE-2000

At every stage: actuators, controls and spare parts (families 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51): gear operators, pneumatic, gas-over-oil, electro-hydraulic and explosion-proof electric, positioners, solenoids, extensions and seal kits.



Standards Mexican buyers ask for

Mexican Official Standards (NOM) (in force as of Oct 7, 2026)

NOM-020-ASEA-2024	Natural gas transportation by onshore pipelines	Replaces NOM-007-ASEA-2016 (in force since Feb 28, 2026). Valves per ASME B31.8 (831.1); sectionalizing every 8 to 32 km by location class; automatic or remote in restricted-access areas; venting at each section; compression emergency shutdown operable from two points.
NOM-003-ASEA-2016	Distribution of natural gas and liquefied petroleum gas by pipeline	Steel and polyethylene networks, regulating stations and service lines.
NOM-002-SECRE-2010	Natural gas utilization installations	Internal piping in homes, businesses and industry.
NOM-001-SECRE-2010	Natural gas specifications	Gas quality and composition; basis for choosing materials and seals.
NOM-013-ASEA-2021	Liquefied natural gas storage and regasification installations	Replaces NOM-013-SECRE-2012.
NOM-010-ASEA-2016	Compressed natural gas (CNG): module loading and unloading terminals and fueling stations	CNG stations and transportable storage modules.
NOM-011-SECRE-2000	Compressed natural gas for automotive use: vehicle installations	CNG conversions and fleets.
NOM-093-SCFI-2020	Pressure relief valves (safety, safety-relief and relief), spring and pilot operated, steel and bronze	Replaces NOM-093-SCFI-1994.
NOM-001-SEDE-2012	Electrical installations (utilization)	Classified areas: explosion-proof actuators, solenoids and limit switches.

International standards we quote

- Valve design**
API 6D (ISO 14313), API 6A (ISO 10423), ASME B16.34, API 600, API 602, API 608, API 609, API 594, API 599, ISO 17292, MSS SP-99
- Gas distribution**
ASME B16.33, ASME B16.38, ASME B16.40, ISO 4437-4, EN 1555-4, MSS SP-115, ASTM F2138, ANSI B109.4
- Flanges and dimensions**
ASME B16.5, B16.47, B16.10, B16.25, B16.11; ASME B31.8 piping code
- Testing and tightness**
API 598, API 6FA, API 607 / ISO 10497, ISO 15848-1, API 624, API 641, ANSI/FCI 70-2, API 527
- Materials**
NACE MR0175 / ISO 15156 (H2S), ISO 23936-2 (elastomers), EN 10204 3.1 certificates
- Regulation and relief**
EN 334, EN 14382, EN 12186, API 526, API 520 / 521, ASME Sec. VIII
- Burners and buildings**
EN 161, EN 88-1 / 88-2, ISO 23551-1, EN 1643, EN 746-2, NFPA 85 / 86, UL 429, ASCE 25
- LNG and CNG**
BS 6364, ISO 28921-1, MSS SP-134, ISO 15500, UN ECE R110
- Actuators and hazardous areas**
ISO 5211, ISO 5210, VDI/VDE 3845 (NAMUR), IEC 60534, IEC 61508 / 61511 (SIL), IEC 60079, ATEX 2014/34/EU, IECEx, NEMA 4X / 7

NOMs apply to installation and operation; final validation of each piece of equipment is done by the customer's engineering and, where applicable, its verification unit or approved third party. Validity checked in the Mexican Catalog of Standards (Secretaría de Economía).



Quick technical guide

The minimum needed to specify a gas valve properly and receive a comparable quote.

ASME B16.34 / B16.5 pressure classes

Maximum pressure, carbon steel (group 1.1) at -29 to 38 °C

Class 150	19.6 bar	285 psi
Class 300	51.1 bar	740 psi
Class 600	102.1 bar	1,480 psi
Class 900	153.2 bar	2,220 psi
Class 1500	255.3 bar	3,705 psi
Class 2500	425.5 bar	6,170 psi

Allowable pressure drops as temperature rises and varies with material.

Sealing functions in trunnion ball valves

- DBB:** double block and bleed, two seats seal at once with cavity bleed.
- DIB-1:** both seats seal in both directions.
- DIB-2:** one bidirectional and one unidirectional seat.
- Fire-safe:** seals after fire (API 6FA / API 607).

Body materials

A216 WCB / A105	Cast / forged carbon steel	-29 to 425 °C, general use
A352 LCC / A350 LF2	Low-temperature carbon steel	Down to -46 °C
A351 CF8M / A182 F316	Stainless steel	-196 to 538 °C; cryogenic and corrosion
Duplex F51 / F55	Duplex and super duplex stainless	Chlorides, CO2, marine environment
Ductile iron / brass	Low pressure	Distribution, service lines and meters

Seats and seals

PTFE / RPTFE	General-purpose seat, low friction.
Nylon (PA)	Seat for high-pressure gas.
PEEK	High pressure and temperature.
Metal-metal	Vent, blowdown and dirty or abrasive service.
NBR / HNBR / FKM	O-rings and diaphragms by gas and temperature.
AED	Explosive-decompression-resistant elastomer (Class 600 and higher).

End connections

RF	Raised-face flange
RTJ	Ring-type joint flange, high pressure
BW	Butt-weld (B16.25)
SW	Socket weld (B16.11)
NPT	Tapered thread
PE spigot	For heat fusion or electrofusion

Seven blocks, from pipeline to burner

Each family has 2 pages: 7 reference photos, technical data, detailed description, variants and the data we need to quote.



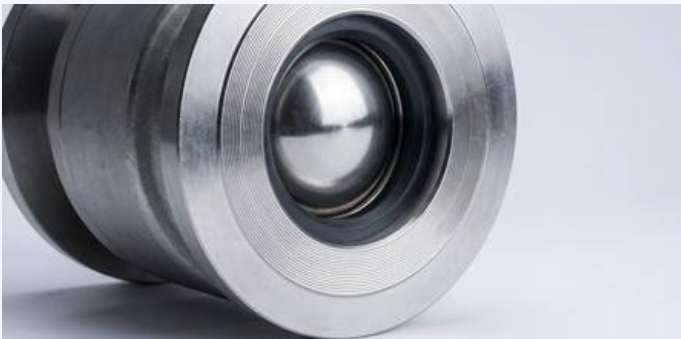
51

families in 7 blocks

Valves from ½" to 48", Class 150 to 2500, PE 20 to 315 mm, CNG up to 350 bar and cryogenics to -196 °C. Manual, pneumatic, gas-over-oil, electro-hydraulic and explosion-proof electric actuators.



1 Overview



2 Detail



3 In use

SIZES 2" to 48" (larger on request)	PRESSURE ASME Class 150 to 2500	MATERIALS A216 WCB / A105, LCC / LF2, stainless CF8M / F316, duplex
ENDS RF or RTJ flanged, butt-weld (BW), mixed	STANDARDS API 6D (ISO 14313), ASME B16.34, B16.5/B16.47, API 6FA/607	TYPICAL LEAD TIME 40 to 75 business days

Reference image. Product may vary.

01

Technical validation

API 6D Trunnion Ball Valves

Trunnion-mounted ball valves for sectionalizing high-pressure, large-diameter pipelines.

Where it is used: Transmission pipelines, block valves, pig traps and compressor stations.

VARIANTS WE QUOTE

- 2- or 3-piece bolted body, full or reduced bore
- Double block and bleed (DBB) seat, DIB-1 or DIB-2
- Reinforced PTFE, nylon, PEEK or metal-to-metal seats
- Emergency sealant injection, drain and vent
- Sour service NACE MR0175 / ISO 15156 and fugitive emissions ISO 15848-1

TO QUOTE, SEND US

- ✓ Diameter, ASME class and bore (full or reduced)
- ✓ Ends and schedule or thickness if weld-end
- ✓ Seat type, DBB/DIB and fire-safe test
- ✓ Operator or actuator and ISO 5211 mounting

Full list of data to quote on page 110. →

Typical buyer: Pipeline Engineering / Projects

01 DETAILED DATA SHEET

API 6D Trunnion Ball Valves

■ CONSTRUCTION

Ball supported on upper and lower trunnions: pressure pushes the seats against the ball and does not load the stem. 2- or 3-piece bolted body, forged or cast, full or reduced bore. Spring-loaded floating seats, anti-blowout stem, antistatic device, and bleed, vent and emergency sealant connections at each seat.

■ MATERIALS

Body A216 WCB or A105; LCC or LF2 for low temperature; CF8M, F316 or duplex for corrosion. Ball and stem with electroless nickel plating (ENP) or stainless steel. Seat inserts of reinforced PTFE, nylon or PEEK, or metal-to-metal with hard coating. HNBR or FKM anti-explosive-decompression O-rings, fire-safe graphite seals, B7 / 2H studs. Sour service per NACE MR0175 / ISO 15156.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 48" (larger on request) in ASME Classes 150, 300, 600, 900, 1500 and 2500. Typical range -29 °C to 121 °C with soft seats; with LCC or LF2 down to -46 °C. Face-to-face per API 6D and ASME B16.10; ASME B16.5 flanges up to 24" and B16.47 for 26" and larger. Full bore allows pigging.

■ OPERATION

Quarter-turn. Gear operator with handwheel and position indicator, or pneumatic, gas-over-oil, hydraulic or electric actuator on ISO 5211 flange. Fail-close, fail-open or fail-last-position mode per the system ESD. The manufacturer provides breakaway and running torque at maximum differential pressure to size the actuator with margin.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 and B16.47; butt-weld (BW) with bevel per ASME B16.25, matching pipe diameter, thickness and grade; mixed ends flange by BW. RTJ is preferred in high classes. Optional factory-welded transition pup pieces to protect seats from heat.

■ APPLICABLE STANDARDS

API 6D (ISO 14313) governs design, testing and documentation; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.5 / B16.47 flanges. API 6FA and API 607 qualify the fire-safe design. NACE MR0175 / ISO 15156 for sour gas and ISO 15848-1 for fugitive emissions. In Mexico, NOM-020-ASEA-2024 for pipeline transport, with valves per ASME B31.8.

■ APPLICATIONS IN MEXICO

Sectionalizing of trunk transmission pipelines, pig launchers and receivers, suction and discharge headers at compressor stations, interconnections between transmission systems, high-pressure city gates and the gas side of LNG terminals. DBB and DIB versions isolate meters and equipment for safe maintenance.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test at 1.5 times rated pressure, seat test at 1.1 times and low-pressure gas seat test; DBB / DIB functional test and torque measurement. On request: high-pressure gas, additional NDE and type fire-safe test. Delivered with heat-based MTRs, test reports, dimensional report, paint, general drawing and operating manual.



4 Double block and bleed (DBB)



5 Weld-end with pneumatic actuator



6 Sealant injection and vent



7 Duplex with RTJ flanges

✓ To quote this family, send us

- ✓ Diameter (NPS), ASME class and full or reduced bore
- ✓ RF, RTJ or BW ends; if weld-end: pipe diameter, thickness and grade
- ✓ Body and trim material; minimum and maximum design temperature
- ✓ Soft or metal seat, DBB / DIB-1 / DIB-2 and fire-safe requirement
- ✓ Service: sweet or sour gas (H₂S, CO₂) and emissions requirement
- ✓ Operation: gear or actuator, fail mode and ISO 5211 mounting
- ✓ Quantity, additional tests, documentation and required on-site date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 48"	PRESSURE ASME Class 150 to 1500	MATERIALS Forged carbon steel A105 / LF2, API 5L steel pup pieces
ENDS Butt-weld with transition pup pieces	STANDARDS API 6D, ASME B16.34, ASME B31.8	TYPICAL LEAD TIME 50 to 90 business days

02

Technical validation

Fully Welded Ball Valves for Buried Service

Welded body with no external bolted joints: fewer leak paths and zero maintenance for direct burial.

Where it is used: Buried sectionalizing in transmission pipelines and high-pressure steel networks.

VARIANTS WE QUOTE

- Stem extended to burial depth with protective tube
- Sealant injection and vent lines routed to surface
- Epoxy or polyurethane coating for burial
- Gear operator, pneumatic, gas-over-oil or electric actuator
- Spherical or cylindrical body version and DBB

TO QUOTE, SEND US

- ✓ Diameter, class and pipe spec (API 5L grade and thickness)
- ✓ Burial depth and stem length
- ✓ Pipeline coating and cathodic protection
- ✓ Operation: manual or actuated, local or remote

Full list of data to quote on page 110. →

Typical buyer: Pipeline Engineering / Construction

02 DETAILED DATA SHEET

Fully Welded Ball Valves for Buried Service

■ CONSTRUCTION

Forged body pieces joined by circumferential weld after ball assembly, with no bolted joints on the outside and no leak paths to the ground. Trunnion ball with spring-energized seats and double block and bleed (DBB), spherical or cylindrical body. Extended stem inside a protective tube, with sealant, bleed and vent lines routed to surface.

■ MATERIALS

Forged carbon steel body A105, or LF2 for low temperature; API 5L pipe transition pup pieces of the pipeline grade and thickness. Ball with electroless nickel plating (ENP), reinforced PTFE, nylon or PEEK seat inserts, HNBR or FKM O-rings. Exterior with high-build epoxy or polyurethane coating for burial, compatible with cathodic protection.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 48" in ASME Classes 150 to 1500. Typical range -29 °C to 121 °C; with LF2 suitable down to -46 °C. Stem length is made to the project burial depth and each pup piece length is defined by the buyer. Face-to-face per API 6D; weight, overall height and center of gravity on a certified drawing for handling.

■ OPERATION

Quarter-turn operated from surface. Gear operator with handwheel and position indicator, or pneumatic actuator, gas-over-oil using line gas, or electric for remote operation via SCADA. Fail mode per risk analysis; in automatic sectionalizing it usually closes on detection of a rapid pressure drop from a line rupture.

■ CONNECTIONS AND ENDS

Butt-weld (BW) ends with factory-welded transition pup pieces, beveled per ASME B16.25 and of the same API 5L grade, diameter and thickness as the pipeline, so field weld heat does not reach the seats. Threaded or weld-end sealant, bleed and vent connections at the top end of the extension.

■ APPLICABLE STANDARDS

API 6D governs design, manufacture and testing; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B31.8 the design of the pipeline where it is installed, including valve spacing. In Mexico, NOM-020-ASEA-2024 for transport and NOM-003-ASEA-2016 for steel distribution networks, depending on the system. Sour gas per NACE MR0175 / ISO 15156 on request.

■ APPLICATIONS IN MEXICO

Buried sectionalizing on transmission pipelines, block valves on right-of-way without a shelter, road crossings and urban areas, high-pressure steel distribution networks, branches to city gates and supply to combined-cycle plants and heavy industry. Being buried, they reduce exposed surface, vandalism and maintenance.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body and seat tests per API 6D with pup pieces already welded; NDE of body welds by radiography or ultrasound and magnetic particle; DBB and torque test. Coating thickness and continuity check (holiday test). Delivered with MTRs, weld map, WPS / PQR, NDE and test reports, dimensional report and manual.



4 Cylindrical body with actuator



5 Polyurethane coating



6 Gas-over-oil actuator



7 Electric with vent to surface

✓ To quote this family, send us

- ✓ Diameter, ASME class and full or reduced bore
- ✓ Pipeline pipe: API 5L grade, outside diameter and wall thickness
- ✓ Burial depth and extended stem length
- ✓ Pup piece length, coating and type of cathodic protection
- ✓ Sealant, bleed and vent to surface: type and location of connections
- ✓ Operation: gear or actuator, local or remote, and fail mode
- ✓ Sweet or sour service, quantity, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 36"	PRESSURE ASME Class 150 to 2500	MATERIALS WCB / A105, LCC / LF2, CF8M, duplex
ENDS Butt-weld or RF / RTJ flanged	STANDARDS API 6D, ASME B16.34, API 6FA / API 607	TYPICAL LEAD TIME 50 to 90 business days

03

Technical validation

Top Entry Ball Valves

Ball, seats and seals can be replaced through the top cover without cutting or removing the valve from the line.

Where it is used: Welded pipelines, compressor stations and lines where shutting down and cutting pipe is costly.

VARIANTS WE QUOTE

- One-piece trunnion ball with spring-loaded seats
- Soft or metal-to-metal seats with hard coating
- Cryogenic version with extended bonnet
- In-line maintenance kits (seats, seals, packing)

TO QUOTE, SEND US

- ✓ Diameter, class and end type
- ✓ Seat and required tightness level
- ✓ Whether in-line maintenance or replacement of an existing valve is needed
- ✓ Actuator and accessories

Full list of data to quote on page 110. →

Typical buyer: Pipeline Maintenance / Compression

03 DETAILED DATA SHEET Top Entry Ball Valves

■ CONSTRUCTION

One-piece body, cast or forged, with a large-diameter bolted top cover through which ball, seats and seals enter. One-piece trunnion ball with spring-loaded seats. Internals are removed with the valve welded in line, using seat retraction tools. No body joints on the pipe axis.

■ MATERIALS

Body and cover WCB or A105; LCC or LF2 for low temperature; CF8M and duplex for corrosion. Ball with ENP or stainless steel; soft seats of reinforced PTFE, nylon or PEEK, or metal-to-metal with tungsten carbide or chrome hard coating. Spiral-wound or RTJ cover gasket and B7 / 2H studs. Sour gas per NACE MR0175 / ISO 15156.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 36" in ASME Classes 150 to 2500. Typical range -29 °C to 121 °C with soft seats, higher with metal-to-metal; the cryogenic stainless version with extended bonnet covers LNG down to -196 °C. Face-to-face per API 6D and ASME B16.10. Cover and actuator height defines the clearance needed for maintenance.

■ OPERATION

Quarter-turn with gear operator or pneumatic, hydraulic or electric actuator mounted on the cover with ISO 5211 flange. Fails open, closed or last position per service. In-line maintenance requires depressurizing the section, removing actuator and cover, retracting seats and lifting the ball out with a hoist.

■ CONNECTIONS AND ENDS

Butt-weld (BW) with bevel per ASME B16.25 and optional transition pup pieces, or flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 up to 24" and B16.47 for 26" and larger. The weld-end version makes the most of the top entry, because the line is never cut for maintenance.

■ APPLICABLE STANDARDS

API 6D for design and testing; ASME B16.34 for wall thicknesses and pressure-temperature ratings; API 6FA and API 607 for fire-safe qualification. Cryogenic version tested per BS 6364. In Mexico, NOM-020-ASEA-2024 for pipeline transport and NOM-013-ASEA-2021 for LNG facilities. NACE MR0175 / ISO 15156 where there is sour gas.

■ APPLICATIONS IN MEXICO

Transmission compressor stations where stopping the pipeline is costly, welded suction and discharge headers, trunk pipelines with welded valves, LNG terminals and regasification plants (cryogenic version) and replacement of hard-to-access valves in existing stations. In-line maintenance kits are supplied.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, seat test in both directions and low-pressure gas seat test per API 6D; torque and functional test. On request, demonstration disassembly and reassembly. Cryogenic at -196 °C per BS 6364. Delivered with MTRs, test and NDE reports, dimensional report, in-line maintenance procedure and spare parts list.



4 RTJ flanges with pneumatic actuator



5 Cryogenic with extended bonnet



6 Metal-to-metal ball and seats



7 In-line maintenance kit

✓ To quote this family, send us

- ✓ Diameter, ASME class and end type (BW, RF or RTJ)
- ✓ Soft or metal-to-metal seat and required tightness level
- ✓ Body material and design temperature (cryogenic if LNG)
- ✓ New valve or replacement: drawing and dimensions of the existing one
- ✓ In-line maintenance kits required and quantity
- ✓ Gear or actuator, fail mode and accessories
- ✓ Sweet or sour service, tests, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 36"	PRESSURE ASME Class 150 to 1500	MATERIALS WCB / A105, LCC, CF8M; hard-faced gate
ENDS RF / RTJ flanged or butt-weld	STANDARDS API 6D, ASME B16.34, API 6FA	TYPICAL LEAD TIME 45 to 80 business days

04

Technical validation

API 6D Slab and Expanding Gate Valves

Full-bore, through-conduit gate valves that allow cleaning and inspection pigs to pass.

Where it is used: Trunk pipelines, pig traps, inlet headers and metering lines.

VARIANTS WE QUOTE

- Slab gate with floating seats
- Expanding gate with mechanical seal on both sides
- PTFE or metal-to-metal seats, rising stem
- Gear operator, pneumatic or linear hydraulic actuator

TO QUOTE, SEND US

- ✓ Diameter, class and whether pig-passable
- ✓ Gate type (slab or expanding)
- ✓ Ends and materials
- ✓ Actuator and stroke time

Full list of data to quote on page 110. →

Typical buyer: Pipeline Engineering / Operations

04 DETAILED DATA SHEET API 6D Slab and Expanding Gate Valves

■ CONSTRUCTION

Full-bore gate with continuous through-conduit: when open, the gate port aligns with the pipe with no cavities and lets pigs pass. Forged or fabricated body with bolted bonnet and rising non-rotating stem. Slab gate with spring-energized floating seats, or two-piece expanding gate that wedges against both seats.

■ MATERIALS

Body and bonnet WCB or A105, LCC for low temperature and CF8M for corrosion. Gate and seats with tungsten carbide hard coating or ENP; PTFE or metal-to-metal seat inserts. Stainless or alloy steel stem, graphite packing or PTFE V-rings and B7 / 2H studs. Sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 36" in ASME Classes 150 to 1500. Typical range -29 °C to 121 °C with soft seats, higher with metal-to-metal; with LCC down to -46 °C. Face-to-face per API 6D. With rising stem and linear actuator the overall height is much greater than on a ball valve: check the vertical space available in the layout.

■ OPERATION

Linear multi-turn motion. Direct handwheel on small sizes and bevel gear operator on large sizes. Linear pneumatic or hydraulic piston actuator, spring-return (fail close or open) or double-acting; thrust and stroke time are specified. The slab seals mainly downstream by pressure; the expanding gate seals both sides mechanically.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 and B16.47, or butt-weld (BW) with bevel per ASME B16.25, matching pipe grade, diameter and thickness. In pig traps and headers, an inside diameter equal to the pipeline is requested to ensure free passage of cleaning and inspection tools.

■ APPLICABLE STANDARDS

API 6D governs design, testing and free passage; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.5 / B16.47 flanges; API 6FA qualifies the fire-safe design. In Mexico, NOM-020-ASEA-2024 for valves in transmission pipelines, with ASME B31.8 as the system design reference. NACE MR0175 / ISO 15156 where there is sour gas.

■ APPLICATIONS IN MEXICO

Inlet and outlet valves of pig launchers and receivers, trunk pipelines with frequent in-line cleaning and inspection, arrival headers at compressor stations and city gates, isolation of metering runs and interconnection valve yards between carriers, where continuous passage without cavities is required.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body and seat tests and low-pressure gas seat test per API 6D; free passage check with a drift gauge of the specified diameter; full-stroke functional test with the actuator. On request, additional NDE. Delivered with MTRs, test reports, dimensional report, general drawing and operation and maintenance manual.



4 Expanding with bevel gear



5 Slab with hydraulic actuator



6 Spring pneumatic actuator



7 Expanding gate internals

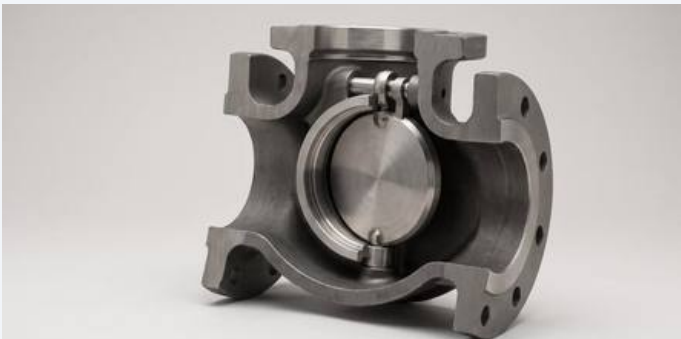
✓ To quote this family, send us

- ✓ Diameter, ASME class and whether it must be pig-passable
- ✓ Gate type: slab or expanding
- ✓ RF, RTJ or BW ends and pipe data if weld-end
- ✓ Body and trim material; soft or metal-to-metal seat
- ✓ Design temperature and service (sweet or sour gas)
- ✓ Operation: gear or pneumatic or hydraulic actuator; stroke time
- ✓ Quantity, additional tests, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 48"	PRESSURE ASME Class 150 to 2500	MATERIALS WCB / A105, LCC, CF8M; hard-seat disc
ENDS RF / RTJ flanged or butt-weld	STANDARDS API 6D, ASME B16.34, API 598	TYPICAL LEAD TIME 35 to 70 business days

05

Technical validation

Pipeline Check Valves

Prevent backflow in pipelines and compressor discharge; swing, piston and soft-closing axial models.

Where it is used: Compressor discharge, station inlets, interconnects and trunk pipelines.

VARIANTS WE QUOTE

- Full-bore swing type, pig-passable
- Axial (nozzle type) surge-free for compressors
- Piston and lift disc for small diameters
- Bolted cover or pressure seal

TO QUOTE, SEND US

- ✓ Diameter, class and check valve type
- ✓ Flow, pressure and whether compressor pulsation exists
- ✓ Installation position (horizontal or vertical)
- ✓ Whether pigs must pass

Full list of data to quote on page 110. →

Typical buyer: Engineering / Compression

05 DETAILED DATA SHEET Pipeline Check Valves

■ CONSTRUCTION

Swing: disc hung from a hinge, bolted or pressure-seal cover and full bore suitable for pigs. Axial nozzle type: spring-guided annular plug in a venturi profile, short stroke and fast anti-slam closing. Piston or lift disc for small diameters and high pressure, with integral guide in the body.

■ MATERIALS

Body and cover WCB or A105; LCC for low temperature; CF8M for corrosive service. Disc and seat ring with cobalt alloy hard coating, or seat with elastomer insert. Nickel alloy or stainless springs in axial types; stainless hinge and pins. B7 / 2H studs. Sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 48" in ASME Classes 150 to 2500. Typical range -29 °C to 121 °C, with LCC down to -46 °C; metal seats allow higher temperature. Face-to-face per API 6D and ASME B16.10. Minimum flow to fully open and pressure drop are calculated per diameter and actual operating condition.

■ OPERATION

Self-operating by pressure differential, with no actuator. The swing type closes by gravity and backflow; the axial type closes with a spring before flow reversal, avoiding slam and pulsation damage at compressor discharges. The swing type is preferably installed horizontally; the spring-loaded axial type allows horizontal or vertical position.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 and B16.47, or butt-weld (BW) with bevel per ASME B16.25. Pig-passable swing types are ordered with inside diameter equal to the pipeline. Drain and vent connections in the body on request to depressurize before opening the cover.

■ APPLICABLE STANDARDS

API 6D for design and testing of pipeline check valves; ASME B16.34 wall thicknesses and pressure-temperature ratings; API 598 inspection and testing for small-diameter and station-service valves; ASME B16.5 / B16.47 flanges. In Mexico, NOM-020-ASEA-2024 when installed in pipeline transport systems. NACE MR0175 / ISO 15156 in sour gas.

■ APPLICATIONS IN MEXICO

Compressor discharges at transmission compressor stations (axial), arrivals at regulating stations and city gates, pipeline interconnections to prevent backflow between systems, trunk pipelines with pig passage (full-bore swing) and fuel gas and utility lines in stations (piston).

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test at 1.5 times rated pressure and seat test in the closing direction per API 6D or API 598; low-pressure gas seat test on request; free disc movement check. Delivered with heat-based MTRs, test and NDE reports, dimensional report, general drawing and installation manual.



4 Flanged piston check



5 Pig-passable weld-end swing



6 Axial nozzle cutaway



7 Swing with pressure-seal cover

✓ To quote this family, send us

- ✓ Diameter, ASME class and type: swing, axial or piston
- ✓ Minimum and maximum flow, operating pressure and allowable pressure drop
- ✓ Pulsation or frequent compressor starts upstream
- ✓ Installation position: horizontal or vertical with upward flow
- ✓ Whether it must pass pigs and required inside diameter
- ✓ RF, RTJ or BW ends, material and design temperature
- ✓ Sweet or sour service, quantity, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail

SIZES ½" to 24"	PRESSURE ASME Class 150 to 1500	MATERIALS WCB, LCC, ductile iron, CF8M; PTFE sleeve
ENDS RF / RTJ flanged, NPT threaded or weld-end	STANDARDS API 599, API 6D, ASME B16.34	TYPICAL LEAD TIME 30 to 60 business days



3 In use

06

Technical validation

Lubricated and Sleeved Plug Valves

Quarter-turn valves with tapered or cylindrical plug; rugged, tight shutoff and easy to repair in the field.

Where it is used: Stations, headers, fuel gas, drains and lines with solids or condensate.

VARIANTS WE QUOTE

- Sealant-lubricated plug (short, regular and venturi patterns)
- Inverted pressure-balanced plug
- Non-lubricated PTFE sleeve
- Operation by lever, wrench, gearbox or actuator

TO QUOTE, SEND US

- ✓ Diameter, class and pattern
- ✓ Lubricated or sleeved
- ✓ Fluid: dry gas or with condensate
- ✓ Operation and accessories (lock, extension)

Full list of data to quote on page 110. →

Typical buyer: **Operations / M&R Station Maintenance**

06 DETAILED DATA SHEET Lubricated and Sleeved Plug Valves

■ CONSTRUCTION

Quarter-turn with tapered or cylindrical plug housed in the body. Lubricated: channels in plug and body distribute pressure-injected sealant that seals and lowers torque; short, regular and venturi patterns. Inverted pressure-balanced plug that prevents sticking. Sleeved: PTFE sleeve between plug and body, no lubrication. Field-repairable.

■ MATERIALS

Body WCB, LCC for low temperature, CF8M for corrosion or ductile iron limited to low classes. Steel plug with hard coating or nickel plating; PTFE or reinforced PTFE sleeve in the non-lubricated version. Sealant compatible with natural gas and hydrocarbon condensates. Stem packing and cover diaphragm in PTFE or graphite; B7 / 2H studs.

■ SIZES, CLASSES AND TEMPERATURE

From ½" to 24" in ASME Classes 150 to 1500. Typical range -29 °C to 121 °C with sealant; with PTFE sleeve the maximum temperature depends on pressure. Short, regular and venturi patterns define the face-to-face per ASME B16.10 and API 599; venturi reduces weight and cost in exchange for higher pressure drop.

■ OPERATION

Quarter-turn with wrench or lever on small sizes, gear reducer on large sizes or pneumatic or electric actuator. Sealant is injected periodically with a manual gun through the stem fitting; without it, torque rises and tightness drops. The PTFE-sleeved type needs no sealant. Padlock and stem extension options.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5; NPT threaded on small sizes; butt-weld (BW) with bevel per ASME B16.25 or socket-weld per ASME B16.11 on small sizes. Ductile iron types are flanged only, in low classes and for lower-risk services.

■ APPLICABLE STANDARDS

API 599 governs flanged and weld-end steel plug valves; API 6D applies when installed in transmission pipelines; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.10 face-to-face; API 598 inspection and testing. In Mexico, NOM-020-ASEA-2024 or NOM-003-ASEA-2016, depending on whether installed in transport or distribution.

■ APPLICATIONS IN MEXICO

Headers and skids of metering and regulating stations, isolation on fuel gas lines of compressors and plants, drains and bleeds of separators and filters with condensates or solids, steel distribution branches and maintenance points where a robust, tight-shutoff valve repairable on site is required.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, seat test in both directions and low-pressure air or gas seat test per API 598 or API 6D; torque check with sealant. Delivered with MTRs, test reports, dimensional report, torque table, recommended sealant type and field lubrication and maintenance manual.



4 Venturi pattern with reducer



5 PTFE sleeve with lever



6 Inverted pressure-balanced plug



7 Threaded with pneumatic actuator

✓ To quote this family, send us

- ✓ Diameter, ASME class and pattern (short, regular or venturi)
- ✓ Lubricated, inverted pressure-balanced plug or PTFE-sleeved
- ✓ Fluid: dry gas, with condensates or solids; operating temperature
- ✓ RF, RTJ, NPT or weld ends
- ✓ Body material: WCB, LCC, ductile iron or CF8M
- ✓ Operation: lever, wrench, reducer or actuator; padlock or extension
- ✓ Quantity, sealant type, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 36"	PRESSURE ASME Class 150 to 1500	MATERIALS WCB / LCC, CF8M; slips with elastomer seal
ENDS RF / RTJ flanged	STANDARDS API 6D, ASME B16.34, API 598	TYPICAL LEAD TIME 45 to 80 business days

07

Technical validation

Expanding Plug Double Block and Bleed (DBB) Valves

Two independent seals and a bleed let you verify in the field that the valve seals 100 %.

Where it is used: Metering and custody transfer, meter isolation, interconnects and skids.

VARIANTS WE QUOTE

- Expanding plug with slips that do not rub when turning
- Cavity thermal relief and bleed valve
- Position indicator and gear operator
- Electric or pneumatic actuator for metering skids

TO QUOTE, SEND US

- ✓ Diameter and class
- ✓ Service: metering, isolation or product batching
- ✓ Required thermal relief and bleed
- ✓ Manual or actuated operation

Full list of data to quote on page 110. →

Typical buyer: Metering / Custody Transfer

07 DETAILED DATA SHEET Expanding Plug Double Block and Bleed (DBB) Valves

■ CONSTRUCTION

Tapered plug with two slips with elastomer seals that retract before turning: the plug rotates without rubbing the seals and, in position, the slips expand against the body. Two independent upstream and downstream seals with intermediate cavity bleed and integral thermal relief. Depending on the design, the slips are replaced through the bottom plate without removing the valve.

■ MATERIALS

Body WCB, LCC for low temperature or CF8M; steel plug with nickel or hard chrome plating. Steel slips with vulcanized FKM or HNBR elastomer seal, chosen by pressure, temperature and aromatics content. Stainless stem, graphite or PTFE packing and B7 / 2H studs. Bleed valve and thermal relief valve in stainless steel.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 36" in ASME Classes 150 to 1500. Typical range -29 °C to 121 °C, with LCC for lower temperature; the slip elastomer sets the real limit. Face-to-face per API 6D and ASME B16.10. The thermal relief is set to discharge cavity overpressure when trapped gas heats up.

■ OPERATION

Multi-turn: the gear operator first retracts the slips, turns the plug 90° and then expands them, with position indicator. Electric or pneumatic actuator for automatic metering skids. With the valve closed, the bleed is opened: if there is no flow through it, both seals are verified in the field without disassembling anything.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 up to 24" and B16.47 on larger sizes. The bleed and thermal relief are NPT threaded in the body, with a discharge pipe to a safe location or to a recovery system when the project requires it. Optional pressure gauge on the bleed for verification.

■ APPLICABLE STANDARDS

API 6D defines double block and bleed (DBB) and its tests; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.5 / B16.47 flanges; API 598 supplementary inspection tests. In Mexico, NOM-020-ASEA-2024 at transmission system metering stations and NOM-003-ASEA-2016 in distribution, depending on where installed.

■ APPLICATIONS IN MEXICO

Isolation of ultrasonic and turbine metering runs in custody transfer, run selection on skids, prover connection, interconnections between carriers and users, equipment isolation for safe maintenance and terminals where certainty of zero leakage is required so as not to affect measurement.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test and test of each seal separately, and DBB test with low-pressure gas verifying zero leakage at the bleed, per API 6D; thermal relief and operator functional test. Delivered with MTRs, test reports, dimensional report, thermal relief setting, field verification procedure and spare parts list.



4 DBB with electric actuator



5 DBB with pneumatic actuator



6 Plug and expanding slips



7 Position indicator and gearing

✓ To quote this family, send us

- ✓ Diameter and ASME class
- ✓ Service: metering, isolation or product batching
- ✓ Operating pressure and temperature; gas composition
- ✓ Thermal relief and bleed required and discharge destination
- ✓ Body material and slip elastomer
- ✓ Operation: manual gear or electric or pneumatic actuator
- ✓ Quantity, spare parts, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 12"	PRESSURE ASME Class 150 to 2500	MATERIALS A105 / LF2, WCB, CF8M; metal seat for high differential
ENDS Flanged, weld-end or threaded	STANDARDS API 6D, ISO 17292, ASME B16.34, NOM-020-ASEA-2024	TYPICAL LEAD TIME 30 to 60 business days

Reference image. Product may vary.

08

Technical validation

Vent and Blowdown Valves

Valves for depressurizing pipeline sections or equipment to atmosphere in a controlled, safe way.

Where it is used: Every section between block valves, compressor stations and pig traps.

VARIANTS WE QUOTE

- Metal-seated trunnion or floating ball for high differential
- Vent sets with block valve + throttling valve
- Silencers and vent stacks
- Actuated for remote or automatic blowdown (ESD)

TO QUOTE, SEND US

- ✓ Diameter, class and blowdown pressure
- ✓ Required depressurization time
- ✓ Whether a silencer and vent height are needed
- ✓ Manual or remote operation

Full list of data to quote on page 110. →

Typical buyer: Pipeline Engineering / Compression

08 DETAILED DATA SHEET Vent and Blowdown Valves

■ CONSTRUCTION

Trunnion or floating metal-seated ball, designed to open under high differential and critical flow without damaging seals. Vent sets with block valve and downstream throttling valve that limits velocity, noise and erosion. Outlet to vertical vent stack with optional silencer. The block valve works only open or closed to extend its life.

■ MATERIALS

Forged body A105 or LF2, cast WCB or stainless CF8M. Metal-to-metal ball and seats with tungsten carbide or chrome hard coating, resistant to high-differential erosion. Stainless or alloy stem, graphite packing and B7 / 2H studs. Carbon steel silencer and stack with high-temperature paint. NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From ½" to 12" in ASME Classes 150 to 2500. Typical range -29 °C to 121 °C; on long blowdowns the gas cools by expansion and LF2 is advisable. Face-to-face per ASME B16.10 or API 6D. The diameter is sized with the volume of the section or equipment, the initial pressure and the required depressurization time.

■ OPERATION

Manual with lever or gear, or actuated pneumatic or with line gas for remote or automatic blowdown from the ESD system. Fail mode per risk analysis: typically opens in compression and closes on pipeline. The block valve is opened first and then throttled. Torque with high differential is greater and defines the actuator size.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5; butt-weld (BW) per ASME B16.25; socket-weld and NPT threaded on small sizes per ASME B16.11. Outlet flange to vent stack or silencer, with supports calculated for blowdown reaction forces.

■ APPLICABLE STANDARDS

API 6D and ISO 17292 govern design and testing of ball valves; ASME B16.34 wall thicknesses and pressure-temperature ratings. NOM-020-ASEA-2024 requires venting at each section between sectionalizing valves and emergency shutdown (ESD) at compression from two points, with design per ASME B31.8. API 607 or API 6FA if fire-safe is requested.

■ APPLICATIONS IN MEXICO

Venting of each section between sectionalizing valves on the transmission pipeline for repairs and interconnections, emergency blowdown at compressor stations, depressurization of pig traps, filters and separators, and venting of regulating skids at city gates before maintenance. Actuated versions integrate into the ESD system.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test and metal-to-metal seat test with the maximum leakage of the class indicated in API 6D or ISO 17292; opening test under differential and actuator stroke test. On request, high-pressure gas test. Delivered with MTRs, test reports, coating hardness and thickness, dimensional report and manual.



4 Block and throttling set



5 Vent silencer



6 Threaded metal-to-metal floating ball



7 ESD blowdown with gas actuator

✓ To quote this family, send us

- ✓ Diameter, ASME class and maximum blowdown pressure
- ✓ Section or equipment volume and required depressurization time
- ✓ Type: metal-seated ball or block and throttling set
- ✓ Silencer: target noise level and vent stack height
- ✓ Flanged, weld or threaded ends and material
- ✓ Manual or remote (ESD) operation, fail mode and pneumatic supply
- ✓ Quantity, documentation and required on-site date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1-13/16" to 7-1/16"	PRESSURE 2,000 to 15,000 psi	MATERIALS API 6A material classes AA to HH, temperature K to U
ENDS API 6A flanged (6B / 6BX), threaded	STANDARDS API 6A (ISO 10423), NACE MR0175 / ISO 15156	TYPICAL LEAD TIME 45 to 90 business days

Reference image. Product may vary.

09

Technical validation

API 6A Wellhead Valves for Wells and Associated Gas

Gate valves, chokes and check valves for wellheads, Christmas trees and associated gas lines.

Where it is used: Gas-producing wells, associated gas, separation and field gathering.

VARIANTS WE QUOTE

- Slab or expanding gate, manual or hydraulic
- Positive and adjustable chokes
- API 6A check valves, crosses, tees and adapters
- PSL 1 to 4 levels and PR1 / PR2 performance requirement

TO QUOTE, SEND US

- ✓ Size, working pressure and PSL
- ✓ Material and temperature class
- ✓ H2S and CO2 content
- ✓ Tree configuration or wellhead drawing

Full list of data to quote on page 110. →

Typical buyer: Production / Well Services

09 DETAILED DATA SHEET API 6A Wellhead Valves for Wells and Associated Gas

■ CONSTRUCTION

Full-bore slab or expanding gate valves, bolted bonnet and non-rising stem, manual or with hydraulic actuator. Positive fixed-orifice and adjustable chokes with replaceable needle and seat. Forged check valves, crosses, tees, adapters and companion flanges to assemble production trees and wellheads.

■ MATERIALS

API 6A material classes from AA (general service, carbon or low-alloy steel) to HH (corrosion-resistant alloys); DD to HH for sour service per NACE MR0175 / ISO 15156. Gate and seats with hard coating, qualified metal and elastomer seals. Temperature class K to U depending on the site.

■ SIZES, CLASSES AND TEMPERATURE

Nominal sizes from 1-13/16" to 7-1/16" for working pressures of 2,000, 3,000, 5,000, 10,000 and 15,000 psi. Temperature classes from K (-60 °C) to U (121 °C). Product specification levels PSL 1 to 4 and performance requirement PR1 or PR2 according to the criticality of the well and the fluid.

■ OPERATION

Multi-turn gates with handwheel; hydraulic or pneumatic surface safety actuator, fail-close, for well shut-in from the panel. The adjustable choke regulates well flow and pressure with stem and opening indicator; the positive choke uses an interchangeable fixed orifice. Check valves prevent flow back into the well.

■ CONNECTIONS AND ENDS

API 6A Type 6B flanges with R or RX rings and Type 6BX with BX rings for high pressures, in studed or through-bolted versions; threaded ends on low sizes and pressures. Test, gauge and chemical injection connections on request.

■ APPLICABLE STANDARDS

API 6A (ISO 10423) governs design, materials, PSL, PR and testing of wellhead and production tree equipment; NACE MR0175 / ISO 15156 material selection for H2S. API 6FA for fire-safe qualification on request. Flowlines and gathering lines downstream of the tree are designed per ASME B31.8.

■ APPLICATIONS IN MEXICO

Production trees and wellheads of non-associated gas wells, oil wells with associated gas, well flowlines, manifolds and separation batteries, production chokes, injection points and well service connections such as testing and cleanup in onshore gas fields.

■ TESTING, INSPECTION AND DOCUMENTS

Tests per PSL: hydrostatic body and seat tests, with additional gas test at PSL 3G and 4; NDE and hardness per PSL; functional test. PR2 requires design validation by cycles and temperature per API 6A. Delivered with MTRs, parts traceability, NDE and test reports, dimensional report and manual.



4 Gate with hydraulic actuator



5 Positive angle choke



6 Studded flanged cross and tee



7 Flanged check for wellhead

✓ To quote this family, send us

- ✓ Nominal size, working pressure (psi) and PSL level
- ✓ Material class (AA to HH) and temperature class (K to U)
- ✓ H2S and CO2 content, partial pressure and presence of water
- ✓ Performance requirement PR1 or PR2
- ✓ Tree configuration or wellhead drawing and 6B or 6BX flanges
- ✓ Manual or hydraulic operation; choke type and orifice
- ✓ Quantity, witness tests, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 8"	PRESSURE ASME Class 150 to 600 (900 in small sizes)	MATERIALS WCB / A105, LCC / LF2, CF8M / F316
ENDS RF flanged, NPT threaded, socket-weld (SW) or BW	STANDARDS ISO 17292, API 6D, API 608, ASME B16.34, API 607	TYPICAL LEAD TIME 20 to 40 business days

Reference image. Product may vary.

10

Floating Ball Valves

Technical validation

The most widely used shutoff valve in stations: floating ball, tight shutoff, quarter-turn.
Where it is used: M&R stations, metering skids, fuel gas, instrumentation and utilities.

VARIANTS WE QUOTE

- 2- and 3-piece body, full or reduced bore
- Fire-safe, antistatic design and anti-blowout stem
- ISO 5211 pad for actuator and lockable lever
- PTFE, RPTFE, nylon or PEEK seats

TO QUOTE, SEND US

- ✓ Diameter, class and ends
- ✓ Full or reduced bore
- ✓ Seat and fire-safe test
- ✓ Operation: lever, gearbox or actuator

Full list of data to quote on page 110. →

Typical buyer: **Operations / M&R Station Maintenance**

10 DETAILED DATA SHEET Floating Ball Valves

■ CONSTRUCTION

Floating ball that pressure pushes against the downstream seat, with no trunnions. 2- or 3-piece bolted body, cast or forged, full or reduced bore; the 3-piece type allows removing the center section without cutting the line. Anti-blowout stem inserted from inside, antistatic device and fire-safe design with secondary graphite seals.

■ MATERIALS

Body WCB or A105, LCC or LF2 for low temperature, CF8M or F316 stainless. Stainless ball and stem; PTFE, RPTFE, nylon or PEEK seats depending on pressure and temperature. Graphite-filled PTFE stem packing, stainless spiral-wound graphite body gasket and B7 / 2H studs. Epoxy paint; sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From ½" to 8" in ASME Classes 150, 300 and 600, and 900 in small sizes. Typical range -29 °C to 200 °C with RPTFE per the seat pressure-temperature curve; with LCC or LF2 down to -46 °C. Flanged and BW face-to-face per ASME B16.10. For larger diameters or classes, the trunnion ball valve is preferable.

■ OPERATION

Quarter-turn with lever and padlock on small sizes, gear reducer on larger sizes or pneumatic or electric actuator on ISO 5211 pad. Torque grows with pressure because the ball pushes the seat; breakaway torque at maximum differential pressure is specified. With spring actuator, fail-close or fail-open.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) per ASME B16.5; NPT threaded; socket-weld (SW) per ASME B16.11; butt-weld (BW) with bevel per ASME B16.25. On 3-piece SW or BW types the center section is removed before welding to protect the seats from heat, or they are ordered with extension pup pieces.

■ APPLICABLE STANDARDS

ISO 17292 and API 608 govern small-diameter metal ball valves; API 6D applies in pipelines; ASME B16.34 wall thicknesses and pressure-temperature ratings; API 607 fire-safe qualification; ISO 5211 actuator flange. In Mexico, NOM-003-ASEA-2016 in distribution and NOM-002-SECRE-2010 in end use, when installed in those systems.

■ APPLICATIONS IN MEXICO

Shutoff at metering and regulating stations, isolation of filters, regulators and meters at city gates, metering skids, fuel gas lines to boilers, turbines and burners, instrumentation and utility taps, drains and vents at compressor stations and industrial user connections.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, low-pressure air or gas seat test and hydrostatic seat test per API 598 or ISO 17292; antistatic and torque tests on request. Fire-safe with type certificate per the selected manufacturer. Delivered with MTRs, test reports, dimensional report and data sheet.



4 With spring pneumatic actuator



5 3-piece stainless socket-weld



6 Full bore with reducer



7 Reduced-bore threaded

✓ To quote this family, send us

- ✓ Diameter, ASME class and ends (RF, NPT, SW or BW)
- ✓ 2- or 3-piece body and full or reduced bore
- ✓ Body material and operating temperature
- ✓ PTFE, RPTFE, nylon or PEEK seat and fire-safe requirement
- ✓ Operation: lever with padlock, reducer or actuator and fail mode
- ✓ Sweet or sour service and maximum differential pressure
- ✓ Quantity per size, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 2" (up to 4" on request)	PRESSURE Class 800, 1500 and 2500; flanged 150 to 2500	MATERIALS A105, LF2, F316, F11 / F22
ENDS Socket-weld (SW), NPT threaded, butt-weld, flanged	STANDARDS API 602, ASME B16.34, ASME B16.11, API 598	TYPICAL LEAD TIME 20 to 35 business days

11

Technical validation

Forged Gate, Globe and Check Valves (API 602)

Compact forged steel valves for small diameters, drains, vents, bypass and instrumentation.

Where it is used: Compressor stations, M&R stations, instrument taps, drains, vents and bypass.

VARIANTS WE QUOTE

- Gate, globe and check (piston or swing)
- Bolted, welded or pressure-seal bonnet
- Rising stem with handwheel
- Low-emission version API 624

TO QUOTE, SEND US

- ✓ Type, diameter and class
- ✓ Ends and material
- ✓ Bonnet type
- ✓ Quantity per size

Full list of data to quote on page 110. →

Typical buyer: **Maintenance / Plant Purchasing**

11 DETAILED DATA SHEET

Forged Gate, Globe and Check Valves (API 602)

■ CONSTRUCTION

Compact forged steel body and bonnet, reduced or full bore. Solid wedge gate, globe with conical disc and seat, and piston or swing check. Bolted bonnet with spiral-wound gasket, welded with no external joint, or pressure-seal for high classes. Rising stem with handwheel, integral yoke and backseat.

■ MATERIALS

Carbon steel A105 body, LF2 for low temperature, F316 stainless and F11 / F22 chrome-moly for high temperature. 13Cr stainless steel trim or seats with cobalt alloy hard coating. Graphite packing, stainless spiral-wound graphite gasket and B7 / 2H studs. Sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From ½" to 2", up to 4" on request. Classes 800, 1500 and 2500 with SW and NPT ends; flanged in ASME Classes 150 to 2500. Typical range -29 °C to 425 °C with A105, down to -46 °C with LF2 and higher with F11 / F22, per ASME B16.34 curves. Dimensions per API 602 and the manufacturer's standard.

■ OPERATION

Manual with handwheel: gate for full shutoff, globe for throttling, regulating bypass and filling, check valve automatic by differential. The rising stem indicates position. The piston check is installed horizontally, or vertically with spring; the swing check, horizontally. Padlock or handwheel extension on request depending on service.

■ CONNECTIONS AND ENDS

Socket-weld (SW) and NPT threaded, with socket dimensions per ASME B16.11; butt-weld (BW) with bevel per ASME B16.25 and pipe schedule; RF or RTJ flanged per ASME B16.5, integral or welded. Mixed ends, for example SW by NPT, for instrument taps and drains.

■ APPLICABLE STANDARDS

API 602 governs compact steel gate, globe and check valves; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.11 socket-weld and threaded; API 598 inspection and testing; API 624 packing fugitive emissions on rising stem. ISO 15848-1 as an emissions alternative on request per the selected manufacturer.

■ APPLICATIONS IN MEXICO

Drains, vents, instrument taps and bypass of large valves at compressor stations and city gates, pressure gauge and transmitter connections at M&R stations, small-diameter fuel gas lines, pig trap equalization, filter bleeds and auxiliary services of industrial plants.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body, seat and backseat tests and low-pressure gas seat test per API 598; API 624 version with emissions type certificate. Delivered with heat-based MTRs, test reports, dimensional report, certificate of conformity and packing list by size and quantity.



4 Globe with welded bonnet



5 Gate with integral flanges



6 Class 2500 pressure-seal



7 Forged swing check

✓ To quote this family, send us

- ✓ Type: gate, globe or check (piston or swing)
- ✓ Diameter and class (800, 1500, 2500 or flanged 150 to 2500)
- ✓ SW, NPT, BW or flanged ends; mixed ends if applicable
- ✓ Body and trim material; operating temperature
- ✓ Bonnet type: bolted, welded or pressure-seal
- ✓ API 624 low emissions and sweet or sour service
- ✓ Quantity per size, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 24" (larger on request)	PRESSURE ASME Class 150 to 2500	MATERIALS WCB, LCC, WC6, CF8M
ENDS RF / RTJ flanged or butt-weld	STANDARDS API 600, ASME B16.34, B16.10, API 598, API 624	TYPICAL LEAD TIME 30 to 55 business days

12

Technical validation

Wedge Gate Valves (API 600)

Cast steel gate valves with bolted bonnet for station auxiliary services and process lines.

Where it is used: Fuel gas, auxiliary services, closed drains, station air and water.

VARIANTS WE QUOTE

- Flexible, solid or split wedge
- Bolted or pressure-seal bonnet
- Rising stem and outside yoke (OS&Y)
- Gear operator or electric actuator

TO QUOTE, SEND US

- ✓ Diameter, class and ends
- ✓ Wedge and bonnet type
- ✓ Material and service
- ✓ Operation

Full list of data to quote on page 110. →

Typical buyer: **Engineering / Maintenance**

12 DETAILED DATA SHEET Wedge Gate Valves (API 600)

■ CONSTRUCTION

Cast steel wedge gate with bolted bonnet, or pressure-seal in high classes. Flexible wedge that compensates thermal deformation, solid for general service or split two-disc. Rising stem with outside yoke (OS&Y), thread outside the fluid, backseat that isolates the packing with the valve open, and renewable or welded seats.

■ MATERIALS

Body and bonnet WCB, LCC for low temperature, WC6 chrome-moly for high temperature and CF8M stainless. 13Cr or stainless trim, or seats with cobalt alloy hard coating. Low-emission graphite packing, stainless spiral-wound graphite gasket or ring in pressure-seal and B7 / 2H studs. Sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 24", larger on request, in ASME Classes 150 to 2500. Typical range -29 °C to 425 °C with WCB, down to -46 °C with LCC and higher with WC6, per ASME B16.34 curves. Face-to-face per ASME B16.10. With rising stem and handwheel, free vertical space is required to operate and repack.

■ OPERATION

Multi-turn for open or closed service, not for regulation. Direct handwheel on small sizes and low classes; bevel gear operator on large sizes or high classes; multi-turn electric actuator with local or remote control, fail-last-position. Equalizing bypass on large high-pressure sizes to lower opening torque.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 up to 24" and B16.47 on larger sizes; butt-weld (BW) with bevel per ASME B16.25, matching pipe schedule and material. Drain and bypass connections in the body on request.

■ APPLICABLE STANDARDS

API 600 governs bolted-bonnet steel gate valves and ASME B16.34 the pressure-seal ones, in addition to wall thicknesses and pressure-temperature ratings; ASME B16.10 face-to-face; API 598 inspection and testing; API 624 packing fugitive emissions. In Mexico, NOM-002-SECRE-2010 when installed in natural gas end-use systems.

■ APPLICATIONS IN MEXICO

Auxiliary services at compressor stations and city gates: fuel gas, instrument and starting air, cooling water, closed drains and condensates. Process lines in industrial plants and power plants, equipment isolation and bypass, where the valve stays fully open or closed most of the time.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body, backseat and seat tests and low-pressure gas seat test per API 598; emissions per API 624 with type certificate. On request, radiography of critical casting areas. Delivered with MTRs, test reports, dimensional report, general drawing and operating manual.



4 With multi-turn electric actuator



5 Bevel gear operator



6 Weld-end pressure-seal



7 CF8M stainless body

✓ To quote this family, send us

- ✓ Diameter, ASME class and ends (RF, RTJ or BW)
- ✓ Wedge type (flexible, solid or split) and bonnet type
- ✓ Body and trim material per service and temperature
- ✓ Fluid: fuel gas, air, water or condensates
- ✓ Operation: handwheel, gear or electric actuator; bypass
- ✓ API 624 low emissions and sweet or sour service
- ✓ Quantity, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 3" to 48"	PRESSURE ASME Class 150 to 600	MATERIALS WCB, LCC, CF8M; laminated metal-graphite or RPTFE seat
ENDS Wafer, lug or double flange	STANDARDS API 609 Category B, API 598, API 607 / ISO 10497	TYPICAL LEAD TIME 30 to 55 business days

Reference image. Product may vary.

13

Technical validation

High-Performance and Triple Offset Butterfly Valves

Double and triple offset butterfly valves, compact and light, with bidirectional tight shutoff.

Where it is used: Boiler and turbine fuel gas, plant services and large-diameter low-pressure lines.

VARIANTS WE QUOTE

- Triple offset with laminated metal seat
- Double offset with soft seat
- Gear, pneumatic or electric operator
- Cryogenic version for LNG

TO QUOTE, SEND US

- ✓ Diameter, class and body type
- ✓ Seat and tightness
- ✓ Temperature and service
- ✓ Actuator and failure mode

Full list of data to quote on page 110. →

Typical buyer: **Engineering / Plant Maintenance**

13 DETAILED DATA SHEET

High-Performance and Triple Offset Butterfly Valves

■ CONSTRUCTION

Double offset: shaft displaced from the disc center and from the seal line, so the disc separates from the seat on opening. Triple offset: adds an offset conical seat, with frictionless metal-to-metal closing, torque-set seating and bidirectional tightness. Compact body, one- or two-piece shaft with anti-blowout and self-lubricating bearings.

■ MATERIALS

Body and disc WCB, LCC for low temperature or CF8M; hardened stainless shaft. Triple offset with laminated stainless and graphite seal ring, or solid metal, against a hard-coated seat. Double offset with RPTFE seat held by a ring. Graphite packing and coated stainless bearings. Cryogenic version in CF8M with extended neck.

■ SIZES, CLASSES AND TEMPERATURE

From 3" to 48" in ASME Classes 150, 300 and 600. Typical range -29 °C to 200 °C with RPTFE and higher with laminated metal seat; with LCC down to -46 °C and cryogenic down to -196 °C for LNG. Wafer, lug and double-flange face-to-face per API 609 and ASME B16.10. Much lighter and shorter than an equivalent gate valve.

■ OPERATION

Quarter-turn with gear operator and handwheel, double-acting or spring-return pneumatic actuator (fail-close or fail-open) or electric actuator, with ISO 5211 mounting. The triple offset closes by torque, so the actuator is sized with the seating torque; the double offset allows limited throttling.

■ CONNECTIONS AND ENDS

Wafer between flanges, lug with threaded lugs for end-of-line service, and double flange raised face (RF), with companion flanges per ASME B16.5 up to 24" and B16.47 on larger sizes. Verify that the disc opens without touching the inside diameter of the pipe or adjacent flanges.

■ APPLICABLE STANDARDS

API 609 Category B governs high-performance eccentric butterfly valves; API 598 inspection and testing; API 607 / ISO 10497 fire-safe qualification; ASME B16.34 wall thicknesses and pressure-temperature ratings. Cryogenic version tested per BS 6364, with NOM-013-ASEA-2021 in LNG facilities. NOM-002-SECRE-2010 in industrial end-use installations.

■ APPLICATIONS IN MEXICO

Fuel gas for boilers, furnaces and gas turbines in power and industrial plants, isolation of large-diameter, low-pressure burner trains, internal distribution headers in industrial parks, plant services and, in cryogenic version, LNG terminals and regasification plants on liquid and vapor lines.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, seat test in both directions and low-pressure gas test per API 598; metal-to-metal triple offset with leakage within the applicable tolerance. Cryogenic at -196 °C per BS 6364. Fire-safe with type certificate per the manufacturer. Delivered with MTRs, test reports, torques, dimensional report and manual.



4 Pneumatic triple offset



5 Wafer double offset with lever



6 Lug type with electric actuator



7 Cryogenic with extended neck

✓ To quote this family, send us

- ✓ Diameter, ASME class and body: wafer, lug or double flange
- ✓ Double or triple offset; soft or laminated metal seat
- ✓ Required tightness and closing direction (uni- or bidirectional)
- ✓ Minimum and maximum temperature; cryogenic if LNG
- ✓ Fluid, closing differential pressure and gas velocity
- ✓ Gear or actuator, fail mode and mounting
- ✓ Fire-safe, quantity, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 48"	PRESSURE ASME Class 150 to 2500	MATERIALS WCB, LCC, CF8M; Inconel or stainless springs
ENDS Wafer, lug, double flange or retainerless	STANDARDS API 594, API 6D, ASME B16.34	TYPICAL LEAD TIME 25 to 45 business days

Reference image. Product may vary.

14

Technical validation

Dual-Plate and Piston Check Valves

Compact spring-loaded dual-plate (wafer) and piston check valves for stations and skids.

Where it is used: Small pump and compressor discharge, regulating skids and service lines.

VARIANTS WE QUOTE

- Spring-loaded wafer dual plate
- Retainerless design, no external bores
- Piston check for small diameters
- Metal-to-metal or elastomer seat

TO QUOTE, SEND US

- ✓ Diameter, class and body type
- ✓ Minimum flow and pressure
- ✓ Body, plate and spring material
- ✓ Mounting orientation

Full list of data to quote on page 110. →

Typical buyer: Engineering / Maintenance

14 DETAILED DATA SHEET Dual-Plate and Piston Check Valves

■ CONSTRUCTION

Dual plate: two half-plates hinged on a central pin with a torsion spring that closes them before flow reversal, in a short annular body. Retainerless: hinge pins housed internally, with no external bores or possible leaks through plugs. Piston: spring-guided plug for small diameters and high pressure.

■ MATERIALS

Body WCB, LCC for low temperature or CF8M; stainless plates or with hard coating. Nickel alloy springs for cyclic service or temperature, or stainless in general service. Stainless hinge pin and integral stops. Metal-to-metal seat or with NBR, FKM or HNBR elastomer vulcanized to the body for tight shutoff. NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

From 2" to 48" in ASME Classes 150 to 2500. Typical range -29 °C to 121 °C with elastomer and higher with metal seat; with LCC down to -46 °C. Face-to-face per API 594, much shorter than a swing check. The minimum flow to keep the plates fully open and stable, without vibration, is defined.

■ OPERATION

Automatic, no actuator. Flow opens the plates against the spring and, as flow drops, the spring closes them before gas returns, reducing slam and wear. Installed in horizontal line, with the pin vertical, or vertical with upward flow. The piston type closes with spring in horizontal or vertical position.

■ CONNECTIONS AND ENDS

Wafer between raised face (RF) or RTJ flanges per ASME B16.5 or B16.47; lug with threaded lugs; double flange RF or RTJ; retainerless design in wafer or flanged. The piston type also with SW and NPT ends per ASME B16.11 in small sizes. Check the pipe inside diameter so the plates open without interference.

■ APPLICABLE STANDARDS

API 594 governs wafer, lug and double-flange dual-plate check valves; API 6D applies when installed in transmission pipelines; ASME B16.34 wall thicknesses and pressure-temperature ratings; ASME B16.5 / B16.47 flanges; API 598 inspection and testing. In Mexico, NOM-020-ASEA-2024 or NOM-003-ASEA-2016 depending on the system where installed.

■ APPLICATIONS IN MEXICO

Discharges of low-capacity reciprocating and centrifugal compressors, condensate and water pumps at stations, metering and regulating skids, fuel gas headers, industrial plant service lines and distribution branches where backflow must be prevented with little space and reduced weight.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test and seat test in the closing direction per API 598 or API 594, low-pressure gas seat test on request and check of free opening and closing of the plates. Delivered with heat-based MTRs, spring material certificate, test reports, dimensional report and mounting orientation.



4 Retainerless double flange



5 Lug type with threaded lugs



6 Flanged piston check



7 Stainless with elastomer seat

✓ To quote this family, send us

- ✓ Diameter, ASME class and body: wafer, lug, double flange or retainerless
- ✓ Minimum, normal and maximum flow and operating pressure
- ✓ Body, plate and spring material
- ✓ Metal-to-metal seat or with elastomer (NBR, FKM or HNBR)
- ✓ Mounting orientation: horizontal or vertical upward
- ✓ Flow source (compressor, pump or line) and whether there is pulsation
- ✓ Quantity, documentation and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1" to 12"	PRESSURE Inlet up to ASME Class 600; adjustable outlet	MATERIALS WCB / forged steel body, NBR / FKM diaphragms
ENDS RF flanged Class 150 to 600	STANDARDS EN 334, EN 12186, ASME B16.34, NOM-003-ASEA-2016	TYPICAL LEAD TIME 35 to 60 business days

Reference image. Product may vary.

15

Technical validation

Pressure Regulators for City Gate and M&R Stations

Direct-acting and pilot-operated regulating valves that reduce and hold delivery pressure precisely.

Where it is used: City gates, regulating and metering stations, districts, industries and power plants.

VARIANTS WE QUOTE

- Direct-acting and pilot-operated, axial-flow or globe
- Active or passive monitor for dual regulation
- Built-in overpressure shutoff (slam-shut)
- Silencer, spare pilots and diaphragm kits

TO QUOTE, SEND US

- ✓ Minimum and maximum inlet pressure
- ✓ Outlet pressure and flow (standard m³/h)
- ✓ Configuration: monitor, shutoff, redundant run
- ✓ Diameter and flange class

Full list of data to quote on page 110. →

Typical buyer: **Operations / Station Engineering**

15 DETAILED DATA SHEET

Pressure Regulators for City Gate and M&R Stations

■ CONSTRUCTION

Direct-acting: spring and diaphragm act on the plug, with fast response in small capacities. Pilot-operated: a pilot amplifies the outlet pressure signal and moves the main diaphragm, with greater accuracy and capacity. Globe or axial-flow body with elastomer sleeve; options of active or passive monitor and integrated overpressure shutoff (slam-shut).

■ MATERIALS

Body WCB or forged steel; diaphragm chambers of steel or aluminum depending on size and manufacturer. Fabric-reinforced NBR or FKM diaphragms, NBR or FKM sleeve and seals, stainless plug and seat. Pilot with stainless tubing and fittings. Exterior epoxy paint. An upstream filter is recommended to protect pilot and seat from solids in the gas.

■ SIZES, CLASSES AND TEMPERATURE

From 1" to 12", with inlet up to ASME Class 600 and outlet pressure adjustable by changing the pilot spring. Typical range -20 °C to 60 °C per EN 334. Accuracy class (AC) and lock-up pressure class (SG) declared per EN 334. Flow in standard m³/h per the manufacturer's capacity curves.

■ OPERATION

They open or close as outlet pressure varies against the setpoint. The fail mode depends on the design: fail-open, compensated with a monitor, or fail-close. The active or passive monitor takes control if the working regulator fails open. The integrated slam-shut shuts off on high or low pressure with manual reset. Optional silencer.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) per ASME B16.5 in Classes 150, 300 and 600; the outlet flange may be of a lower class when the design and overpressure protection allow. Downstream sensing taps in stainless tube with compression fittings, at the distance indicated by the manufacturer for a stable reading.

■ APPLICABLE STANDARDS

EN 334 governs design, testing and performance of gas regulators; EN 12186 the design of regulating stations; ASME B16.34 body pressure-temperature ratings. In Mexico, NOM-003-ASEA-2016 in distribution, NOM-020-ASEA-2024 at transmission system stations and NOM-002-SECRE-2010 in industrial end use, depending on the point of the chain where the equipment is installed.

■ APPLICATIONS IN MEXICO

City gates between the transmission pipeline and distribution networks, district metering and regulating stations, supply to industrial parks, plants and combined-cycle power plants, fuel gas regulation for turbines and boilers, in dual-run arrangements with monitor and overpressure shutoff.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, external and internal tightness, verification of setpoint, accuracy and lock-up pressure per EN 334; functional test of monitor and integrated slam-shut. Delivered with test certificate with the setting made, capacity curves, body MTR, dimensional report, manual and diaphragm kits.



4 Direct-acting spring



5 Pilot-operated axial flow



6 With integrated slam-shut



7 Regulator and monitor in series

✓ To quote this family, send us

- ✓ Minimum and maximum inlet pressure
- ✓ Required outlet pressure and regulation tolerance
- ✓ Minimum and maximum flow in standard m³/h
- ✓ Configuration: monitor, slam-shut, redundant run or silencer
- ✓ Diameter and class of inlet and outlet flanges
- ✓ Ambient temperature, gas quality and upstream filtration
- ✓ Quantity, spare parts (pilots and diaphragms) and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1" to 12"	PRESSURE ASME Class 150 to 600	MATERIALS WCB, forged steel, NBR / FKM seals
ENDS RF flanged	STANDARDS EN 14382, EN 12186, ASME B16.34	TYPICAL LEAD TIME 30 to 50 business days

16

Technical validation

Overpressure Shutoff (Slam-Shut) Valves

Snap shut the gas flow if downstream pressure rises or falls out of range; manual reset.

Where it is used: Regulating stations, districts, industrial and commercial supplies.

VARIANTS WE QUOTE

- Trip on high pressure, low pressure or both
- Standalone or integrated with the regulator
- Position switch for telemetry
- Reset bypass and spare part kits

TO QUOTE, SEND US

- ✓ Inlet and trip pressure (high / low)
- ✓ Diameter and class
- ✓ Integrated or standalone
- ✓ Required position signal

Full list of data to quote on page 110. →

Typical buyer: **M&R Station Operations**

16 DETAILED DATA SHEET

Overpressure Shutoff (Slam-Shut) Valves

■ CONSTRUCTION

Safety shutoff valve with spring-loaded plug, held open by a latching mechanism. A sensor with diaphragm or piston and adjustment springs measures downstream pressure and releases the latch when it goes out of range. Standalone with its own body or integrated into the regulator body, with manual reset and equalizing bypass.

■ MATERIALS

Body WCB or forged steel; steel plug and seat with NBR or FKM elastomer seal. Sensor diaphragm of reinforced NBR or FKM, steel or stainless adjustment springs per trip range. Stainless latching mechanism and stem; steel or aluminum covers depending on size. Exterior epoxy paint and spare kits with seals and diaphragms.

■ SIZES, CLASSES AND TEMPERATURE

From 1" to 12" in ASME Classes 150, 300 and 600. Typical temperature range -20 °C to 60 °C. Trip on high pressure, low pressure or both, with interchangeable springs for each setting range. Trip accuracy (AG) and response time declared per EN 14382 and the selected manufacturer.

■ OPERATION

Normally open; on detecting pressure outside the setting it releases the latch and the spring closes in a fraction of a second: fail-closed. It does not reset itself: the operator corrects the cause, equalizes with the bypass and resets with the lever. Optional position switch for signal to telemetry or SCADA.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) per ASME B16.5 in Classes 150 to 600. Sensing line in stainless tube with compression fittings, taken downstream of the regulator at a stable pressure point. Position switch in explosion-proof enclosure per IEC 60079, with wiring per NOM-001-SEDE-2012.

■ APPLICABLE STANDARDS

EN 14382 governs design, testing and performance of safety shutoff valves; EN 12186 their use in regulating stations; ASME B16.34 body pressure-temperature ratings. In Mexico, NOM-003-ASEA-2016 in distribution and NOM-002-SECRE-2010 in end use, depending on the system where installed; NOM-001-SEDE-2012 for the electrical installation of the switch.

■ APPLICATIONS IN MEXICO

Overpressure protection upstream of the regulator at district regulating stations and city gates, industrial and commercial supplies, service connections to plants with burners and fuel gas regulation for turbines, as the first level of protection before the low-capacity relief valve.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, internal and external tightness, verification of the trip point on high and low pressure and of closing time per EN 14382; reset test and position switch test. Delivered with test certificate with the settings made, body MTR, dimensional report, manual and spare kit list.



4 Large-diameter slam-shut



5 With position switch



6 Integrated into regulator body



7 Spare kit and bypass

✓ To quote this family, send us

- ✓ Maximum inlet pressure and downstream operating pressure
- ✓ Trip setting on high and low pressure
- ✓ Diameter and ASME class of flanges
- ✓ Standalone or integrated into a regulator (model and size)
- ✓ Position switch: required signal and area classification
- ✓ Line flow and ambient temperature
- ✓ Quantity, spare kits and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" x 1" to 8" x 10" (API orifices D to T)	PRESSURE Inlet ASME Class 150 to 2500	MATERIALS WCB, LCC, CF8M; steel or stainless spring
ENDS RF / RTJ flanged, NPT threaded	STANDARDS API 526, API 527, API 520 / 521, ASME Sec. VIII, NOM-093-SCFI-2020	TYPICAL LEAD TIME 25 to 45 business days

Reference image. Product may vary.

17

Technical validation

Relief and Safety Valves (Spring and Pilot)

Protect pipelines, vessels and stations against overpressure by safely discharging excess gas.

Where it is used: Compressor stations, M&R stations, vessels, filters, pig traps and regulator discharge.

VARIANTS WE QUOTE

- Conventional and balanced bellows spring type
- Pilot-operated, pop or modulating action
- Low-capacity (token) relief for regulators
- Calibration, tightness tests and certificate

TO QUOTE, SEND US

- Set pressure and back pressure
- Required capacity (or API 520 calculation)
- Orifice, sizes and flange class
- Material and temperature

Full list of data to quote on page 110. →

Typical buyer: Engineering / Process Safety

17 DETAILED DATA SHEET

Relief and Safety Valves (Spring and Pilot)

■ CONSTRUCTION

Conventional spring: spring-loaded disc that opens on reaching set pressure, with closed bonnet and optional lifting lever. Balanced bellows: isolates the spring and compensates variable backpressure. Pilot-operated: the pilot controls the load in the piston dome, pop or modulating action. Low-capacity relief (token relief) for regulators.

■ MATERIALS

Body WCB, LCC for low temperature or CF8M; stainless nozzle and disc. Coated carbon steel or stainless spring; stainless bellows. On the pilot type, soft seat and NBR, FKM or PTFE seals with stainless tubing. Cap and adjustment with safety wire seal after calibration. Sour gas per NACE MR0175 / ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

Inlet by outlet ½" x 1" to 8" x 10", orifices D to T per API 526. Inlet in ASME Classes 150 to 2500; the outlet is of a lower class because of the low backpressure. With LCC down to -46 °C; the maximum temperature depends on material and seals, and the pilot soft seat limits it. Typical overpressure of 10 % with a single device.

■ OPERATION

Automatic: they open on reaching set pressure and close when it drops below, discharging to atmosphere or to a flare header. The modulating pilot type opens only as much as needed for the excess; the pop type opens suddenly. No actuator; the lever allows manual testing. Each setting change requires documented recalibration and a new seal.

■ CONNECTIONS AND ENDS

Flanged raised face (RF) or ring-type joint (RTJ) per ASME B16.5 at inlet and outlet, with center-to-face dimensions per API 526; NPT threaded in small sizes and in low-capacity relief. Inlet piping must limit pressure loss and discharge piping must withstand the reaction, per API 520.

■ APPLICABLE STANDARDS

API 526 dimensions and orifices of flanged steel valves; API 527 seat tightness; API 520 sizing and installation; API 521 relief and flare scenarios; ASME Sec. VIII capacity certification, on request per the manufacturer. In Mexico, NOM-093-SCFI-2020 for spring- and pilot-operated pressure relief valves.

■ APPLICATIONS IN MEXICO

Protection of compressor stations, separators and filters, pig traps, regulating skids at city gates and M&R stations; low-capacity relief (token relief) downstream of district regulators; protection of fuel gas piping in industrial and power plants against regulator failure or external fire.

■ TESTING, INSPECTION AND DOCUMENTS

Set pressure calibration on bench, seat tightness test per API 527, hydrostatic body test and backpressure test at outlet and bonnet. The setting is sealed. Delivered with calibration certificate, MTR, data sheet with orifice and capacity, dimensional report and manual. Periodic recalibration on request.



4 Spring with balanced bellows



5 Modulating pilot



6 Threaded low-capacity relief



7 Stainless threaded with lever

✓ To quote this family, send us

- ✓ Set pressure and backpressure (constant or variable)
- ✓ Required capacity or relief calculation per API 520
- ✓ Relief scenario: regulator failure, fire or blocked outlet
- ✓ Orifice, inlet and outlet sizes and flange class
- ✓ Type: spring, balanced bellows, pilot or low capacity
- ✓ Material, operating temperature and sweet or sour service
- ✓ Quantity, calibration certificate and required date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1" to 16"	PRESSURE ASME Class 150 to 2500	MATERIALS WCB, LCC, CF8M; trim 410 / 17-4PH / stellited
ENDS RF / RTJ flanged, weld-end	STANDARDS IEC 60534, ASME B16.34, ANSI/FCI 70-2 (leakage Class IV to VI)	TYPICAL LEAD TIME 35 to 60 business days

Reference image. Product may vary.

18

Technical validation

Globe and Cage Control Valves

Linear control valves for regulating pressure, flow or temperature with actuator and positioner.

Where it is used: Pressure control in stations, compressor recycle, turbine and boiler fuel gas.

VARIANTS WE QUOTE

- Balanced cage, single or double seat
- Low-noise and anti-cavitation trim (multistage)
- Equal-percentage or linear characteristic
- Pneumatic or electric actuator with smart positioner

TO QUOTE, SEND US

- ✓ Data sheet: minimum, normal and maximum flow
- ✓ Inlet and outlet pressures, temperature
- ✓ Allowable leakage (ANSI/FCI 70-2) and maximum noise
- ✓ Actuator, fail-safe action and control signal

Full list of data to quote on page 110. →

Typical buyer: **Control Engineering / Instrumentation**

18 DETAILED DATA SHEET

Globe and Cage Control Valves

■ CONSTRUCTION

Cast S-pattern globe body, bolted bonnet and V-ring or graphite stem packing. Cage-guided trim: balanced plug with seal ring that reduces required thrust, or unbalanced single-seat for tighter shutoff. Double seat on high-capacity models. Multistage cages against noise and cavitation.

■ MATERIALS

Body and bonnet in WCB for general service, LCC for low temperature and CF8M for wet or corrosive gas. Trim in hardened 410 or 17-4PH; stellite seats and plugs for high pressure drops. PTFE or graphite packing, spiral-wound stainless gaskets with graphite, B7 or L7 studs. Trim for sour service per ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

Sizes 1" to 16" in ASME Classes 150 to 2500 per ASME B16.34. Flow coefficient (Cv) and orifice are defined by calculation from the data sheet; reduced-capacity trims are available in the same body. Temperature per body and packing: LCC for service down to -46 °C. Flanged globe face-to-face dimensions per IEC 60534.

■ OPERATION

Linear motion: the plug moves up or down inside the cage and varies the flow area. Pneumatic diaphragm or piston actuator, or linear electric, with 4-20 mA and HART smart positioner. Spring fail position: closes, opens or holds per the loop. Stroke, thrust with margin and travel time are specified, critical in compressor recycle.

■ CONNECTIONS AND ENDS

Raised face (RF) or ring-type joint (RTJ) flanges per ASME B16.5, preferred when removal for maintenance is expected. Butt-weld ends with bevel per ASME B16.25 for high classes or where leak points must be eliminated. Spool pieces, companion flanges, gaskets and studs of the same material grade as the body supplied on request.

■ APPLICABLE STANDARDS

IEC 60534 covers sizing, face-to-face dimensions, inspection and testing, and aerodynamic noise prediction. ASME B16.34 sets pressure-temperature classes, minimum wall thickness and body test. ANSI/FCI 70-2 defines seat leakage class, from IV to VI. NOM-020-ASEA-2024 applies at transmission stations; stem fugitive emissions can be qualified to ISO 15848-1.

■ APPLICATIONS IN MEXICO

Downstream pressure control at city gates and M&R stations, as working or monitor valve. Antisurge recycle of centrifugal compressors, with fast stroke. Fuel gas control to turbines, boilers and furnaces in industrial and power plants. Pressure and level control in gas conditioning plants and LNG terminals.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test at 1.5 times rated pressure at 38 °C, seat leakage test per the specified ANSI/FCI 70-2 class, and functional test with the actuator: full stroke, positioner calibration, travel time and fail position. Material certificates, test report, final data sheet, dimensional drawing and operation manual are delivered.



4 With linear electric actuator



5 With pneumatic piston actuator



6 High-capacity double seat



7 Multistage anti-cavitation trim

✓ To quote this family, send us

- ✓ Process data sheet with minimum, normal and maximum flow
- ✓ Inlet and outlet pressure at each flow, and temperature
- ✓ Gas composition or density; presence of H₂S or moisture
- ✓ Line size, ASME class, material and end type
- ✓ ANSI/FCI 70-2 leakage class and maximum noise level in dBA
- ✓ Actuator type, fail position and available air or power
- ✓ Control signal, protocol, accessories and area classification

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1" to 24"	PRESSURE ASME Class 150 to 600	MATERIALS WCB, CF8M; hard-coated ball
ENDS Wafer or flanged	STANDARDS IEC 60534, ASME B16.34, ANSI/FCI 70-2	TYPICAL LEAD TIME 30 to 55 business days

19

Rotary Control Valves

Technical validation

Segmented V-ball, control butterfly and eccentric plug: high capacity and wide control range.

Where it is used: Flow control in fuel gas, compression, stations and large-diameter lines.

VARIANTS WE QUOTE

- Segmented V-ball with high rangeability
- High-performance control butterfly
- Rotary eccentric plug
- Diaphragm or piston actuator with positioner

TO QUOTE, SEND US

- ✓ Flows and pressures (data sheet)
- ✓ Diameter and class
- ✓ Control signal and fail-safe action
- ✓ Body and trim material

Full list of data to quote on page 110. →

Typical buyer: **Control Engineering**

19 DETAILED DATA SHEET Rotary Control Valves

■ CONSTRUCTION

Three rotary body designs. V-notch segmented ball: flangeless body and quarter-turn ball with V notch that cuts the flow with a shearing effect. High-performance butterfly: double-offset disc and ring seat. Eccentric plug: offset spherical plug that lifts off the seat without rubbing. Keyed or splined shafts, guide bearings and adjustable packing.

■ MATERIALS

WCB body for general service or CF8M for wet gas or corrosive environments. Stainless steel ball, disc or plug with hard chrome or stellite coating on the sealing area. Metal or reinforced PTFE seats, 17-4PH shafts, self-lubricating bearings and PTFE or graphite packing. Sour gas materials per ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

Sizes 1" to 24" in ASME Classes 150, 300 and 600 per ASME B16.34. Useful rotation is 90° and Cv per opening degree comes from the selected manufacturer's sizing. V-ball and eccentric plug offer high rangeability; high-performance butterfly gives more capacity in large sizes. Flangeless face-to-face per IEC 60534.

■ OPERATION

Quarter-turn rotation transmitted by shaft and lever. Rotary pneumatic diaphragm or piston actuator with spring return, or double-acting, with 4-20 mA and HART smart positioner. Fail-closed or fail-open position per the process. Breakaway and seating torque are calculated at maximum differential pressure; friction is lower than in an equivalent globe valve.

■ CONNECTIONS AND ENDS

Flangeless wafer type, clamped between line ASME B16.5 flanges with through studs and centering rings, reducing weight and length. Integral RF flanged type in larger sizes or where downstream piping must be removed. Actuator mounting via ISO 5211 interface or selected manufacturer's own coupling. Studs and gaskets on request.

■ APPLICABLE STANDARDS

IEC 60534 governs sizing, face-to-face dimensions of rotary valves, inspection and testing. ASME B16.34 defines wall thickness, pressure-temperature classes and body test. ANSI/FCI 70-2 sets seat leakage class, typically IV with metal seat and VI with soft seat. ISO 5211 standardizes the actuator interface; NOM-020-ASEA-2024 applies at transmission stations.

■ APPLICATIONS IN MEXICO

Fuel gas flow and pressure control to turbines and burners in combined-cycle plants. Capacity control in compression stations and metering skids with wide flow range. Regulation in large-diameter lines of city gates and M&R stations, and process control in industrial plants with highly variable consumption between startup and full load.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test at 1.5 times rated pressure at 38 °C, seat leakage test per ANSI/FCI 70-2 and functional test of the assembly: full rotation, positioner calibration, opening and closing times and fail position. Material certificates, test report, final data sheet, dimensional drawing and operation manual are delivered.



4 High-performance butterfly



5 Rotary eccentric plug



6 Flanged V-ball with piston



7 Wafer V-ball with diaphragm

✓ To quote this family, send us

- ✓ Data sheet with minimum, normal and maximum flows
- ✓ Inlet and outlet pressures, temperature and gas properties
- ✓ Line size, ASME class and wafer or flanged body
- ✓ Preferred type: V-ball, butterfly or eccentric plug
- ✓ Body and trim material; sour service if applicable
- ✓ ANSI/FCI 70-2 leakage class and maximum noise level
- ✓ Actuator, fail position, control signal and hazardous area

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2" to 48"	PRESSURE ASME Class 150 to 2500	MATERIALS WCB / A105, LCC / LF2, CF8M
ENDS RF / RTJ flanged or butt-weld	STANDARDS API 6D, API 6FA, IEC 61508 / 61511 (SIL), NOM-020-ASEA-2024	TYPICAL LEAD TIME 45 to 90 business days

20

Fail-Safe Emergency Shutdown (ESD) Valves

Technical validation

Valve plus spring-return actuator that closes by itself on fire, leak or power failure.
Where it is used: Inlets and outlets of compressor stations, city gates, LNG plants and fuel gas skids.

VARIANTS WE QUOTE

- Trunnion ball or gate with spring actuator
- Pneumatic, gas-over-oil or electrohydraulic
- Partial stroke test (PST) and diagnostics
- Intumescent coating or fire box

TO QUOTE, SEND US

- ✓ Diameter, class and required closing time
- ✓ SIL level and failure mode
- ✓ Available operating medium (air, gas, electricity)
- ✓ Control and feedback signals

Full list of data to quote on page 110. →

Typical buyer: **Process Safety / Engineering**

20 DETAILED DATA SHEET Fail-Safe Emergency Shutdown (ESD) Valves

■ CONSTRUCTION

Valve and spring-return actuator assembly. Trunnion-mounted ball with bolted or welded body, double block and bleed seats, or full-bore gate suitable for pigging. Scotch-yoke or linear piston actuator with spring cartridge, local control panel, solenoid valves and position switch box mounted and tested at the factory.

■ MATERIALS

Cast WCB or forged A105 bodies for general service; LCC or LF2 for low temperature and CF8M for corrosive service. Ball and seats with electroless nickel or tungsten carbide; elastomers qualified against rapid gas decompression per ISO 23936-2 and graphite backup fire seals. Sour service per ISO 15156 on request. Actuator with epoxy paint for outdoor use.

■ SIZES, CLASSES AND TEMPERATURE

Sizes 2" to 48" in ASME Classes 150 to 2500. Face-to-face per API 6D and ASME B16.10. The actuator is sized with maximum breakaway torque plus a safety factor, with the spring at its end position. Closing time is set by the risk analysis; in large sizes hydraulic damping may be required to avoid water hammer.

■ OPERATION

In normal operation air, gas or oil pressure compresses the spring and keeps the valve open. On loss of power, solenoid de-energization or instrumented system trip, the spring closes the valve with no external source. Gas-over-oil uses line gas; electrohydraulic uses pump and accumulator. Partial stroke test (PST) is done in line without interrupting flow.

■ CONNECTIONS AND ENDS

Raised face (RF) or ring-type joint (RTJ) flanges per ASME B16.5 up to 24" and ASME B16.47 in larger sizes. Butt-weld ends with ASME B16.25 bevel and pup pieces of pipe thickness and grade. Electrical signals via conduit with explosion-proof glands and NPT pneumatic ports with stainless steel tubing.

■ APPLICABLE STANDARDS

API 6D covers design, manufacture and testing of pipeline valves. API 6FA qualifies the design's fire resistance. IEC 61508 and IEC 61511 govern safety integrity (SIL) of components and loop. NOM-020-ASEA-2024 requires automatic or remote valves in restricted-access zones and compression emergency shutdown from two points. Electrical equipment per IEC 60079.

■ APPLICATIONS IN MEXICO

Inlet and outlet isolation of compression stations on transmission pipelines, automatic or remote sectionalizing on pipeline sections and crossings, and emergency shutdown at city gates and M&R stations. Fuel gas skids for turbines and generators, tank and pump isolation at LNG terminals, and feed protection for high-risk industrial plants.

■ TESTING, INSPECTION AND DOCUMENTS

Valve tests per API 6D: hydrostatic body and seat, and low-pressure gas seat test. Functional test of the assembly: opening and closing times, full strokes, PST and verification of solenoids and switches. Material certificates, fire type-test certificate, SIL documentation per the selected manufacturer, test report and manual are delivered.



4 Gate with linear actuator



5 Gas-over-oil actuator



6 Electrohydraulic actuator



7 Actuator in fire enclosure

✓ To quote this family, send us

- ✓ Size, ASME class, valve type (ball or gate) and ends
- ✓ Maximum closing differential pressure and design temperature
- ✓ Required closing time and fail position
- ✓ Target SIL level and partial stroke test requirement
- ✓ Available operating medium: air, line gas or electricity
- ✓ Solenoid voltage, control signals and feedback
- ✓ Area classification and required fire protection

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ¼" to 1"	PRESSURE Up to 6,000 psi (10,000 psi on request)	MATERIALS 316 / 316L stainless; special alloys on request
ENDS NPT, double ferrule compression, SW	STANDARDS MSS SP-99, ASME B16.34	TYPICAL LEAD TIME 15 to 30 business days

Reference image. Product may vary.

21

Quick entry

Needle Valves, Instrumentation Valves and Manifolds

Small stainless steel valves for gauges, transmitters, sample taps and vents.

Where it is used: Pressure taps, transmitters, analyzers, bleeds and instrument panels.

VARIANTS WE QUOTE

- Needle valves with integral or bolted bonnet
- 2-, 3- and 5-valve manifolds for transmitters
- Instrumentation and bleed ball valves
- Stainless instrumentation fittings and tubing

TO QUOTE, SEND US

- ✓ Connection type and size
- ✓ Pressure and material
- ✓ Quantity per model
- ✓ Mounting drawing if manifold

Full list of data to quote on page 110. →

Typical buyer: Instrumentation / Maintenance

21 DETAILED DATA SHEET Needle Valves, Instrumentation Valves and Manifolds

■ CONSTRUCTION

Forged or bar-machined stainless steel bodies. Needle valve with non-rotating tapered-tip stem, integral or bolted bonnet with anti-unscrewing lock and back seat. 2-, 3- and 5-valve manifolds in one block for gauge or differential pressure transmitters, with block valves, equalizer and vent. Quarter-turn instrumentation ball valves.

■ MATERIALS

316 or 316L stainless steel body, bonnet and stem; stem tip in hardened 316 or 17-4PH. PTFE packing for general service and graphite for high temperature. Ball valve seats in reinforced PTFE or PEEK. Duplex or nickel alloys on request for marine environments or sour gas per ISO 15156.

■ SIZES, CLASSES AND TEMPERATURE

Connections from ¼" to 1". Working pressure up to 6,000 psi at ambient temperature; 10,000 psi on request. Allowable pressure decreases with temperature per material and packing. Orifice and flow coefficient per model. Manifolds for direct mounting to differential pressure transmitter with 54 mm spacing between connections, and remote-mount versions on bracket.

■ OPERATION

Multi-turn needle valve: the stem advances and the tapered tip throttles or shuts off with precision, useful for throttling and damping pulsations. 3-valve manifold: two block valves and one equalizer to adjust zero without removing the transmitter; the 5-valve adds vent or test connection. T or bar handles, dust cap and padlock option.

■ CONNECTIONS AND ENDS

Male or female NPT thread in ¼", ⅜", ½", ¾" and 1"; double-ferrule compression for stainless tube in fractional or metric size; socket weld (SW) per ASME B16.11 for high pressure. Manifolds with transmitter mounting flange and NPT inlets. Adapters, nipples, tees, connectors and seamless stainless tube supplied to complete the impulse line.

■ APPLICABLE STANDARDS

MSS SP-99 covers design, materials, pressure rating and testing of instrumentation valves. ASME B16.34 applies to valve bodies by pressure-temperature class and ASME B16.11 to threaded and socket-weld forged fittings. On transmission or distribution pipelines these instruments are integrated under NOM-020-ASEA-2024 or NOM-003-ASEA-2016, depending on the installation.

■ APPLICATIONS IN MEXICO

Isolation of gauges and transmitters at city gates, M&R and compression stations; sampling taps for chromatographs and moisture or H2S analyzers; drains and vents of ultrasonic and turbine metering skids; regulator and pilot sensing lines; and instrumentation tubing in industrial plants, LNG terminals and CNG stations.

■ TESTING, INSPECTION AND DOCUMENTS

Each valve is body and seat tested per MSS SP-99, with inert gas or liquid at the specified pressure. Manifolds are tested per path and as an assembly. Stainless steel material certificates with traceable heat number, test report, dimensional drawing and, on request, cleaning certificate for analyzer lines are delivered.



4 Straight needle, integral bonnet



5 Angle needle, bolted bonnet



6 2-way manifold, block and bleed



7 Double-ferrule instrumentation ball

✓ To quote this family, send us

- ✓ Type: needle, instrumentation ball or 2-, 3- or 5-way manifold
- ✓ Size and type of inlet and outlet connection (NPT, double ferrule, SW)
- ✓ Working pressure and temperature
- ✓ Body material; sour service or marine environment if applicable
- ✓ Bonnet type, packing and handle; padlock option
- ✓ Transmitter model and mounting drawing if manifold
- ✓ Quantity per model and required connectors or stainless tube

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 2"	PRESSURE ASME Class 150 to 2500	MATERIALS A105 / LF2, F316, duplex
ENDS Flange x flange, flange x NPT	STANDARDS ISO 17292, API 6D, ASME B16.34	TYPICAL LEAD TIME 25 to 45 business days

22

Technical validation

Monoblock Double Block and Bleed Instrument Valves

Double block and bleed in one compact body replacing three valves and several connections.

Where it is used: Pressure and sampling taps, chemical injection, metering and instrument isolation.

VARIANTS WE QUOTE

- Ball-needle-ball or ball-ball-needle
- Monoflange ball-needle
- Bleed with plug or with valve
- Fire-safe and antistatic design

TO QUOTE, SEND US

- ✓ Configuration and connection sizes
- ✓ Class and material
- ✓ Service (instrument, sampling, injection)
- ✓ Quantity

Full list of data to quote on page 110. →

Typical buyer: Instrumentation / Metering

22 DETAILED DATA SHEET

Monoblock Double Block and Bleed Instrument Valves

■ CONSTRUCTION

Single forged body integrating two block ball valves and one needle bleed valve, in ball-needle-ball or ball-ball-needle configuration. The single-flange version combines a block ball and an isolation needle in a reduced-thickness flange. Floating balls, blowout-proof stems and antistatic device between ball, stem and body.

■ MATERIALS

Forged A105 body for general service, LF2 for low temperature, F316 for corrosion and duplex for marine or chloride environments. 316 or 17-4PH stainless balls and stems; reinforced PTFE or PEEK seats for high classes. Graphite seals in fire-safe design. B7 or L7 studs per temperature. Sour service per ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

Connections from ½" to 2" in ASME Classes 150 to 2500. Overall length is much shorter than a three-valve arrangement with nipples, reducing weight, leak points and stress on the process nozzle. Reduced internal bore, suitable for instruments. Maximum temperature is limited by the seat; PEEK allows more temperature than PTFE.

■ OPERATION

The two quarter-turn balls isolate the instrument with a double barrier; the intermediate needle vents the cavity and lets you confirm the block is tight before intervening. Levers with stop and padlock option. The bleed can be a threaded plug or needle valve with NPT outlet. Low operating torque, manual handling without tools.

■ CONNECTIONS AND ENDS

Flange x flange with ASME B16.5 raised face (RF) or ring-type joint (RTJ) flanges, to install between process nozzle and instrument line. Flange x female NPT to connect gauge or transmitter directly. Single-flange with process flange and NPT threaded outlet. Bleed and vent with NPT thread, with plug or needle valve.

■ APPLICABLE STANDARDS

ISO 17292 governs design and testing of steel ball valves for oil and gas, including the antistatic device. API 6D applies when specified for pipeline service. ASME B16.34 defines pressure-temperature classes. Fire-safe design is qualified to API 607 or ISO 10497 and fugitive emissions to ISO 15848-1, per the selected manufacturer.

■ APPLICATIONS IN MEXICO

Isolation of transmitters and gauges at compression stations, city gates and M&R stations; sampling taps for chromatographs on custody-transfer metering skids; odorant or chemical injection points; pressure taps on transmission pipelines; and instrument connections at LNG terminals and high-pressure CNG stations.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test, seat test of each ball and low-pressure gas seat test, per the specified design standard. Antistatic continuity check. Material certificates with traceable heat number, test report, dimensional drawing and fire-safe type certificate per the selected manufacturer are delivered.



4 Single-flange ball-needle



5 Flange x NPT with plug bleed



6 Ball-ball-needle in stainless steel



7 High class with RTJ flanges

✓ To quote this family, send us

- ✓ Configuration: ball-needle-ball, ball-ball-needle or single-flange
- ✓ Size and type of process and instrument outlet connection
- ✓ ASME class and flange face (RF or RTJ)
- ✓ Body material and whether sour service applies
- ✓ Service: instrument, sampling or chemical injection
- ✓ Bleed type (plug or valve) and fire-safe requirement
- ✓ Requested design standard and quantity per configuration

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 20 to 315 mm	PRESSURE Up to 10 bar (SDR 11) and 5 bar (SDR 17)	MATERIALS Yellow or black PE100, PE or POM ball, NBR seals
ENDS Spigot for heat fusion or electrofusion	STANDARDS ISO 4437-4, EN 1555-4, ASME B16.40, NOM-003-ASEA-2016	TYPICAL LEAD TIME 20 to 40 business days

Reference image. Product may vary.

23

Technical validation

PE100 Polyethylene Ball Valves

Buried-service PE100 body valves joined to the network by heat fusion or electrofusion; corrosion-free.

Where it is used: PE distribution networks, branches, sector sectionalizing and service connections.

VARIANTS WE QUOTE

- Full or reduced bore, with or without bleed
- Operating head with square socket for T-key
- Long ends for electrofusion welding
- Kits with telescopic extension and valve box

TO QUOTE, SEND US

- ✓ Pipe diameter and SDR
- ✓ Maximum operating pressure
- ✓ With or without bleed and head type
- ✓ Installation depth

Full list of data to quote on page 110. →

Typical buyer: **Construction / Distribution Companies**

23 DETAILED DATA SHEET PE100 Polyethylene Ball Valves

■ CONSTRUCTION

Injection-molded and welded PE100 body, no metal parts in contact with the gas, with ball supported between elastomer seats. Stem with double O-ring and square operating head with 90° stop. Full-bore or reduced-bore versions, with integrated bleed on one or both sides. Maintenance-free design for permanent burial in the network.

■ MATERIALS

Body and spigots in yellow PE100 compound, or black with yellow stripes, compatible with the network pipe. PE or POM ball, NBR seats and O-rings for natural gas, POM or PE stem. No cathodic protection or coating required. The compound is identified by lot, with its quality certificate, for traceability on site.

■ SIZES, CLASSES AND TEMPERATURE

Outside diameters from 20 to 315 mm. Maximum operating pressure of 10 bar with SDR 11 spigots and 5 bar with SDR 17. Service temperature from -20 °C to 40 °C. Spigots long enough for butt fusion or electrofusion with couplers. Dimensions and performance per ISO 4437-4 and EN 1555-4.

■ OPERATION

Quarter-turn valve operated from the surface with a T-key on the square head, through extension and valve box. Mechanical stops define open and closed positions. Low operating torque, stable over service life. The integrated bleed lets you vent or pressurize the section and run tightness tests without additional excavation.

■ CONNECTIONS AND ENDS

Plain PE100 spigots of the same SDR as the pipe, for butt fusion in medium and large sizes or electrofusion with couplers in any size. Long-spigot versions allow room to place the coupler and fusion machine. Bleed outlets with plug or spigot to connect a branch or test equipment.

■ APPLICABLE STANDARDS

ISO 4437-4 and EN 1555-4 cover polyethylene valves for gas supply systems: materials, dimensions, tightness, operating torque and strength. ASME B16.40 applies to thermoplastic gas valves from ½" to 12". NOM-003-ASEA-2016 regulates the design, construction, operation and maintenance of the distribution network in which they are installed.

■ APPLICATIONS IN MEXICO

Sectionalizing of sectors in medium and low pressure PE distribution networks, branches and laterals to housing developments and industrial parks, isolation of high-consumption service lines and outlets of district regulating stations. Suitable for corrosive soils or stray currents, where a metal valve would require protection.

■ TESTING, INSPECTION AND DOCUMENTS

Seat and body tightness test with air at low and high pressure, and operating torque check on each valve. Hydrostatic strength and performance type tests per ISO 4437-4 or EN 1555-4, from the selected manufacturer. PE100 compound certificate, test report by lot and dimensional sheet are delivered.



4 With bleed on both sides



5 Large diameter, black with stripes



6 Kit with telescopic extension

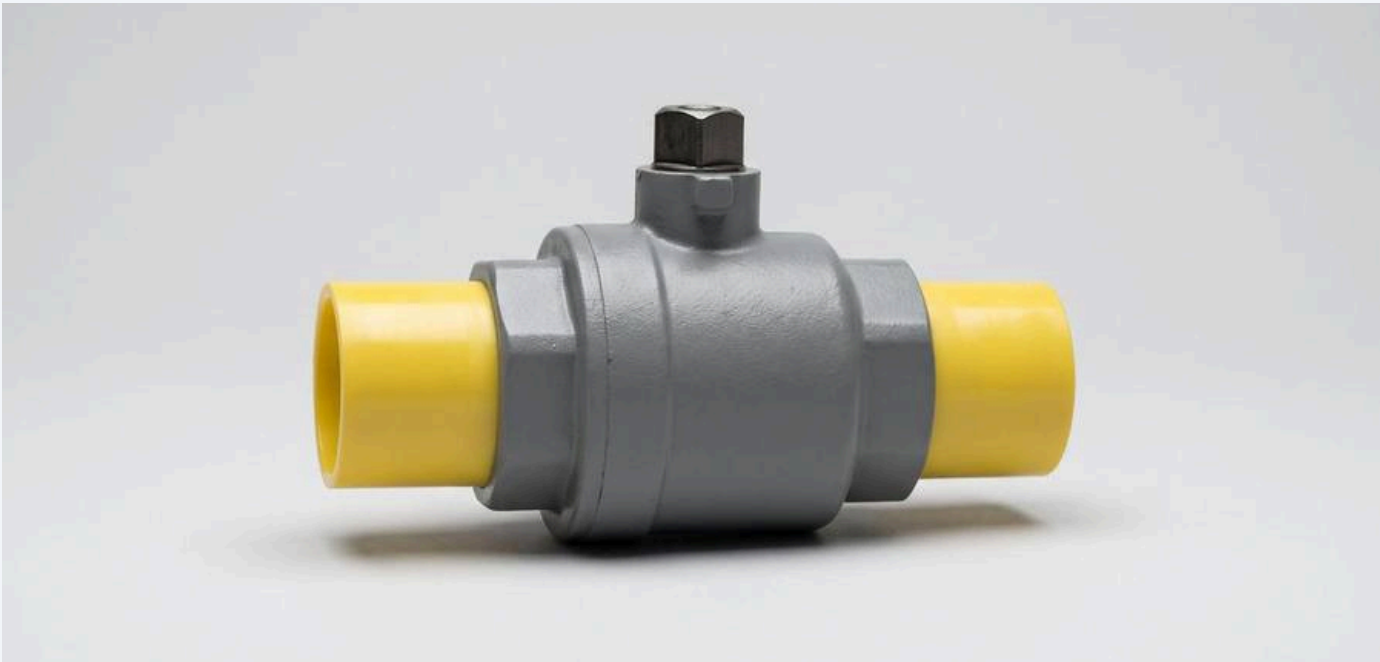


7 Long spigots for electrofusion

✓ To quote this family, send us

- ✓ Outside diameter (mm) and SDR of the PE pipe
- ✓ Maximum operating pressure of the network
- ✓ Full or reduced bore; bleed on one side, both or none
- ✓ Joint type: butt fusion or electrofusion; long spigot
- ✓ Head type and whether extension and valve box are required
- ✓ Installation depth to pipe centerline
- ✓ Quantity per diameter and body color

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 1" to 8" (32 to 225 mm on PE side)	PRESSURE Per PE pipe SDR	MATERIALS Coated carbon steel; PE100 stubs
ENDS PE spigot x weld-end or PE x PE	STANDARDS ASME B16.38, ISO 4437, NOM-003-ASEA-2016	TYPICAL LEAD TIME 25 to 45 business days

24

Technical validation

Steel Ball Valves with PE Ends (Transition)

Carbon steel valve with factory-fitted PE100 stubs to transition from steel to polyethylene network.

Where it is used: Steel-to-PE transitions, district station outlets and special crossings.

VARIANTS WE QUOTE

- PE x PE with metal body
- PE x weld-end steel
- With bleed and head for T-key
- Epoxy coating for burial

TO QUOTE, SEND US

- ✓ Diameters and SDR on each side
- ✓ Operating pressure
- ✓ With or without bleed
- ✓ Quantity per size

Full list of data to quote on page 110. →

Typical buyer: **Construction / Distribution Companies**

24 DETAILED DATA SHEET Steel Ball Valves with PE Ends (Transition)

■ CONSTRUCTION

Fully welded steel body ball valve, no bolted joints, with PE100 nipples factory-joined through a sealed, pull-out-resistant metal-to-plastic transition. Floating ball with soft seats, double-sealed stem and square head for T-key. Optional bleed on one or both sides for venting and testing.

■ MATERIALS

Carbon steel body with fusion-bonded epoxy coating or epoxy paint for buried service. Chrome-plated or stainless steel ball, PTFE or NBR seats and NBR stem seals. Yellow or black PE100 compound nipples per ISO 4437. Steel end in a grade compatible for welding to existing pipe.

■ SIZES, CLASSES AND TEMPERATURE

Body from 1" to 8", with PE nipples from 32 to 225 mm. Operating pressure is limited by the SDR of the PE nipple; the metal body has more capacity than the polyethylene network. Nipple length allows field electrofusion or butt fusion. Diameter of each side can be combined for reducing transitions.

■ OPERATION

Quarter-turn with T-key on the square head, operated from the surface through extension and valve box. Open and closed stops. Low torque thanks to the floating ball with soft seats. The optional bleed lets you vent the section, pressurize for testing or connect a temporary bypass during commissioning.

■ CONNECTIONS AND ENDS

PE x PE: PE100 nipples at both ends to insert the valve into the polyethylene network by electrofusion or butt fusion. PE x steel: one PE end and the other butt-weld with bevel per ASME B16.25 to join the steel network. Thickness and grade of the steel end are defined per the existing pipe.

■ APPLICABLE STANDARDS

ASME B16.38 covers metal valves for gas distribution up to 125 psig, as applicable to the body. ISO 4437 defines the PE100 requirements for the nipples and their fusion compatibility with the network. NOM-003-ASEA-2016 regulates the design, construction and testing of the distribution network where the transition is installed.

■ APPLICATIONS IN MEXICO

Transitions between existing steel networks and polyethylene extensions, outlets of district regulating stations with steel header to the PE network, crossings of bridges, tracks or pipelines where a metal section is required, and sector-by-sector rehabilitation of old steel networks replaced with PE.

■ TESTING, INSPECTION AND DOCUMENTS

Seat and body tightness test with air on each valve, operating torque check and coating inspection with holiday detector. Steel and PE100 compound material certificates, test report by lot, dimensional sheet with nipple lengths and installation instructions are delivered.



4 PE x weldable steel



5 With bleed and T-key head



6 Green epoxy, black nipples



7 Size range from 1" to 8"

✓ To quote this family, send us

- ✓ Diameter and SDR of the PE side; diameter and schedule of the steel side
- ✓ Configuration: PE x PE or PE x weldable steel
- ✓ Maximum operating pressure of the network
- ✓ With or without bleed, on one side or both
- ✓ Coating type required for burial
- ✓ Installation depth and whether extension and box are included
- ✓ Quantity per size

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 2½" to 12"	PRESSURE Up to 125 psig (B16.38); Class 150 to 300 (API 6D)	MATERIALS Carbon steel, stainless or chrome-plated ball
ENDS Butt-weld or flanged	STANDARDS ASME B16.38, API 6D, NOM-003-ASEA-2016	TYPICAL LEAD TIME 25 to 45 business days

Reference image. Product may vary.

25

Technical validation

Steel Ball Valves for Distribution Networks

Steel valves for sectionalizing medium- and low-pressure steel networks, buried or in vaults.

Where it is used: Urban steel networks, distribution rings, district station outlets.

VARIANTS WE QUOTE

- Fully welded body for burial
- Stem extension and 2" square for T-key
- Bleed on both sides
- Epoxy or three-layer polyethylene coating

TO QUOTE, SEND US

- ✓ Diameter and operating pressure
- ✓ Depth and extension length
- ✓ Ends and pipe thickness
- ✓ Coating

Full list of data to quote on page 110. →

Typical buyer: **Distribution Companies / Construction**

25 DETAILED DATA SHEET Steel Ball Valves for Distribution Networks

■ CONSTRUCTION

Fully welded steel body, no bolted joints that could leak once buried. Floating ball in small sizes and trunnion-mounted in larger ones, with PTFE or elastomer seats. Blowout-proof stem with double seal, welded or bolted stem extension and 2" operating square for T-key. Bleed on one or both sides.

■ MATERIALS

Forged or tubular carbon steel body and ends, stainless or chrome-plated steel ball, reinforced PTFE or NBR seats and NBR or FKM stem seals. Fusion-bonded epoxy or three-layer polyethylene external coating for buried service. Steel extension tube coated, with protective sleeve. Sour service per ISO 15156 on request.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from 2½" to 12". Under ASME B16.38, pressure up to 125 psig, typical of medium-pressure networks; for higher pressures, ASME Classes 150 and 300 under API 6D. Full or reduced bore. Extension length made to the installation depth. Face-to-face of the selected manufacturer or per ASME B16.10 in flanged versions.

■ OPERATION

Quarter-turn from the surface with T-key on the 2" square, through the extension that reaches the valve box. Open and closed stops and position indication on the square. Gear operator supplied in larger sizes. Bleeds allow venting, pressurizing and testing each side of the valve at commissioning.

■ CONNECTIONS AND ENDS

Butt-weld with bevel per ASME B16.25 and transition nipples of the same grade and thickness as the network pipe, for burial without flanges. Raised face flanged versions with ASME B16.5 Class 150 or 300 flanges for installation in a vault or station. Bleeds with NPT thread, with plug or small ball valve.

■ APPLICABLE STANDARDS

ASME B16.38 covers manual metal valves for gas distribution up to NPS 12 and 125 psig: design, materials and testing. API 6D applies to higher-pressure pipeline valves, by ASME class. NOM-003-ASEA-2016 regulates the design, construction, operation and maintenance of the distribution networks where these valves are installed.

■ APPLICATIONS IN MEXICO

Sectionalizing of medium-pressure steel urban networks, distribution loops, outlets of district regulating stations, supply to industrial parks and large consumers, and crossings of avenues or railways. They allow isolating sectors for maintenance or emergency without digging, operating from the valve box in the sidewalk or street.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic body test and low-pressure seat tests with water and with air or inert gas, per the specified design standard. Torque check, coating inspection with holiday detector and thickness measurement. Material certificates, test report, dimensional drawing with extension length and manual are delivered.



4 Flanged for valve box



5 Three-layer PE coating



6 With bleed on both sides



7 With gear operator

✓ To quote this family, send us

- ✓ Diameter and maximum operating pressure of the network
- ✓ Design standard: ASME B16.38 or API 6D with ASME class
- ✓ Ends: weldable (pipe schedule and grade) or flanged
- ✓ Depth to pipe centerline and extension length
- ✓ Bleed on one side or both; 2" square or gear operator
- ✓ Coating: epoxy or three-layer polyethylene
- ✓ Quantity per diameter and required on-site date

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail

SIZES ½" to 2"	PRESSURE Up to 175 psi (12.1 bar)	MATERIALS Forged brass, ductile iron, steel
ENDS NPT threaded, compression, PE union	STANDARDS ASME B16.33, NOM-003-ASEA-2016	TYPICAL LEAD TIME 15 to 30 business days



3 In use

26

Technical validation

Service and Curb Valves for Service Lines

Manual metal valves for house and business service lines, with locking wing for padlock.

Where it is used: Residential and commercial service lines, curb, property entry and risers.

VARIANTS WE QUOTE

- Plug or ball, with wing for padlock or seal
- Curb stop with operating square
- Quarter-turn valve with stop
- Service line kits with riser

TO QUOTE, SEND US

- ✓ Diameter and connection type
- ✓ Service pressure
- ✓ Material and lock type
- ✓ Quantity (annual volume)

Full list of data to quote on page 110. →

Typical buyer: Distribution Companies / Construction

26 DETAILED DATA SHEET Service and Curb Valves for Service Lines

■ CONSTRUCTION

Quarter-turn service valves, lubricated tapered plug or ball type, with one-piece forged body, 90° stop and locking wing with hole for padlock or seal. Curb valves with square head to operate with a key from the valve box. Service kits with prefabricated PE-to-metal transition riser and integrated valve.

■ MATERIALS

Forged brass bodies for residential service lines; ductile iron or steel in larger sizes and commercial service. Brass plug with gas grease, or chrome-plated brass ball with PTFE seats; NBR O-rings. Risers with coated steel tube and inner PE tube. Paint or weather coating on iron and steel parts.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 2", within the scope of ASME B16.33. Service pressure up to 175 psi (12.1 bar) and service temperature from -29 °C to 66 °C. Reduced or full bore per model. Risers in standard lengths or made to the facade and service line depth.

■ OPERATION

Manual quarter-turn with stop in open and closed. In the closed position the locking wing lines up with the body hole to fit a padlock or seal, which prevents unauthorized reconnection. The curb valve is operated from the surface with a T-key. The lubricated plug is regreased to maintain tightness and low torque.

■ CONNECTIONS AND ENDS

Female or male NPT thread; compression connections for copper or PE tube; union nuts or mechanical adapters for the service line PE pipe. Risers with PE tail for electrofusion or mechanical joint on the buried part and NPT threaded outlet to regulator and meter. Threads checked with gauge.

■ APPLICABLE STANDARDS

ASME B16.33 covers manual metal gas valves from ½" to 2" and up to 175 psi: design, materials, marking and tightness tests. NOM-003-ASEA-2016 regulates the service lines of the distribution network, including each user's shutoff point, as well as their installation, testing and maintenance.

■ APPLICATIONS IN MEXICO

Service lines for homes and apartments, shops, restaurants and small industry; sidewalk shutoff for service suspension due to maintenance or non-payment; property entry valve on the facade riser; and risers in buildings, condominiums and housing complexes with centralized metering in cabinet or niche.

■ TESTING, INSPECTION AND DOCUMENTS

Each valve is tested for body and seat tightness with air per ASME B16.33, and operating torque and locking function are verified. Brass or steel material certificate, test report by lot, dimensional sheet and conformity declaration from the selected manufacturer are delivered.



4 Curb valve with square



5 Service kit with riser



6 2" ductile iron plug



7 Ball with union for PE pipe

✓ To quote this family, send us

- ✓ Diameter and type of inlet and outlet connection
- ✓ Service pressure of the network
- ✓ Type: plug or ball, straight or angle, or curb valve
- ✓ Body material and lock type (padlock or seal)
- ✓ Whether a service kit with riser is needed and its length
- ✓ Type and diameter of service pipe (PE, copper or steel)
- ✓ Annual volume and delivery schedule

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 2" (CTS / IPS)	PRESSURE Medium and low distribution pressure	MATERIALS Brass or polymer body, stainless spring
ENDS For insertion in PE pipe, threaded or weld-end	STANDARDS MSS SP-115, ASTM F2138	TYPICAL LEAD TIME 20 to 35 business days

Reference image. Product may vary.

27

Technical validation

Excess Flow Valves (EFV)

Close by themselves if the service line breaks and flow surges; they limit leakage until repair.

Where it is used: Residential, commercial and building service lines in PE and steel networks.

VARIANTS WE QUOTE

- With automatic reset bypass
- Without bypass (manual reset)
- Integrated into service tee or riser
- Various trip flow rates

TO QUOTE, SEND US

- ✓ Diameter and pipe type
- ✓ Operating pressure
- ✓ Customer load flow
- ✓ With or without bypass

Full list of data to quote on page 110. →

Typical buyer: **Distribution Companies / Network Engineering**

27 DETAILED DATA SHEET Excess Flow Valves (EFV)

■ CONSTRUCTION

Device installed inside the service line pipe: cylindrical body with poppet held open by a calibrated spring. When flow exceeds the trip value, differential pressure overcomes the spring and the poppet closes against the seat. Versions with small reset bypass and versions without bypass, with tight shutoff.

■ MATERIALS

Brass or high-strength engineered polymer body, brass or polymer poppet, stainless steel spring and NBR or fluoroelastomer seals compatible with natural gas. Insert versions include seals that fit against the inner wall of the PE pipe; threaded or weldable ones have a metal housing.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 2" for CTS or IPS pipe, per service line diameter. Trip flow is selected per the user's connected load, with margin over maximum consumption. They operate within distribution medium and low pressure ranges; minimum operating pressure and flow by pressure are given by the selected manufacturer.

■ OPERATION

In normal service the spring keeps the passage open with minimum pressure loss. If the service line breaks, flow rises and the valve closes immediately. With bypass, a small controlled flow repressurizes the section after repair and the valve resets itself; without bypass, it resets by equalizing pressure manually.

■ CONNECTIONS AND ENDS

Inserts to place inside the PE pipe at the service tee or riser; versions with NPT threaded ends for metal service lines; versions integrated into PE service tees with electrofusion outlet. Flow direction is marked on the body and must be observed during installation.

■ APPLICABLE STANDARDS

MSS SP-115 covers design, performance and testing of excess flow valves for fuel gas. ASTM F2138 specifies excess flow valves for natural gas service, including trip flow, bypass and durability. They are installed on service lines of distribution networks regulated by NOM-003-ASEA-2016.

■ APPLICATIONS IN MEXICO

Service lines of homes, shops and buildings in PE and steel networks, especially in areas with frequent civil works where excavations damage service lines. Also on branches to multiple meters and building risers. They limit the leak from the moment of the break and reduce fire or explosion risk until the crew arrives.

■ TESTING, INSPECTION AND DOCUMENTS

Per-lot verification of trip flow and bypass or leakage flow with air at reference pressures, and body tightness test. Performance type tests per MSS SP-115 or ASTM F2138 from the selected manufacturer. Test report, trip flow table by pressure, data sheet and installation instructions are delivered.



4 Integrated into service tee



5 Threaded with brass body



6 For installation in riser



7 Polymer insert without bypass

✓ To quote this family, send us

- ✓ Diameter and type of service pipe (PE CTS or IPS, or steel)
- ✓ Minimum and maximum operating pressure of the network
- ✓ User's connected load (m³/h) to set the trip flow
- ✓ With automatic reset bypass or without bypass
- ✓ Installation: insert, threaded or integrated into service tee or riser
- ✓ Required standard: MSS SP-115 or ASTM F2138
- ✓ Annual volume per model

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 2"	PRESSURE Low and medium pressure, up to 175 psi	MATERIALS Nickel-plated or natural forged brass
ENDS NPT, meter union nut	STANDARDS ASME B16.33, NOM-002-SECRE-2010	TYPICAL LEAD TIME 15 to 30 business days

28

Technical validation

Meter Valves

Shutoff valves at the meter inlet, angle or straight, with lock for disconnection and reconnection.

Where it is used: Residential, commercial and industrial meter sets, cabinets and niches.

VARIANTS WE QUOTE

- Ball valve with padlock wing
- Angle valve with meter nut
- Valves with tamper-proof seal
- Meter connection sets

TO QUOTE, SEND US

- ✓ Meter diameter and thread
- ✓ Straight or angle
- ✓ Lock type
- ✓ Quantity

Full list of data to quote on page 110. →

Typical buyer: Distribution Companies / Installers

28 DETAILED DATA SHEET Meter Valves

■ CONSTRUCTION

Quarter-turn ball-type shutoff valves in forged brass body, straight or 90° angle, with stop and locking wing with hole for padlock or disconnection seal. Angle types integrate a swivel union nut to connect directly to the meter. Models with tamper-proof cap or lock that prevent operating the valve without a special tool.

■ MATERIALS

Forged brass body and nuts, in natural or nickel-plated finish for greater corrosion resistance outdoors. Chrome-plated brass ball, PTFE seats and NBR O-rings for natural gas. Meter union gaskets in gas-compatible material. Steel levers with yellow coating and steel tamper-proof caps.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 2", covering residential, commercial and small-industry meters. Low and medium service pressure, up to 175 psi, within the scope of ASME B16.33. Center distance and height of angle types compatible with cabinets and niches. Union nut thread is defined per meter model.

■ OPERATION

Manual quarter-turn: lever parallel to the pipe when open and perpendicular when closed. When closed, the locking wing lets the utility fit a padlock or seal for disconnection due to arrears or safety, and remove it at reconnection. Tamper-proof versions require a special key. Low torque and lubrication-free operation.

■ CONNECTIONS AND ENDS

Inlet with male or female NPT thread toward the regulator or service pipe; outlet with swivel union nut and gasket to connect to the meter, or NPT thread on the straight version. Connection sets with nipples, elbows and nuts to assemble the metering assembly in cabinet or niche without field adaptations.

■ APPLICABLE STANDARDS

ASME B16.33 covers manual metal gas valves from ½" to 2" and up to 175 psi: materials, design and testing. NOM-002-SECRE-2010 sets the requirements for natural gas utilization installations, which begin at the meter outlet. On the utility's network side NOM-003-ASEA-2016 applies.

■ APPLICATIONS IN MEXICO

Residential metering assemblies in housing niches and cabinets, multiple meters in buildings and housing complexes, commercial metering in restaurants, hotels and laundries, and small-industry meters. Useful in the utility's disconnection and reconnection programs and for isolating the meter during replacement or verification.

■ TESTING, INSPECTION AND DOCUMENTS

Body and seat tightness test with air on each piece per ASME B16.33, thread check with gauge and operating torque verification. Brass material certificate, test report by lot, dimensional sheet with center distance and conformity declaration from the selected manufacturer are delivered.



4 Nickel-plated angle with padlock



5 Straight with padlock wing



6 With tamper-proof cap



7 Meter connection set

✓ To quote this family, send us

- ✓ Diameter and thread of inlet and meter connection
- ✓ Meter model to connect
- ✓ Straight or angle; center distance if angle
- ✓ Lock type: padlock wing, seal or tamper-proof
- ✓ Finish: natural or nickel-plated brass
- ✓ Service pressure
- ✓ Quantity and whether connection sets are included

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ¾" to 4"	PRESSURE Inlet up to 125 psig; outlet 7" w.c. to 60 psig	MATERIALS Aluminum or ductile iron, NBR diaphragm
ENDS NPT or flanged	STANDARDS ANSI B109.4, EN 334, NOM-002-SECRE-2010	TYPICAL LEAD TIME 20 to 40 business days

Reference image. Product may vary.

29

Service and District Regulators

Regulators that reduce network pressure to the consumption pressure of homes, businesses and small industries.

Where it is used: Residential and commercial meter sets, district stations and cabinets.

VARIANTS WE QUOTE

- With internal or external relief
- With overpressure (OPSO) or low-pressure shutoff
- Pilot-operated district regulators
- Range springs and diaphragm kits

TO QUOTE, SEND US

- ✓ Inlet and outlet pressure
- ✓ Flow (m³/h)
- ✓ Required protections
- ✓ Connections and vent orientation

Full list of data to quote on page 110. →

Typical buyer: **Distribution Companies / Installers**

29 DETAILED DATA SHEET Service and District Regulators

■ CONSTRUCTION

Self-operated spring-and-diaphragm regulators: the diaphragm senses outlet pressure and moves the plug through a lever. Service types integrate internal relief through the diaphragm or are combined with an external relief valve. District types use a pilot, which amplifies the signal for greater accuracy and capacity. Overpressure shutoff (OPSO) or underpressure shutoff option.

■ MATERIALS

Cast aluminum body in residential and commercial service; ductile iron or steel in district regulators. NBR fabric-reinforced diaphragm, NBR plug seat, coated steel springs and galvanized or stainless hardware. Diaphragm case with weather paint and screen on the vent against insects and water.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ¾" to 4". Inlet pressure up to 125 psig; outlet pressure from 7" water column for residential use up to 60 psig for district and industry, via interchangeable range springs. Capacity in m³/h per pressures and orifice, selected with manufacturer tables. Accuracy and lockup pressure per model.

■ OPERATION

When outlet pressure drops from consumption, the spring overcomes the diaphragm and opens the plug; when consumption stops it closes tight (lockup pressure). Relief vents small overpressures; OPSO shuts off completely and requires manual reset. In district service, the pilot governs the main regulator and another can be installed in series as monitor.

■ CONNECTIONS AND ENDS

Female NPT thread at inlet and outlet for residential and commercial service up to 2"; ASME B16.5 flanges on district regulators from 2" to 4". Body and vent orientation configurable; indoors the vent is piped to the outside. External sensing taps with tubing on district regulators and with pilot.

■ APPLICABLE STANDARDS

ANSI B109.4 covers self-operated diaphragm service regulators for natural gas. EN 334 applies to regulators with higher inlet pressure and EN 14382 to shutoff devices. NOM-002-SECRE-2010 governs their installation in utilization; at district stations of the network NOM-003-ASEA-2016 and EN 12186 apply.

■ APPLICATIONS IN MEXICO

Metering assemblies for homes, buildings and shops on medium-pressure networks, reducing to appliance pressure. District regulating stations feeding low-pressure sectors, regulating cabinets in housing developments and shopping centers, and supply to small industrial equipment, furnaces and boilers.

■ TESTING, INSPECTION AND DOCUMENTS

Body and diaphragm tightness test, outlet setpoint adjustment, verification of lockup pressure and relief start pressure, and OPSO trip test where applicable. Calibration report with set pressures, capacity tables, data sheet, installation instructions and spare parts list are delivered.



4 District regulator with pilot



5 With overpressure shutoff



6 With external series relief



7 Springs and diaphragm kit

✓ To quote this family, send us

- ✓ Minimum and maximum inlet pressure
- ✓ Required outlet pressure and tolerance
- ✓ Maximum and minimum flow in m³/h
- ✓ Protections: internal or external relief, OPSO or low pressure
- ✓ Size, connection type and vent orientation
- ✓ Service: residential, commercial, industrial or district
- ✓ Quantity, range springs and required repair kits

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES 3/4" to 8"	PRESSURE Low and medium pressure	MATERIALS Ductile iron or aluminum, stainless mechanism
ENDS NPT threaded (up to 2") or flanged	STANDARDS ASCE 25	TYPICAL LEAD TIME 20 to 40 business days

30

Technical validation

Seismic Shutoff Valves

Automatically cut off gas during an earthquake of a set intensity; reset by hand once the site is safe.

Where it is used: Hospitals, schools, buildings, shopping centers and industries in seismic zones.

VARIANTS WE QUOTE

- Mechanical acceleration-trip type
- Solenoid valves triggered by seismic sensor
- With position indicator and switch
- Manual reset

TO QUOTE, SEND US

- ✓ Line diameter and pressure
- ✓ Mechanical or sensor-based
- ✓ Required alarm signal
- ✓ Location (outdoor or indoor)

Full list of data to quote on page 110. →

Typical buyer: **Building Maintenance / Civil Protection**

30 DETAILED DATA SHEET Seismic Shutoff Valves

■ CONSTRUCTION

Automatic shutoff valve with built-in sensing mechanism. In mechanical types, a calibrated ball or mass on a pedestal moves with the earthquake's acceleration and releases the latch that closes the plug by spring or gravity. Solenoid valves receive the command from an electronic seismic sensor. Position indicator, manual reset knob and optional switch.

■ MATERIALS

Ductile iron or cast aluminum body with weather coating. Trip mechanism, springs, pins and shafts in stainless steel so corrosion does not alter calibration. NBR or fluoroelastomer seat and seals for natural gas. Sensor cover sealed against dust and moisture, with sight glass to see the position.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ¾" to 8" for low and medium pressure lines, from the meter outlet to industrial supply lines. Trip threshold by acceleration and frequency per ASCE 25, without closing from traffic vibration or minor shocks. Flow capacity and pressure drop are checked in the selected manufacturer's tables.

■ OPERATION

Under normal conditions the valve stays open. In an earthquake above the threshold, the mechanism trips and the valve closes with no external power. It does not reopen by itself: reset is manual with the knob, after checking the installation for leaks. Solenoid valves close on sensor signal and can send alarm or position to the building system.

■ CONNECTIONS AND ENDS

Female NPT thread in sizes up to 2"; ASME B16.5 flanges in larger sizes. Installed in the orientation indicated by the model, level and anchored to the structure or a rigid support, so it detects the building's actual acceleration. Solenoid valves connect via conduit with glands.

■ APPLICABLE STANDARDS

ASCE 25 covers earthquake-actuated automatic gas shutoff devices: sensitivity, trip and no-trip tests, and durability. Gas installation in the building is governed by NOM-002-SECRE-2010. For solenoid valves and sensors, the electrical installation must comply with NOM-001-SEDE-2012 and, in classified areas, IEC 60079.

■ APPLICATIONS IN MEXICO

Gas inlet to hospitals, schools, offices, residential buildings, shopping centers, hotels and industries in high-seismicity zones such as Mexico City, Guerrero, Oaxaca, Michoacán and Chiapas. Installed after the meter or at the building entrance to cut the supply and reduce fire risk from damaged piping.

■ TESTING, INSPECTION AND DOCUMENTS

Body and seat tightness test on each unit, functional check of trip and reset and of position switches. Type test report per ASCE 25 from the selected manufacturer, test report per unit, instructions with anchoring and leveling requirements, and data sheet with flow tables are delivered.



4 Solenoid valve with seismic sensor



5 Large-diameter flanged mechanical



6 With position switch



7 Compact ¾" for housing

✓ To quote this family, send us

- ✓ Line size and connection type
- ✓ Operating pressure and maximum flow
- ✓ Type: mechanical or solenoid valve with seismic sensor
- ✓ Required alarm or position signal and available voltage
- ✓ Location: indoor or outdoor, and whether classified area
- ✓ Building type and installation point
- ✓ Quantity and whether anchor bracket is required

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ¼" to 4"	PRESSURE Up to 175 psi (B16.33) or Class 150 to 800	MATERIALS Nickel-plated forged brass, carbon steel, 316 stainless
ENDS NPT, socket-weld, butt-weld, flanged	STANDARDS ASME B16.33, ASME B16.34, NOM-002-SECRE-2010	TYPICAL LEAD TIME 15 to 30 business days

Reference image. Product may vary.

31

Technical validation

Brass and Steel Ball Valves for Gas Lines

2- and 3-piece ball valves for internal gas lines in plants, businesses and buildings.

Where it is used: Industrial and commercial gas utilization lines, supply to equipment and burners.

VARIANTS WE QUOTE

- Brass with yellow lever or butterfly handle
- 3-piece steel with padlock
- Full or reduced bore
- With ISO 5211 pad for actuator

TO QUOTE, SEND US

- ✓ Diameter and connection
- ✓ Line pressure
- ✓ Material
- ✓ Quantity per size

Full list of data to quote on page 110. →

Typical buyer: Plant Maintenance / Installers

31 DETAILED DATA SHEET

Brass and Steel Ball Valves for Gas Lines

■ CONSTRUCTION

Floating-ball ball valves. Brass ones are two-piece threaded, with blowout-proof stem and yellow lever or butterfly handle. Three-piece steel ones allow removing the center body without cutting the line to change seats and seals. Full or reduced bore; ISO 5211 mounting pad option for pneumatic or electric actuator.

■ MATERIALS

Nickel-plated forged brass with chrome-plated ball for low-pressure gas in commerce and light industry. Forged or cast carbon steel and 316 stainless steel for industrial lines. PTFE or reinforced PTFE seats, PTFE or graphite stem packing and NBR O-rings. Steel levers with yellow coating and locking device.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ¼" to 4". Brass ones from ½" to 2" per ASME B16.33, up to 175 psi; steel and stainless in Classes 150 to 800 per ASME B16.34, with Class 800 typical in threaded or socket-weld forged ones. Temperature is limited by the PTFE seat. Full bore for lower pressure drop to burners.

■ OPERATION

Manual quarter-turn with lever or butterfly handle and open and closed stops; lever position indicates the state. Lever with padlock hole, useful for lockout during maintenance. With ISO 5211 pad they are automated with pneumatic or electric actuator for remote isolation or fast shutoff of equipment.

■ CONNECTIONS AND ENDS

Female NPT thread in brass and steel; socket weld (SW) per ASME B16.11 and butt-weld with ASME B16.25 bevel in three-piece steel valves; ASME B16.5 raised face Class 150 or 300 flanges in larger sizes. The three-piece design accepts different ends with the same center body.

■ APPLICABLE STANDARDS

ASME B16.33 covers manual metal gas valves from ½" to 2" and up to 175 psi. ASME B16.34 applies to steel and stainless valves by pressure-temperature class. ISO 5211 defines the actuator interface. NOM-002-SECRE-2010 sets the requirements for utilization installations: shutoff valves, materials and pipe tightness test.

■ APPLICATIONS IN MEXICO

General and per-equipment shutoff in industrial and commercial utilization installations: supply to burners, boilers, furnaces, dryers and industrial kitchens; branches in plants and buildings; isolation of regulators and meters; and automatic isolation valves with actuator on skids, continuous furnaces and process equipment.

■ TESTING, INSPECTION AND DOCUMENTS

Body and seat tests with air or water on each valve, per ASME B16.33 or API 598 according to the design standard. Material certificate, test report by lot, dimensional sheet and, for valves with mounting pad, operating torque to size the actuator are delivered.



4 Brass with yellow butterfly handle



5 3-piece steel with padlock



6 Flanged 316 stainless



7 With mounting pad and actuator

✓ To quote this family, send us

- ✓ Size and connection type (NPT, SW, butt-weld or flanged)
- ✓ Line operating pressure and temperature
- ✓ Material: nickel-plated brass, carbon steel or 316 stainless
- ✓ Full or reduced bore; two- or three-piece
- ✓ Handle type and whether padlock is required
- ✓ ISO 5211 pad and actuator type if automated
- ✓ Quantity per size

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 8"	PRESSURE Up to 6 bar (more on request)	MATERIALS Aluminum, brass or steel; Class H coil
ENDS NPT or flanged	STANDARDS EN 161, ISO 23551-1, UL 429, NOM-001-SEDE-2012 (hazardous areas)	TYPICAL LEAD TIME 20 to 35 business days

Reference image. Product may vary.

32

Technical validation

Gas Shutoff Solenoid Valves

Automatic valves that open or shut off gas on an electrical signal: burner safety and leak detection.

Where it is used: Burners, boilers, furnaces, industrial kitchens and gas detection systems.

VARIANTS WE QUOTE

- Normally closed or normally open
- Manual reset for leak detection
- Slow opening and fast closing
- Explosion-proof coil (Ex d / Class I Div 1)

TO QUOTE, SEND US

- ✓ Diameter and pressure
- ✓ Voltage and coil type
- ✓ Function (NC, NO, manual reset)
- ✓ Area classification

Full list of data to quote on page 110. →

Typical buyer: Maintenance / Combustion Contractors

32 DETAILED DATA SHEET Gas Shutoff Solenoid Valves

■ CONSTRUCTION

Coil-operated automatic shutoff valves. In small sizes they are direct-acting: the moving core lifts the plug. In large sizes they are servo-assisted or with electrohydraulic actuator. Spring closing on de-energization. Variants with slow opening and hydraulic brake and fast closing, and manual-reset types that stay locked closed until reset.

■ MATERIALS

Cast aluminum body for low pressure, brass in small sizes and steel for higher pressure or hazardous area. Plug with NBR or fluoroelastomer seal; stainless steel springs and core. Encapsulated coil with class H insulation. Explosion-proof aluminum or steel housing in Ex d versions. Built-in mesh strainer on some models.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 8". Maximum operating pressure up to 6 bar; higher on request. Coils of 24 V DC, 120/127 V AC or 220 V AC for continuous duty. Fast closing per EN 161 in burner safety valves. Ambient temperature range per coil and seals of the selected model.

■ OPERATION

Normally closed: opens when energized and closes by spring when power is cut, a safety function on burners. Normally open: closes when energized, used as vent between two safety valves. Manual reset: after a gas detector trip it stays closed until reset on site. Slow opening for smooth burner ignition.

■ CONNECTIONS AND ENDS

Female NPT thread in sizes up to 2"; flanges in larger sizes, with companion flanges to weld or thread. Electrical connection via connector with gland or threaded conduit in explosion-proof versions. Upstream and downstream test pressure taps on most models to verify tightness.

■ APPLICABLE STANDARDS

EN 161 and ISO 23551-1 cover automatic shutoff valves for gas burners and appliances: classes, closing time and tightness. UL 429 applies to electrically operated valves. NOM-001-SEDE-2012 governs the electrical installation and, in Class I Division 1 classified areas, Ex d coils per IEC 60079 are used.

■ APPLICATIONS IN MEXICO

Safety valves in burner trains of boilers, furnaces and dryers; general gas shutoff in industrial kitchens, restaurants, hotels and hospitals linked to leak detectors; automatic equipment isolation in industrial plants; and normally open vent valves in double block and bleed arrangements of burners.

■ TESTING, INSPECTION AND DOCUMENTS

Internal and external tightness test, opening and closing verification at minimum and rated voltage, closing time measurement and coil dielectric test. Test report, data sheet with flow curves, electrical diagram, instructions and product certificates per the selected manufacturer are delivered.



4 Manual reset for detection



5 Large-diameter flanged



6 Slow opening with brake



7 Direct-acting brass

✓ To quote this family, send us

- ✓ Size, connection type and maximum operating pressure
- ✓ Required flow and allowable pressure drop
- ✓ Function: normally closed, normally open or manual reset
- ✓ Slow or fast opening and required closing time
- ✓ Voltage, current type and coil power
- ✓ Area classification and protection type (Ex d, Class I Div 1)
- ✓ Required certification (EN 161, UL 429) and quantity

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 6"	PRESSURE Inlet up to 6 bar	MATERIALS Aluminum, ductile iron and steel, skid-mounted
ENDS NPT or flanged	STANDARDS EN 746-2, ISO 23551-1, EN 1643, NFPA 85 / 86	TYPICAL LEAD TIME 30 to 50 business days

Reference image. Product may vary.

33

Technical validation

Burner Valve Trains

Assembled sets of safety valves, regulator, filter and pressure switches that safely feed burners.

Where it is used: Boilers, industrial furnaces, dryers, steam generators and thermal equipment.

VARIANTS WE QUOTE

- Double safety valve with vent
- Regulator, filter and high/low pressure switches
- Valve proving system
- Skid assembly with drawing and bill of materials

TO QUOTE, SEND US

- ✓ Burner capacity (kW or BTU/h)
- ✓ Supply and burner pressure
- ✓ Equipment design standard
- ✓ Voltage and signals

Full list of data to quote on page 110. →

Typical buyer: **Combustion Contractors / Maintenance**

33 DETAILED DATA SHEET Burner Valve Trains

■ CONSTRUCTION

Prefabricated assembly on skid or frame: manual shutoff valve, filter, pressure regulator, low and high gas pressure switches, two automatic safety valves in series and intermediate vent valve when the standard requires it. Includes tightness control, test taps, gauges, pilot line and wired junction box.

■ MATERIALS

Valves and regulators with cast aluminum or ductile iron bodies; Schedule 40 carbon steel piping and fittings painted yellow. Steel flanges and studs, gas gaskets and stainless-case gauges. Structural steel profile skid with anticorrosive paint. Components individually certified per the selected manufacturer.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 6" and inlet pressure up to 6 bar, sized by burner capacity in kW or BTU/h and by required burner pressure. Total pressure drop of the train is calculated to guarantee sufficient pressure at maximum load. Skid dimensions per customer-approved drawing.

■ OPERATION

The burner control energizes the safety valves after purge and tightness test; pressure switches cut if pressure goes out of range. On shutdown or flame failure, both valves close and the vent opens. The tightness control checks the valves before startup or after shutdown.

■ CONNECTIONS AND ENDS

NPT thread in trains up to 2" and flanges in larger sizes, with inlet and burner outlet flanges defined in the drawing. Regulator, pressure switch and vent valve vents routed to a safe point outdoors. Electrical connection in terminal box with glands or conduit, per area.

■ APPLICABLE STANDARDS

EN 746-2 sets combustion safety requirements for thermal process equipment. EN 1643 covers valve tightness control systems. ISO 23551-1 applies to automatic valves. NFPA 85 governs boilers and NFPA 86 furnaces. Gas supply complies with NOM-002-SECRE-2010 and wiring with NOM-001-SEDE-2012.

■ APPLICATIONS IN MEXICO

Burner supply for steam and hot water boilers, heat treatment, melting and ceramic furnaces, dryers, hot air generators, industrial bakery ovens and thermal equipment in chemical, textile, food and automotive plants. Also in conversions from LP gas or diesel to natural gas.

■ TESTING, INSPECTION AND DOCUMENTS

Pneumatic tightness test of the assembled unit, functional test of valves, pressure switches and tightness control with simulated signal, and wiring verification. Train drawing, P&ID, bill of materials, electrical diagram, test report, pressure switch and regulator settings, and manuals are delivered.



4 Double valve with vent



5 Compact train for small burner



6 Regulator, filter and pressure switches



7 High-capacity skid-mounted

✓ To quote this family, send us

- ✓ Maximum and minimum burner capacity (kW or BTU/h)
- ✓ Gas pressure available at train inlet
- ✓ Required pressure at the burner
- ✓ Equipment design standard (NFPA 85, NFPA 86 or EN 746-2)
- ✓ Control voltage and signals to the flame control
- ✓ Whether tightness control, vent and pilot line are required
- ✓ Available space, orientation and area classification

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 4"	PRESSURE Inlet up to 5 bar	MATERIALS Aluminum, ductile iron, NBR diaphragm
ENDS NPT or flanged	STANDARDS EN 88-1, EN 88-2, EN 334	TYPICAL LEAD TIME 20 to 35 business days

34

Technical validation

Regulators for Burners and Industrial Equipment

Compact regulators that keep gas pressure stable at burners and process equipment.

Where it is used: Burners, furnaces, industrial kitchens, forklifts and process equipment.

VARIANTS WE QUOTE

- Appliance pressure regulators
- Air-gas proportional regulators
- With built-in relief and shutoff
- Range springs and diaphragm kits

TO QUOTE, SEND US

- ✓ Inlet and outlet pressure
- ✓ Required flow
- ✓ Connections
- ✓ Equipment type

Full list of data to quote on page 110. →

Typical buyer: Combustion Contractors

34 DETAILED DATA SHEET Regulators for Burners and Industrial Equipment

■ CONSTRUCTION

Compact self-operated spring-and-diaphragm regulators, with balanced plug to keep outlet pressure stable against inlet pressure changes. Air-gas ratio types adjust gas pressure to the combustion air pressure through an impulse tap. Versions with relief and overpressure shutoff integrated in the same body.

■ MATERIALS

Die-cast aluminum body in small sizes and ductile iron in larger sizes. NBR fabric-reinforced diaphragm, plug with NBR seal, coated steel springs and galvanized hardware. Sealable adjustment cap to prevent unauthorized changes. Inlet mesh strainer on some models.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ½" to 4". Inlet pressure up to 5 bar: EN 88-1 covers regulators with inlet up to 500 mbar and EN 88-2 from over 500 mbar up to 5 bar. Outlet adjustable in mbar via interchangeable range springs. Capacity in m³/h per diameter and pressure drop, with tables from the selected manufacturer.

■ OPERATION

The diaphragm compares outlet pressure with the spring load and positions the plug. In ratio types, air pressure acts on the diaphragm and the regulator maintains the set air-gas ratio across the whole modulation range. Relief vents minor overpressures; shutoff closes and requires manual reset.

■ CONNECTIONS AND ENDS

Female NPT thread in sizes up to 2" and flanges in larger sizes. Upstream and downstream test pressure taps for calibration. Impulse tap to sense outlet pressure remotely or, in ratio types, combustion air pressure. Spring vent can be piped outdoors when the equipment is indoors.

■ APPLICABLE STANDARDS

EN 88-1 and EN 88-2 cover pressure regulators and associated safety devices for gas appliances, by inlet pressure range. EN 334 applies when the regulator works with higher inlet pressures or at regulating stations. Plant installation is governed by NOM-002-SECRE-2010.

■ APPLICATIONS IN MEXICO

Pressure regulation at burners of boilers, furnaces and dryers; industrial kitchens and restaurant equipment; bakery ovens and fryers; air-gas regulation on modulating burners; and supply to forklifts and process equipment in plants. Installed at the inlet of each equipment, after the shutoff valve.

■ TESTING, INSPECTION AND DOCUMENTS

External and internal tightness test, outlet setpoint adjustment, lockup pressure verification and, in versions with safety, relief start test and shutoff trip. Test report, capacity and pressure drop tables, range spring table, data sheet and instructions are delivered.



4 Air-gas ratio



5 With integrated relief and shutoff



6 Flanged ductile iron 4"



7 Interchangeable range springs

✓ To quote this family, send us

- ✓ Minimum and maximum inlet pressure
- ✓ Required outlet pressure at the equipment
- ✓ Maximum and minimum flow in m³/h
- ✓ Equipment type and whether the burner is modulating (air-gas)
- ✓ Size and connection type
- ✓ Whether integrated relief or overpressure shutoff is required
- ✓ Quantity, range springs and repair kits

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ½" to 36"	PRESSURE ASME Class 150 to 1500	MATERIALS CF8M / F316, A350 LF3; PCTFE or PEEK seats
ENDS RF / RTJ flanged, butt-weld or SW	STANDARDS BS 6364, ISO 28921-1, MSS SP-134, API 6D, NOM-013-ASEA-2021	TYPICAL LEAD TIME 45 to 80 business days

Reference image. Product may vary.

35

Technical validation

Cryogenic Valves for LNG

Ball, gate, globe, check and relief valves for -196 °C service, with extended bonnet and cryogenic testing.

Where it is used: Liquefaction and regasification plants, storage, tanker truck and ISO tank loading.

VARIANTS WE QUOTE

- Extended-bonnet trunnion and floating ball
- Cryogenic gate and globe
- Cryogenic check and relief
- Cryogenic helium test and certificate

TO QUOTE, SEND US

- ✓ Type, diameter and class
- ✓ Minimum design temperature
- ✓ Required tightness
- ✓ Actuator and failure mode

Full list of data to quote on page 110. →

Typical buyer: **LNG Plants / EPC**

35 DETAILED DATA SHEET Cryogenic Valves for LNG

■ CONSTRUCTION

Extended bonnet that keeps the packing away from the cold zone, with a vapor column acting as insulation and a drip plate for the cold box. The ball has a cavity relief hole toward upstream to prevent overpressure from vaporization of trapped liquid. Types: trunnion or floating ball, flexible-wedge gate, globe, check and spring relief.

■ MATERIALS

Body and bonnet in austenitic stainless steel CF8M / F316 for service down to -196 °C; A350 LF3 for minimum design temperatures down to -101 °C. PCTFE or PEEK seats for dimensional stability in cold service; hard-faced metal seats in gate and globe valves. Graphite or PTFE packing, spiral-wound stainless gaskets with graphite and austenitic stainless bolting.

■ SIZES, CLASSES AND TEMPERATURE

From ½" to 36" depending on type: forged with socket weld ends in small sizes, flanged or butt-weld in larger sizes. ASME Classes 150 to 1500. Design temperature down to -196 °C; the maximum depends on the seat material. Face to face per ASME B16.10; extended bonnet length is set by the manufacturer per BS 6364 or MSS SP-134.

■ OPERATION

Manual operation by lever or handwheel in small sizes; gear operator or pneumatic actuator in large sizes, mounted on the extended bonnet. Emergency shutdown valves for loading and unloading are ordered with spring-return actuators, fail-closed. Torque is specified at cryogenic temperature, because trim contraction increases it.

■ CONNECTIONS AND ENDS

RF or RTJ flanges per ASME B16.5 up to 24" and ASME B16.47 in larger sizes. Butt-weld ends with ASME B16.25 bevel, preferred in LNG lines to reduce leak points. Socket weld (SW) in small sizes, with ASME B16.11 dimensions. Transition pup pieces of the same material as the pipe are recommended for field welding.

■ APPLICABLE STANDARDS

BS 6364 and ISO 28921-1: design and testing of valves for cryogenic service. MSS SP-134: extended bonnet and cryogenic service requirements. API 6D: pipeline ball, gate and check valves. ASME B16.34: pressure-temperature ratings and wall thicknesses. NOM-013-ASEA-2021: requirements for the LNG storage and regasification facilities where these valves are installed.

■ APPLICATIONS IN MEXICO

LNG receiving and regasification terminals, small-scale liquefaction plants and their storage tanks. Loading arms and skids for cryogenic tank trucks and ISO tanks. Regasification satellite plants supplying industries without pipeline access. Boil-off vapor return lines, ambient vaporizers and cryogenic pump suction and discharge.

■ TESTING, INSPECTION AND DOCUMENTS

Shell and seat test at ambient temperature per the design standard. Cryogenic test at -196 °C with the valve submerged in liquid nitrogen and helium as test medium, measuring seat and packing leakage. Cleaning, degreasing and drying for cryogenic service and sealed packaging. Material certificates, test report, dimensional drawing and data sheet are delivered.



4 Cryogenic floating ball, lever



5 Cryogenic gate valve with handwheel



6 Cryogenic flanged check valve



7 Actuated cryogenic trunnion ball

✓ To quote this family, send us

- ✓ Valve type: ball, gate, globe, check or relief
- ✓ Size, ASME class and ends (RF, RTJ, BW or SW)
- ✓ Minimum and maximum design temperature and fluid (LNG, vapor or nitrogen)
- ✓ Required body and seat material (CF8M, LF3, PCTFE, PEEK)
- ✓ Seat tightness and cryogenic test standard (BS 6364, ISO 28921-1)
- ✓ Installation position and bonnet or cold box length
- ✓ Operator or actuator, failure mode and quantity per lot

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES ¼" to 2"	PRESSURE Up to 350 bar (5,000 psi)	MATERIALS 316 stainless, forged carbon steel
ENDS NPT, compression, high-pressure cone and thread	STANDARDS NOM-010-ASEA-2016, ASME B16.34	TYPICAL LEAD TIME 20 to 40 business days

36

Technical validation

High-Pressure Valves for CNG Stations

Ball, needle, check and relief valves for 250 to 350 bar in compressors, dispensers and modules.

Where it is used: CNG fueling stations, compressors, transportable storage modules and decompression.

VARIANTS WE QUOTE

- High-pressure quarter-turn ball
- High-pressure needle and check
- Relief and rupture discs
- Solenoid valves for dispenser and priority panel

TO QUOTE, SEND US

- ✓ Working pressure and size
- ✓ Connection type
- ✓ Function in the station
- ✓ Quantity

Full list of data to quote on page 110. →

Typical buyer: **CNG Stations**

36 DETAILED DATA SHEET High-Pressure Valves for CNG Stations

■ CONSTRUCTION

Forged bar-stock bodies in one or two pieces. The floating ball uses supported seats for high differential pressure, a blowout-proof stem and a quarter-turn lever. Needle valves with threaded stem and conical tip or soft seat; piston or spring-loaded ball check valves. Spring relief valves and rupture discs as supplementary protection for vessels and lines.

■ MATERIALS

Forged 316 stainless steel body, or forged carbon steel with protective coating. PEEK or PCTFE seats suited to the service pressure; PTFE stem seals or elastomers resistant to explosive decompression. Rupture discs in 316 stainless or nickel alloys. Designed for dry compressed natural gas, with upstream filtration to protect the seats.

■ SIZES, CLASSES AND TEMPERATURE

Sizes from ¼" to 2", full or reduced bore depending on size. Working pressure up to 350 bar (5,000 psi) in the highest-rated version; storage and dispensing typically operate around 250 bar. Temperature range set by the seal material, with cold-climate versions. Compact dimensions specific to each manufacturer, with no face-to-face standard.

■ OPERATION

Quarter-turn ball with lever or compact pneumatic actuator. Needle valve for fine regulation, purges and instrument taps. Check valve with defined cracking pressure. The dispenser and priority panel solenoid valves open and close the high, medium and low banks of the cascade; they are normally closed so that a power failure cuts the flow.

■ CONNECTIONS AND ENDS

Female or male NPT thread across the range. Double-ferrule compression fittings for stainless tube. High-pressure cone-and-thread with threaded collar, rated for 350 bar and better at resisting compressor vibration than NPT threads. Small flanges on request. Mixing ferrules and bodies from different manufacturers in one connection is not recommended.

■ APPLICABLE STANDARDS

NOM-010-ASEA-2016: design, construction and operation of CNG supply stations and module loading and unloading terminals, including their safety devices. ASME B16.34: valve design, thicknesses and testing. Vessel relief devices are selected per NOM-093-SCFI-2020 when applicable. Certification of each component is per the selected manufacturer.

■ APPLICATIONS IN MEXICO

Vehicular CNG stations for public transport and freight fleets. Discharge of compressors, dryers and cascade storage banks. Priority panels and dispensers. Transportable module filling terminals (virtual pipeline) and decompression stations delivering gas to industries without pipeline access, with downstream regulation.

■ TESTING, INSPECTION AND DOCUMENTS

Hydrostatic shell test at 1.5 times the working pressure and seat test with nitrogen or helium. Calibration and set-pressure test of relief valves; burst test of rupture discs by lot. Dimensional inspection of threads and cones. Material certificates, test report per piece or lot and data sheet with rated pressure are delivered.



4 High-pressure actuated ball valve



5 High-pressure needle valve



6 Relief and rupture disc



7 Solenoid valve for dispenser

✓ To quote this family, send us

- ✓ Function in the station: compressor, storage, dispenser or module
- ✓ Working and design pressure (bar or psi)
- ✓ Nominal size and tube diameter (fractional or metric)
- ✓ Connection: NPT, compression or high-pressure cone and thread
- ✓ Material: 316 stainless or forged carbon steel
- ✓ Set pressure of relief valves and rupture discs, if applicable
- ✓ Solenoid valve voltage, area classification and quantity

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIZES Cylinder threads and 6 to 12 mm connections	PRESSURE Service 200 to 250 bar	MATERIALS Brass, stainless, aluminum
ENDS Tapered or parallel cylinder thread, compression	STANDARDS ISO 15500, UN ECE R110, NOM-011-SECRE-2000	TYPICAL LEAD TIME 20 to 40 business days

Reference image. Product may vary.

37

Technical validation

CNG Vehicle Components

Cylinder valves, fill valves, solenoids and regulators for natural gas conversions and fleets.

Where it is used: Conversion shops, transport fleets, cargo trucks and buses.

VARIANTS WE QUOTE

- Manual or solenoid cylinder valve
- Fill valve and connector
- Pressure relief device (PRD)
- Pressure reducing regulator for engine

TO QUOTE, SEND US

- ✓ Vehicle and cylinder type
- ✓ Service pressure
- ✓ Cylinder thread
- ✓ Quantity per kit

Full list of data to quote on page 110. →

Typical buyer: **Fleets / Conversion Shops**

37 DETAILED DATA SHEET CNG Vehicle Components

■ CONSTRUCTION

Forged brass cylinder valve with manual shutoff handle, normally closed shutoff solenoid, internal excess flow valve and integrated pressure relief device (PRD). Fill receptacle with check valve and dust cap. One- or two-stage pressure-reducing regulator heated with engine coolant to prevent freezing from expansion.

■ MATERIALS

Nickel-plated forged brass or stainless steel bodies; anodized aluminum regulators. Elastomer seals compatible with natural gas and the vehicle temperature range. PRD with eutectic alloy thermal fuse or glass bulb, sometimes combined with a rupture disc. High-pressure stainless steel tubing of 6 to 12 mm with compression fittings.

■ SIZES, CLASSES AND TEMPERATURE

Service pressure of 200 to 250 bar in cylinders and the high-pressure line; the regulator outlet is low pressure per the engine injection system. Cylinder neck threads tapered (25E) or parallel (M18 x 1.5, 3/4"-16 UNF) and outlets for 6 to 12 mm tube. Operating temperature per the ISO 15500 vehicle classification.

■ OPERATION

The cylinder solenoid opens on start-up in gas mode and closes when the engine is shut off or on a fault; the manual handle isolates the cylinder. The excess flow valve cuts the flow if the line breaks. The PRD releases the contents in a fire to prevent cylinder rupture. The regulator lowers pressure to that of the injector rail.

■ CONNECTIONS AND ENDS

At the cylinder, tapered or parallel thread with O-ring seal depending on the cylinder neck. Between components, double-ferrule compression or cone fittings for 6, 8 or 12 mm stainless tube. Fill receptacle with nozzle profile compatible with the station dispenser. Sealed electrical connector for the solenoid at 12 or 24 V.

■ APPLICABLE STANDARDS

ISO 15500: CNG fuel system components for vehicles, with requirements and tests per component. UN ECE R110: type approval of CNG components and installation in vehicles. NOM-011-SECRE-2000: minimum safety requirements for vehicular CNG installations in Mexico, applicable to conversion shops. Approval per the selected manufacturer.

■ APPLICATIONS IN MEXICO

Conversion of freight trucks, tractor-trailers and urban transit buses to natural gas. Delivery, refuse collection and municipal service fleets. Light taxi vehicles and service fleets. Replacement of valves, PRDs and regulators in existing fleets, and conversion shops that need complete kits according to the number of cylinders per unit.

■ TESTING, INSPECTION AND DOCUMENTS

Leak test per piece at service pressure with helium or nitrogen, solenoid functional test and PRD activation check by lot. Thread inspection with go/no-go gauges. ISO 15500 or UN ECE R110 approval certificates are delivered when the selected manufacturer holds them, along with material certificates and installation instructions.



4 Cylinder valve with solenoid



5 Fill receptacle



6 Pressure relief device (PRD)



7 Engine pressure regulator

✓ To quote this family, send us

- ✓ Vehicle type, engine and number of cylinders per unit
- ✓ Volume, material and neck thread of each cylinder
- ✓ System service pressure (200 or 250 bar)
- ✓ Components: cylinder valve, fill, PRD, regulator, tubing
- ✓ Solenoid voltage (12 or 24 V) and connector type
- ✓ Required approval: ISO 15500, UN ECE R110 or both
- ✓ Number of kits and delivery schedule

General data list on page 110. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

TORQUE Up to 200,000 N·m (quarter-turn)	TYPE Worm (90°) and bevel (multi-turn)	PROTECTION IP67, IP68 for burial
MOUNTING ISO 5211 / ISO 5210	ACCESSORIES Handwheel, 2" square for T-key, padlock, indicator	TYPICAL LEAD TIME 15 to 30 business days

38

Quick entry

Manual Gear Operators

Worm and bevel gearboxes that multiply handwheel force to operate large valves.

Where it is used: Ball, butterfly, plug and gate valves in pipelines, stations and plants.

VARIANTS WE QUOTE

- Quarter-turn worm with adjustable stops
- Bevel for gate valves and multi-turn
- Buried-service with extension
- With lock device and limit switch

TO QUOTE, SEND US

- ✓ Valve torque and safety factor
- ✓ Flange and coupling (ISO 5211 / 5210)
- ✓ Operation type (handwheel, T-key)
- ✓ Above-ground or buried installation

Full list of data to quote on page 111. →

Typical buyer: **Engineering / Maintenance**

38 DETAILED DATA SHEET Manual Gear Operators

■ CONSTRUCTION

Worm and wheel gear reducer for quarter-turn, with closed housing, adjustable travel stops at both ends and position indicator. Bevel gear reducer for multi-turn valves, with output through a threaded bushing or square to the stem. At high torques, primary reduction stages are added to limit handwheel force. Self-locking design with no additional brake.

■ MATERIALS

Housing in ductile iron, gray iron or cast steel. Bronze or ductile iron wheel and hardened alloy steel worm. Bearings and gears lubricated with lifetime grease. NBR O-ring seals, or silicone for low temperature. Epoxy paint for outdoor use and high-build epoxy coating for buried versions. Galvanized or stainless bolting.

■ SIZES, CLASSES AND TEMPERATURE

Output torque up to 200,000 N·m in quarter-turn, with reduction ratios chosen to keep handwheel force within ergonomic limits. Multi-turn bevel units in various ratios depending on gate thrust. Mounting flanges per ISO 5211 and ISO 5210 across the range. IP67 protection outdoors and IP68 for burial; low-temperature versions.

■ OPERATION

The handwheel or T-key drives the worm, which turns the wheel 90° between stops; the reduction ratio sets the number of turns per full stroke. In bevel units, each handwheel turn is multiplied to move the gate stem. Sizing starts from the valve maximum torque, generally breakaway torque, multiplied by a safety factor.

■ CONNECTIONS AND ENDS

ISO 5211 output flange for quarter-turn and ISO 5210 for multi-turn, with coupling by square, double D, key or threaded bushing machined to the valve stem. Input by handwheel, by 2" square for T-key on buried valves, or by shaft for extension. Adapter flanges and brackets made to measure per the existing valve drawing.

■ APPLICABLE STANDARDS

ISO 5211: mounting interface for quarter-turn actuators, flange and coupling. ISO 5210: multi-turn actuator interface. The IP67 or IP68 rating is confirmed by the manufacturer test. On pipeline valves the operator is part of the API 6D assembly, whose torque and operation test the valve manufacturer verifies at assembly.

■ APPLICATIONS IN MEXICO

Trunnion ball sectionalizing valves on transmission pipelines. Butterfly and plug valves at M&R stations and city gates. Gate valves in industrial plants. Buried valves in steel distribution networks operated with a T-key from the surface. Pig traps and compressor station headers.

■ TESTING, INSPECTION AND DOCUMENTS

Bench output torque test, turn count check, stop adjustment and indicator reading. Leak test for IP68 versions. Paint thickness inspection. When supplied mounted, operation test of the valve-operator assembly. Data sheet, dimensional drawing, test certificate and maintenance instructions are delivered.



4 Compact quarter-turn worm gear



5 Bevel gear for gate valve



6 Buried operator with extension



7 Worm gear with padlock and switch box

✓ To quote this family, send us

- ✓ Valve type, size and class (ball, butterfly, gate, plug)
- ✓ Maximum valve torque (breakaway) and safety factor
- ✓ Multi-turn: number of turns, thrust and stem type
- ✓ Valve flange and coupling (ISO 5211 / 5210, square, key, double D)
- ✓ Actuation: handwheel, 2" square for T-key or extension
- ✓ Aboveground, in-box or buried installation (IP67 or IP68)
- ✓ Accessories: padlock, indicator, limit switch; quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

TORQUE 10 to 8,000 N·m	TYPE Double-acting or spring-return	PROTECTION Anodized or coated aluminum, -40 to 80 °C
MOUNTING ISO 5211, NAMUR VDI/VDE 3845	ACCESSORIES NAMUR solenoid, limit switches, positioner	TYPICAL LEAD TIME 15 to 30 business days

Reference image. Product may vary.

39

Technical validation

Rack and Pinion Pneumatic Actuators

Compact quarter-turn actuators, double-acting or spring-return, for ball and butterfly valves.

Where it is used: Valves in stations, skids, plants and fuel gas.

VARIANTS WE QUOTE

- Double-acting and single-acting with springs
- Low-temperature versions
- Tested valve + actuator packages
- Operation with air or instrument gas

TO QUOTE, SEND US

- ✓ Torque and valve type
- ✓ Supply pressure
- ✓ Failure mode
- ✓ Required accessories

Full list of data to quote on page 111. →

Typical buyer: **Automation / Maintenance**

39 DETAILED DATA SHEET Rack and Pinion Pneumatic Actuators

■ CONSTRUCTION

Extruded aluminum body with two opposed pistons that engage a central pinion and convert linear motion into a 90° turn. In spring return, preloaded spring cartridges housed in the end caps, interchangeable to adjust torque. Adjustable travel stops at open and close, top position indicator and output shaft with female square.

■ MATERIALS

Hard-anodized extruded aluminum body, or with polyester or epoxy coating; coated cast aluminum end caps. Nickel-plated or stainless steel pinion and coated steel springs. NBR seals for standard service and silicone or fluorocarbon for low or high temperature. Stainless steel versions for marine environments. Low-friction bushings and guides.

■ SIZES, CLASSES AND TEMPERATURE

Output torque from 10 to 8,000 N·m at nominal supply pressure, typically 5.5 bar, with a maximum of 8 bar depending on the manufacturer. In spring return, torque is tabulated at the start and end of stroke for both air and spring. Temperature from -40 to 80 °C with low-temperature seals. 90° rotation with fine adjustment at the ends.

■ OPERATION

In double acting, air in the center chamber opens and in the outer chambers closes. In single acting, air compresses the springs and these drive the valve to its fail position, closed or open, on loss of supply or signal. Sized with breakaway torque plus a margin. Operates on dry air or instrument natural gas with piped vent.

■ CONNECTIONS AND ENDS

Direct mounting to the valve through an ISO 5211 flange with square or double D, or with bracket and coupling when the valve has no compatible flange. NAMUR VDI/VDE 3845 interface for the solenoid on the side face and for the limit switch box or positioner on top. Threaded air ports of ¼" NPT, larger in big sizes.

■ APPLICABLE STANDARDS

ISO 5211: mounting flange and coupling to the valve. NAMUR VDI/VDE 3845: interface for solenoid, switch box and positioner. Electrical accessories must comply with IEC 60079 and NOM-001-SEDE-2012 per the area classification. For safety functions, certification per IEC 61508 is available on request, per the selected manufacturer.

■ APPLICATIONS IN MEXICO

On/off ball and butterfly valves on skids at M&R stations, city gates and distribution stations. Fuel gas shutoff to boilers, furnaces and turbines in industry. Block valves at CNG stations. Small and medium diameter emergency shutdown packages in plants with instrument air.

■ TESTING, INSPECTION AND DOCUMENTS

Piston and seal leak test, torque verification at nominal pressure and stroke test in both directions per piece. In valve-actuator packages, stop adjustment, cyclic operation test and stroke time measurement. Data sheet with torque table, dimensional drawing, test report and Ex certificates for the accessories are delivered.



4 Compact double acting



5 Large spring return



6 Actuator on butterfly valve



7 Stainless steel version

✓ To quote this family, send us

- ✓ Valve type, size and class (ball or butterfly)
- ✓ Valve breakaway torque and safety margin
- ✓ Double acting or spring return; fail open or closed
- ✓ Minimum and maximum supply pressure; medium: air or gas
- ✓ Minimum ambient temperature at site
- ✓ ISO 5211 flange and coupling (square, double D) or if valve is included
- ✓ Accessories: solenoid, limit switches, positioner; Ex area

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

TORQUE Up to 600,000 N·m	TYPE Symmetric or canted yoke; linear for gate valves	PROTECTION Epoxy coating, -46 to 80 °C
MOUNTING ISO 5211	ACCESSORIES Emergency handwheel, control panels, solenoids	TYPICAL LEAD TIME 30 to 50 business days

Reference image. Product may vary.

40

Technical validation

Scotch Yoke and Linear Piston Actuators

High-torque actuators for large pipeline and station valves, with pneumatic or hydraulic cylinder.

Where it is used: Block, ESD and gate valves in pipelines, compression and plants.

VARIANTS WE QUOTE

- Double-acting or spring-return
- Pneumatic (air, gas or nitrogen) or hydraulic
- With SIL certificate for ESD
- Manual override handwheel

TO QUOTE, SEND US

- ✓ Valve breakaway and closing torque
- ✓ Operating medium and pressure
- ✓ Failure mode and stroke time
- ✓ Area classification

Full list of data to quote on page 111. →

Typical buyer: **Engineering / Automation**

40 DETAILED DATA SHEET Scotch Yoke and Linear Piston Actuators

■ CONSTRUCTION

Yoke housing in which the cylinder moves a guided rod and a sliding pin in the yoke slot converts the linear stroke into a 90° turn. The symmetric yoke gives higher torque at both ends of stroke; the canted yoke concentrates it at the start of opening, useful with high breakaway torque. Spring module opposite the cylinder. Linear version with direct rod for gate valves.

■ MATERIALS

Cast steel or welded plate housing. Carbon steel cylinder with chrome or coated bore, or fiberglass-reinforced resin in corrosion-resistant versions. Stainless or chrome-plated steel rod and coated alloy steel springs. Standard nitrile seals or low-temperature seals down to -46 °C. High-build epoxy finish or marine environment system.

■ SIZES, CLASSES AND TEMPERATURE

Output torque up to 600,000 N·m in pneumatic or hydraulic version, for large-diameter, high-class ball and butterfly valves. Pneumatic supply pressure per design, within the usual range of instrument air or gas; hydraulic at higher pressure. Temperature from -46 to 80 °C. 90° rotation with adjustable stops; in linear units, stroke equal to the gate stroke.

■ OPERATION

Double acting, with pressure to open and to close, or spring return with fail closed or open. Operating medium: air, nitrogen, pipeline gas or hydraulic oil. Stroke time is adjusted with flow control valves. The handwheel or a hand pump allows operation without supply. For ESD it is sized with breakaway torque and safety factor.

■ CONNECTIONS AND ENDS

Mounting to the valve through an ISO 5211 flange with key, square or spline coupling, using a machined adapter and mounting spool. Threaded NPT pneumatic or hydraulic connections to the cylinder and control panel. Cable entries on the panel and limit switches in NPT or metric with Ex cable glands. Special flanges for mounting on existing valves.

■ APPLICABLE STANDARDS

ISO 5211: mounting interface for quarter-turn valves. IEC 61508 and IEC 61511: functional integrity of safety loops; SIL certificate on request. IEC 60079 and NOM-001-SEDE-2012 for solenoids, switches and panels in classified areas. NOM-020-ASEA-2024 requires ESD at compression stations and automatic or remote valves in certain pipeline zones.

■ APPLICATIONS IN MEXICO

Large-diameter sectionalizing valves on transmission pipelines. Emergency shutdown valves at compression station inlets and outlets. Blowdown of pipeline sections. Pig trap gate valves with linear actuator. Block valves at LNG terminals and large-diameter city gate skids where air or gas is available.

■ TESTING, INSPECTION AND DOCUMENTS

Cylinder pressure test and seal leak test, output torque verification at minimum pressure and stroke test with time measurement. Functional test with panel and accessories mounted; in valve packages, operation test of the assembly. Torque curves, data sheet, drawing, test report and, on request, SIL certificate are delivered.



4 Double acting Scotch yoke



5 Compact hydraulic Scotch yoke



6 With manual override handwheel



7 ESD package with control panel

✓ To quote this family, send us

- ✓ Valve type, size and class and its ISO 5211 flange
- ✓ Valve breakaway, running and seating torques
- ✓ Operating medium: air, nitrogen, pipeline gas or hydraulic
- ✓ Minimum and maximum available supply pressure
- ✓ Failure mode (closes, opens or last position) and stroke time
- ✓ Control functions, SIL level and manual override handwheel
- ✓ Area classification, ambient temperature and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

TORQUE Up to 500,000 N·m	TYPE Gas-over-oil (tanks) or direct gas	PROTECTION Outdoor-rated, -46 to 80 °C
MOUNTING ISO 5211	ACCESSORIES Backup hand pump, line break detection	TYPICAL LEAD TIME 45 to 75 business days

41

Technical validation

Gas-over-Oil and Direct Gas Actuators

Use the pipeline's own gas pressure to move the valve: ideal for remote sites without electric power.

Where it is used: Block valves of transmission pipelines and remote stations.

VARIANTS WE QUOTE

- Vertical or horizontal gas-oil tanks
- Local, remote or automatic operation
- Integrated line break detection
- Manual hydraulic pump

TO QUOTE, SEND US

- ✓ Valve torque and pipeline pressure
- ✓ Minimum operating pressure
- ✓ Functions: line-break closure, remote
- ✓ Area classification

Full list of data to quote on page 111. →

Typical buyer: Pipeline Engineering

41 DETAILED DATA SHEET

Gas-over-Oil and Direct Gas Actuators

CONSTRUCTION

Rotary Scotch yoke or vane actuator coupled to two gas-oil tanks: pipeline gas pushes the oil in one tank, which drives the actuator. In the direct-gas version, the gas acts on the cylinder with no intermediate oil. Control block with control valves, filter, regulator, hand pump and connection to the line break detector.

MATERIALS

Carbon steel tanks designed as pressure vessels for the maximum pipeline pressure. Steel cylinder and yoke; nitrile or low-temperature seals compatible with natural gas. Low-viscosity hydraulic oil for extreme climates. 316 stainless steel tubing and control valves. High-build epoxy coating for outdoor use from -46 to 80 °C.

SIZES, CLASSES AND TEMPERATURE

Output torque up to 500,000 N·m for large-diameter pipeline ball and plug valves. Sizing is based on the minimum pipeline operating pressure, at which the actuator must still overcome the valve breakaway torque. Temperature from -46 to 80 °C. Vertical or horizontal tanks sized for the required reserve strokes.

OPERATION

When the control is actuated, pipeline gas enters one tank and displaces the oil toward the actuator; the opposite tank discharges its gas to vent. Manual local control, remote by solenoids or automatic by break detection. The hand pump operates the valve without gas pressure. The valve keeps its last position on loss of control, except in spring designs.

CONNECTIONS AND ENDS

Mounting to the valve through an ISO 5211 flange with adapter and coupling. Power gas tap from the pipeline upstream and downstream of the valve, with block and check valves to operate with either side pressurized. NPT threaded or compression connections on stainless tubing, with vent directed to a safe area. NPT cable entries with Ex cable glands.

APPLICABLE STANDARDS

ISO 5211: mounting flange to the valve. NOM-020-ASEA-2024: pipeline sectionalizing per ASME B31.8 and automatic or remote-controlled valves in the zones the standard defines, a function these actuators fulfill. IEC 60079 and NOM-001-SEDE-2012 for solenoids and switches in classified areas. Tanks designed as pressure vessels per the selected manufacturer.

APPLICATIONS IN MEXICO

Transmission pipeline sectionalizing valves at remote sites without electrical power, such as the desert and the northern mountains of the country. Compression station inlet and outlet valves. Valves at river and road crossings with automatic closure on line break. Interconnections between transmission systems and high-pressure branches.

TESTING, INSPECTION AND DOCUMENTS

Tank hydrostatic test, seal and hydraulic circuit leak test, torque verification at minimum gas pressure and stroke test with time measurement. Functional test of local and remote control, hand pump and simulated break trip. Torque curves, hydraulic diagram, drawing, test report and manual are delivered.



4 Horizontal gas-oil tanks



5 Direct gas actuator



6 With integrated break detection



7 With solenoids for remote control

✓ To quote this family, send us

- ✓ Valve type, size, class and breakaway torque
- ✓ Maximum and minimum pipeline operating pressure (power gas)
- ✓ Required stroke time and number of reserve strokes
- ✓ Functions: local, remote, line break closure, hand pump
- ✓ Remote signals, solenoid voltage and telemetry type
- ✓ Minimum ambient temperature and area classification
- ✓ ISO 5211 flange, coupling and whether for new or existing valve

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail

TORQUE Up to 300,000 N·m	TYPE Quarter-turn and linear	PROTECTION Ex d IIB / IIC, IP66 / IP67
MOUNTING ISO 5211	ACCESSORIES Local control, Modbus / 4–20 mA, hand pump	TYPICAL LEAD TIME 45 to 75 business days



3 In use

42

Technical validation

Self-Contained Electrohydraulic Actuators

Motor, pump, accumulator and spring in one unit: fail-safe with no need for air or instrument gas.

Where it is used: ESD valves, remote block valves, plants without air supply and solar-powered sites.

VARIANTS WE QUOTE

- Fail-safe spring return
- Double-acting with accumulator
- Low consumption for solar sites
- Partial stroke test

TO QUOTE, SEND US

- ✓ Torque and stroke time
- ✓ Available electrical supply
- ✓ Failure mode and SIL
- ✓ Communication protocol

Full list of data to quote on page 111. →

Typical buyer: **Automation / Process Safety**

42 DETAILED DATA SHEET Self-Contained Electrohydraulic Actuators

■ CONSTRUCTION

Integral unit with electric motor, hydraulic pump, oil reservoir, accumulator, solenoid valve block and Scotch yoke or linear cylinder. In spring return, the pump compresses the spring and it moves the valve on de-energizing. In double acting, the accumulator stores the energy for the fail stroke. Integrated explosion-proof control cabinet.

■ MATERIALS

Steel cylinder and yoke with chrome-plated or stainless rod. Steel piston or bladder accumulator. 316 stainless tubing and fittings. Low-copper aluminum or steel electrical enclosures, Ex d certified. Nitrile or low-temperature seals. Hydraulic oil chosen for the site climate range and high-build epoxy coating.

■ SIZES, CLASSES AND TEMPERATURE

Quarter-turn torques up to 300,000 N·m and linear versions for gate and control valves. Single-phase, three-phase or 24 Vdc supply depending on the model, with low-consumption versions for solar panels. Ex d IIB or IIC and IP66 or IP67 protection. Adjustable stroke times, including fast closing for ESD.

■ OPERATION

The pump charges the accumulator or the spring and the valve holds position while the solenoids are energized. On loss of power or a trip signal, the solenoids de-energize and the spring or accumulator drives the valve to the safe position. Local control with selector, remote by Modbus or 4–20 mA. The hand pump operates without power. Supports partial stroke testing.

■ CONNECTIONS AND ENDS

Mounting to the valve through an ISO 5211 flange with key, square or spline coupling; in linear units, adapter to the stem and mounting yoke. Electrical connections through NPT or metric threaded entries with Ex-certified cable glands. Modbus RTU communication over RS-485 or 4–20 mA signal, plus dry contacts for status and alarms to the SCADA or safety system.

■ APPLICABLE STANDARDS

ISO 5211: mounting flange. IEC 60079: equipment for explosive atmospheres (Ex d), with NOM-001-SEDE-2012 for electrical installation in Mexico. IEC 61508 and IEC 61511: SIL certificate for safety functions, on request per the selected manufacturer. NOM-020-ASEA-2024 requires ESD at compression stations and automatic or remote valves in certain pipeline zones.

■ APPLICATIONS IN MEXICO

ESD valves at compression stations and city gates. Remote pipeline sectionalizing with solar power where there is no instrument air or gas. Industrial plants without an air network. LNG terminals and satellite plants. Replacement of pneumatic actuators that vent natural gas to the atmosphere, to reduce emissions on every operation.

■ TESTING, INSPECTION AND DOCUMENTS

Hydraulic circuit pressure test, full stroke with open and close time measurement, torque verification and power loss simulation to confirm fail-safe. Communication and signal tests and partial stroke test. Data sheet, hydraulic and electrical diagrams, Ex certificates, test report and, on request, SIL are delivered.



4 Quarter-turn spring return



5 Double acting, accumulator



6 Linear version for gate valve



7 With backup hand pump

✓ To quote this family, send us

- ✓ Valve type, size, class and breakaway torque
- ✓ Quarter-turn or linear; stroke and thrust if linear
- ✓ Required opening and closing times
- ✓ Available power: voltage and phases, or solar with batteries
- ✓ Failure mode (spring or accumulator) and required SIL level
- ✓ Signals: Modbus, 4–20 mA, contacts, partial stroke test
- ✓ Area classification (IIB or IIC), temperature and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

TORQUE 10 to 30,000 N·m (with gearbox)	POWER SUPPLY 220/440 V 3-ph, 120 V 1-ph, 24 Vdc	PROTECTION Ex d IIB / IIC T4, Class I Div 1, IP68
MOUNTING ISO 5210	STANDARDS IEC 60079, NOM-001-SEDE-2012	TYPICAL LEAD TIME 20 to 40 business days

43

Technical validation

Explosion-Proof Multi-Turn Electric Actuators

Electric actuators for gate valves, globe valves and gearboxes, with local control and digital communication.

Where it is used: Gate and globe valves, remote operation of stations and plants.

VARIANTS WE QUOTE

- On/off or modulating 4–20 mA
- Modbus RTU, Profibus, HART
- Local control with display and infrared remote
- Emergency handwheel

TO QUOTE, SEND US

- ✓ Torque, turns and speed
- ✓ Voltage and phases
- ✓ Signals and protocol
- ✓ Area classification

Full list of data to quote on page 111. →

Typical buyer: **Automation / Instrumentation**

43 DETAILED DATA SHEET Explosion-Proof Multi-Turn Electric Actuators

■ CONSTRUCTION

Electric induction motor, oil-bath worm and wheel reducer, hollow output shaft and emergency handwheel with clutch. Integrated control module with starter, torque limiters and limit switches, electromechanical or electronic with absolute encoder. Terminal compartment separate from the control compartment, for field wiring without exposing the electronics.

■ MATERIALS

Low-copper cast aluminum or cast iron housing, with epoxy or polyester paint for outdoor use and a marine environment option. Alloy steel gears and bronze wheel. Double O-ring seals between compartments. Stainless bolting. Tempered glass window in the control cover and magnetically coupled selector knobs, without penetrating the enclosure.

■ SIZES, CLASSES AND TEMPERATURE

Torque from 10 to 30,000 N·m, reaching high values with bevel or spur gear reducers downstream. Output speed selectable in rpm according to stroke time. Supply 220/440 V three-phase, 120 V single-phase or 24 Vdc. Ex d IIB or IIC T4 protection, Class I Division 1 and IP68. Ambient temperature range per the manufacturer.

■ OPERATION

The motor turns the hollow shaft, which drives the stem nut or the reducer. It stops on limit switch in position-seating valves, or on torque in wedge gate valves that seat by force. On/off or modulating 4–20 mA mode with internal positioner. On power loss it stays in its last position; the handwheel allows manual operation.

■ CONNECTIONS AND ENDS

ISO 5210 output flange with thrust bushing for rising stem or torque-only coupling (square or key) for reducers and non-rising stems. NPT or metric cable entries with Ex cable glands or seals depending on the wiring system, and plug-in terminal block. Modbus RTU, Profibus or HART communication, or discrete and analog signals.

■ APPLICABLE STANDARDS

ISO 5210: multi-turn actuator mounting interface. IEC 60079: explosion-proof enclosures (Ex d) for gas atmospheres. NOM-001-SEDE-2012: electrical installation in Class I Division 1 classified areas in Mexico. Ex certification and, on request, SIL certification per IEC 61508 are those of the selected manufacturer.

■ APPLICATIONS IN MEXICO

Gate valves on headers and pig traps. Flow control globe valves in process plants. Remote valve operation at M&R stations from SCADA. Auxiliary service valves at compression stations. Automation of existing ball or butterfly valves through an intermediate worm gear reducer.

■ TESTING, INSPECTION AND DOCUMENTS

Routine test per actuator: insulation resistance, current draw, torque and limit switch adjustment, speed verification, communication test and handwheel operation. Inspection of the enclosure and Ex joints. Data sheet, wiring diagram, test certificate, IEC 60079 Ex certificates and configuration manual are delivered.



4 Multi-turn with bevel gear reducer



5 Compact on/off version



6 With infrared tool



7 Mounted on globe valve

✓ To quote this family, send us

- ✓ Valve: type, size, class and stem (rising or not)
- ✓ Seating torque, stem thrust and number of turns
- ✓ Stroke time or output speed in rpm
- ✓ Voltage, phases and frequency (220/440 V 3-ph, 120 V 1-ph, 24 Vdc)
- ✓ On/off or 4–20 mA control; Modbus, Profibus or HART protocol
- ✓ Area classification (Class I Div 1, gas group, T4) and IP
- ✓ Required reducer, ISO 5210 flange and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail

TORQUE 50 to 6,000 N·m (more with gearbox)	POWER SUPPLY 220/440 V 3-ph, 120 V 1-ph, 24 Vdc	PROTECTION Ex d IIB / IIC T4, Class I Div 1, IP67 / IP68
MOUNTING ISO 5211	STANDARDS IEC 60079, NOM-001-SEDE-2012	TYPICAL LEAD TIME 20 to 35 business days



3 In use

44

Technical validation

Explosion-Proof Quarter-Turn Electric Actuators

90° electric actuators for ball, butterfly and plug valves, with on/off or modulating control.

Where it is used: Valves in M&R stations, skids, fuel gas and plants.

VARIANTS WE QUOTE

- On/off, modulating 4–20 mA or digital
- Fail-safe with supercapacitor or battery
- Manual emergency handwheel
- Local position indicator

TO QUOTE, SEND US

- ✓ Valve torque
- ✓ Voltage and signals
- ✓ Stroke speed
- ✓ Area classification

Full list of data to quote on page 111. →

Typical buyer: **Automation / Maintenance**

44 DETAILED DATA SHEET Explosion-Proof Quarter-Turn Electric Actuators

■ CONSTRUCTION

Electric motor, spur or planetary gear train and a final self-locking worm and wheel stage delivering a 90° turn. Adjustable cams or encoder for limit switches, torque limiters, dome position indicator and emergency handwheel with clutch. Anti-condensation heater and control board in a compartment separate from the terminals.

■ MATERIALS

Low-copper cast aluminum housing with polyester or epoxy coating; stainless steel option for marine environments. Alloy steel gears and bronze or steel wheel. Polycarbonate or glass indicator dome. Nitrile or silicone O-ring seals. Stainless steel bolting. In fail-safe versions, battery or supercapacitors in a sealed module.

■ SIZES, CLASSES AND TEMPERATURE

Torque from 50 to 6,000 N·m direct, and higher with an additional worm gear reducer. 90° stroke time from seconds to several minutes depending on size and the speed selected. Supply 220/440 V three-phase, 120 V single-phase or 24 Vdc. Ex d IIB or IIC T4, Class I Division 1, IP67 or IP68. Ambient temperature per the manufacturer.

■ OPERATION

90° rotation between stops, with limit switch stop and torque limiter protection. On/off control by contacts, modulating 4–20 mA with internal positioner or digital by bus. In the fail-safe version, the supercapacitor or battery drives the valve to the programmed position on power loss. Emergency handwheel and local-remote selector with padlock.

■ CONNECTIONS AND ENDS

ISO 5211 output flange with square, double D or spline insert machined to the valve stem; direct mounting or with bracket and coupling. ¾" NPT or M20 cable entries with Ex cable glands. Signals: dry contacts, 4–20 mA input and position feedback, Modbus RTU or other fieldbus protocols per the manufacturer.

■ APPLICABLE STANDARDS

ISO 5211: mounting flange and coupling. IEC 60079: explosion-proof enclosures for gas atmospheres. NOM-001-SEDE-2012: electrical installation in classified areas in Mexico. SIL certification per IEC 61508 on request, per the selected manufacturer. In packages, the valve keeps its own design standard, for example API 6D, API 608 or API 609.

■ APPLICATIONS IN MEXICO

Ball valves at M&R stations and city gates without instrument air. Run selection on metering skids. Fuel gas shutoff to furnaces, boilers and turbines. Butterfly valves for plant services. Plug valves on distribution headers operated from SCADA or PLC, with local position indication.

■ TESTING, INSPECTION AND DOCUMENTS

Routine test per unit: stroke and torque adjustment, 90° time measurement, insulation resistance, 4–20 mA signal, communication, handwheel operation and fail-safe test in battery or supercapacitor versions. Data sheet, wiring diagram, test certificate, Ex certificates and configuration manual are delivered.



4 With side emergency handwheel



5 Fail-safe with power module



6 Mounted on butterfly valve



7 Modulating with local display

✓ To quote this family, send us

- ✓ Valve: type (ball, butterfly, plug), size and class
- ✓ Valve breakaway torque and safety margin
- ✓ Required stroke time for 90°
- ✓ Voltage, phases and frequency (220/440 V 3-ph, 120 V 1-ph, 24 Vdc)
- ✓ On/off, modulating 4–20 mA or digital protocol control
- ✓ Fail-safe (battery or supercapacitor) and fail position
- ✓ Area classification, ISO 5211 flange, coupling and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

THRUST Up to 50 kN	STROKE 15 to 100 mm	PROTECTION Pneumatic: outdoor; electric: Ex d
MOUNTING IEC 60534-6	ACCESSORIES Positioner, handwheel, limit switches	TYPICAL LEAD TIME 25 to 40 business days

45

Technical validation

Linear Actuators for Control Valves

Spring diaphragm and linear electric actuators for moving globe control valves.

Where it is used: Control valves in stations, compression, plants and boilers.

VARIANTS WE QUOTE

- Direct- or reverse-acting diaphragm
- Pneumatic piston for high force
- Explosion-proof linear electric
- Side or top handwheel

TO QUOTE, SEND US

- ✓ Required force and stroke
- ✓ Supply pressure or voltage
- ✓ Failure mode
- ✓ Valve it mounts on

Full list of data to quote on page 111. →

Typical buyer: **Instrumentation / Control**

45 DETAILED DATA SHEET

Linear Actuators for Control Valves

■ CONSTRUCTION

Diaphragm actuator with stamped steel case, molded diaphragm, plate and multiple springs or a single spring, cast stem and yoke with travel scale. Pneumatic piston versions for greater thrust and stroke. Linear electric units with motor, reducer and screw in an explosion-proof enclosure. Optional side or top handwheel for manual operation.

■ MATERIALS

Stamped carbon steel diaphragm cases with epoxy paint; fabric-reinforced nitrile diaphragm, or silicone for low temperature. Ductile iron or cast steel yoke and stainless steel stem. Coated alloy steel springs. Electric units with low-copper aluminum enclosure. Stainless or galvanized bolting for outdoor use.

■ SIZES, CLASSES AND TEMPERATURE

Thrust up to 50 kN and strokes of 15 to 100 mm, in graduated sizes of effective diaphragm area. Typical spring ranges of 0.2 to 1.0 bar, or higher when a high closing force is required. Maximum loading pressure depends on case size. Linear electric units Ex d with adjustable stroke speed and supply per the model.

■ OPERATION

Direct acting: pressure in the upper chamber pushes the stem down and the spring retracts it; fails with stem up. Reverse acting: pressure lifts the stem and the spring lowers it; fails with stem down. Combined with the valve type, fail open or closed is obtained. The positioner adjusts loading pressure according to the 4–20 mA signal.

■ CONNECTIONS AND ENDS

Mounting to the valve bonnet by yoke nut or flange, and split stem coupling with travel indicator. Positioner interface per IEC 60534-6 on the yoke or pillar. ¼" NPT air connection to the diaphragm case or cylinder. On electric units, NPT or metric cable entries with Ex cable glands. Mounting kits for existing valves.

■ APPLICABLE STANDARDS

IEC 60534-6: mounting of positioners and accessories on linear actuators. IEC 60534 series: control valves, including sizing and testing. For electric units and accessories, IEC 60079 and NOM-001-SEDE-2012 for classified areas. The valve assembly is tested to the ANSI/FCI 70-2 seat leakage class that is specified.

■ APPLICATIONS IN MEXICO

Pressure and flow control valves at M&R stations and city gates. Recirculation and fuel gas control at compression stations. Gas control to burners of boilers, furnaces and turbines in industry and combined-cycle plants. Send-out pressure control at LNG regasification plants.

■ TESTING, INSPECTION AND DOCUMENTS

Leak test of the diaphragm case or cylinder, verification of spring range and nominal stroke, and bench test with positioner mounted for linearity and hysteresis. On electric units, thrust, speed and signal tests. Calibration of the assembly with the valve when supplied complete. Data sheet, drawing and test report are delivered.



4 High-force pneumatic piston



5 Linear electric Ex on globe valve



6 Diaphragm with side handwheel



7 Small direct-acting diaphragm

✓ To quote this family, send us

- ✓ Control valve: model, size, class and trim type
- ✓ Required force (closing differential pressure) and stroke in mm
- ✓ Air supply pressure or available voltage
- ✓ Direct or reverse acting and fail position (opens or closes)
- ✓ Side or top handwheel and limit switches
- ✓ Positioner and signal: 4–20 mA, HART or other protocol
- ✓ Area classification, ambient temperature and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIGNAL 4–20 mA with HART, Foundation Fieldbus, Profibus PA	TYPE Electropneumatic and smart	PROTECTION Ex d or Ex ia, IP66
MOUNTING Linear IEC 60534-6, rotary VDI/VDE 3845	ACCESSORIES Position feedback, gauges	TYPICAL LEAD TIME 15 to 30 business days

Reference image. Product may vary.

46

Technical validation

Smart Positioners

Precisely control control-valve position and deliver diagnostics to the control system.

Where it is used: Control valves and ESD valves with partial stroke testing.

VARIANTS WE QUOTE

- Single- or double-acting
- Diagnostics and auto-calibration
- 4–20 mA feedback
- Custom mounting kits

TO QUOTE, SEND US

- ✓ Actuator type and stroke
- ✓ Signal and protocol
- ✓ Area classification
- ✓ Current model if replacement

Full list of data to quote on page 111. →

Typical buyer: **Instrumentation**

46 DETAILED DATA SHEET Smart Positioners

■ CONSTRUCTION

Microprocessor electronics, non-contact position sensor coupled to the stem or shaft, and current-to-pressure converter with single- or dual-output pneumatic relay. Aluminum enclosure with cover, local display and buttons or configuration interface. Gauge block and optional position feedback and limit switch modules integrated.

■ MATERIALS

Low-copper aluminum housing with epoxy coating, or 316 stainless steel for marine or corrosive environments. Aluminum or stainless pneumatic block with internal mesh filters. Nitrile or silicone seals. Stainless brackets and couplings. Compatible with instrument air and, in suitable versions, with instrument natural gas with piped vent.

■ SIZES, CLASSES AND TEMPERATURE

Two-wire 4–20 mA input signal with HART, or Foundation Fieldbus and Profibus PA. Typical supply pressure of 1.4 to 7 bar depending on the model. Linear strokes from a few millimeters to over 100 mm and 90° rotation in rotary units. Ex d or Ex ia protection and IP66. Ambient temperature per the manufacturer, with low-temperature versions.

■ OPERATION

Compares the command signal with the measured position and adjusts the pressure to the actuator until they match. In single acting it loads one chamber against the spring; in double acting it controls both chambers. Stroke and gain auto-calibration, friction, leak and wear diagnostics, and partial stroke testing on ESD valves. On loss of signal or air, the actuator goes to its fail position.

■ CONNECTIONS AND ENDS

Linear mounting per IEC 60534-6 to the yoke or pillar, with feedback lever to the stem; rotary per NAMUR VDI/VDE 3845 with coupling to the actuator shaft. ¼" NPT pneumatic connections and ½" NPT or M20 cable entries with Ex cable glands. Mounting kits made to suit the actuator already in the field.

■ APPLICABLE STANDARDS

IEC 60534-6: mounting of positioners on linear and rotary actuators. NAMUR VDI/VDE 3845: rotary interface. IEC 60079: Ex d (explosion-proof enclosure) and Ex ia (intrinsic safety) protection. NOM-001-SEDE-2012: installation in classified areas in Mexico. IEC 61508 for versions with partial stroke testing in SIL loops, per the manufacturer.

■ APPLICATIONS IN MEXICO

Pressure and flow control valves at M&R stations and city gates. Recirculation and fuel gas valves at compression stations. ESD valves with partial stroke testing on pipelines and plants. Gas control to industrial burners. Replacement of old pneumatic positioners to bring diagnostics into the SCADA.

■ TESTING, INSPECTION AND DOCUMENTS

Factory calibration, 4–20 mA signal and HART or fieldbus communication test, pneumatic block leak check and functional test on a test actuator or on the supplied assembly. Calibration certificate, Ex certificates, device description files, manual and kit mounting instructions are delivered.



4 Stainless steel positioner



5 Ex d threaded-cover positioner



6 Mounted on rotary actuator



7 Linear mounting on yoke

✓ To quote this family, send us

- ✓ Actuator type: linear or rotary, single or double acting
- ✓ Stroke in mm or angle, and actuator model
- ✓ Signal and protocol: 4–20 mA HART, Foundation Fieldbus or Profibus PA
- ✓ Supply pressure and medium: air or instrument natural gas
- ✓ Area classification and required protection (Ex d or Ex ia)
- ✓ Options: 4–20 mA feedback, limit switches, gauges
- ✓ Current model if replacement, and quantity

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SIGNAL 24 Vdc, 120 / 220 Vac	TYPE 3/2 and 5/2 NAMUR; mechanical or inductive switches	PROTECTION Ex d / Ex ia, NEMA 4X / 7, IP67
MOUNTING NAMUR VDI/VDE 3845	STANDARDS IEC 60079, NOM-001-SEDE-2012	TYPICAL LEAD TIME 15 to 30 business days

47

Technical validation

NAMUR Solenoid Valves and Limit Switch Boxes

Pilot solenoids for pneumatic actuators and switch boxes that confirm open or closed.

Where it is used: Pneumatic actuators of on/off and ESD valves in stations and plants.

VARIANTS WE QUOTE

- Aluminum or 316 stainless solenoids
- Manual reset and low power
- Boxes with dome indicator
- SPDT, DPDT or proximity switches

TO QUOTE, SEND US

- ✓ Voltage and function
- ✓ Interface and actuator type
- ✓ Area classification
- ✓ Quantity

Full list of data to quote on page 111. →

Typical buyer: **Instrumentation / Maintenance**

47 DETAILED DATA SHEET NAMUR Solenoid Valves and Limit Switch Boxes

■ CONSTRUCTION

Pilot-operated spool or poppet solenoid valve, with coil encapsulated in an Ex d or Ex ia enclosure and a NAMUR base that bolts directly to the actuator. 3/2 function for single acting and 5/2 for double acting, with manual override. Limit switch box with adjustable cam shaft, two switches, terminal strip and dome indicator visible from a distance.

■ MATERIALS

Anodized aluminum or 316 stainless steel solenoid body; nitrile or fluorocarbon seals, and silicone for low temperature. Cast aluminum boxes with epoxy coating or 316 stainless. Polycarbonate dome. Mechanical switches with silver or gold-plated contacts for low current, or inductive proximity sensors. Stainless bolting.

■ SIZES, CLASSES AND TEMPERATURE

Coils of 24 Vdc and 120 or 220 Vac, with low-consumption versions for safety systems and intrinsically safe loops. ¼" NPT ports, and ½" NPT in high flow for large actuators. Typical pilot pressure up to 10 bar. Ex d or Ex ia, NEMA 4X / 7 and IP67 protection. SPDT, DPDT or inductive switches depending on the box.

■ OPERATION

When the coil is energized, the pilot shifts the spool and sends air to the actuator; when de-energized, the actuator vents and the spring drives the valve to the fail position. Manual reset requires confirmation in the field before reopening after a trip. The switch box confirms open and closed to the control system and shows the position on the dome.

■ CONNECTIONS AND ENDS

NAMUR VDI/VDE 3845 mounting base with screws and sealing O-rings directly on the rack-and-pinion actuator; in-line mounting with tubing for Scotch yoke. Switch box on NAMUR bracket with coupling to the actuator shaft. ½" or ¾" NPT or M20 cable entries with Ex cable glands and mesh vent plug.

■ APPLICABLE STANDARDS

NAMUR VDI/VDE 3845: solenoid and box interface on pneumatic actuators. IEC 60079: protection for explosive atmospheres, Ex d and Ex ia. NOM-001-SEDE-2012: electrical installation in classified areas in Mexico. NEMA 4X / 7 and IP67: sealing and explosion-proof enclosure. SIL certificate per IEC 61508 on request, for safety loops.

■ APPLICATIONS IN MEXICO

Rack-and-pinion and Scotch yoke actuators on on/off valves at M&R stations, city gates and metering skids. Fuel gas shutoff and ESD valves in compression and industry. Pipeline vent valves. Position indication to the SCADA on manual sectionalizing valves using a switch box.

■ TESTING, INSPECTION AND DOCUMENTS

Per-piece test of switching at minimum and maximum voltage, spool tightness, coil insulation resistance, cam adjustment and switch continuity. Verification of Ex cable glands and plugs. Data sheet, connection diagram, IEC 60079 Ex certificates and test certificate are delivered; SIL certificate on request.



4 Aluminum solenoid with reset



5 High-flow 5/2 solenoid



6 Round explosion-proof box



7 Stainless box with inductive sensors

✓ To quote this family, send us

- ✓ Coil voltage (24 Vdc, 120 or 220 Vac) and maximum consumption
- ✓ 3/2 or 5/2 function, manual reset and manual override
- ✓ Actuator type and size; NAMUR or in-line mounting
- ✓ Material: aluminum or 316 stainless; medium: air or instrument gas
- ✓ Switches: mechanical SPDT or DPDT, or inductive proximity
- ✓ Area classification (Ex d or Ex ia) and cable entries
- ✓ Quantity per type and whether delivered mounted on the actuator

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

PRESSURE Supply up to 10 bar	TYPE Filter regulator, booster, quick exhaust, pilot-operated check	MATERIALS Aluminum or 316 stainless
CONNECTIONS ¼" to 1" NPT	MEDIUM Instrument air or natural gas	TYPICAL LEAD TIME 15 to 30 business days

48

Technical validation

Pneumatic Accessories for Actuators

Filter regulators, volume boosters and quick exhaust valves to speed up and protect operation.

Where it is used: Valve-actuator packages, fast-closing ESD and control panels.

VARIANTS WE QUOTE

- Filter regulator with gauge
- Volume booster relay
- Quick exhaust valve
- Stainless tubing and fittings

TO QUOTE, SEND US

- ✓ Medium and supply pressure
- ✓ Target stroke time
- ✓ Material
- ✓ Connections

Full list of data to quote on page 111. →

Typical buyer: Instrumentation

48 DETAILED DATA SHEET Pneumatic Accessories for Actuators

■ CONSTRUCTION

Diaphragm filter regulator with sintered filter element, drain bowl and gauge. Volume relay (booster) that amplifies the positioner signal flow, with balance diaphragm and adjustable bypass. Diaphragm quick exhaust valve that vents the actuator next to its ports. Pilot-operated check valve for locking in last position. Tubing and fittings.

■ MATERIALS

Aluminum bodies with epoxy coating, or 316 stainless steel for marine or corrosive environments. Nitrile, fluorocarbon or silicone diaphragms and seals for low temperature. Sintered bronze or stainless filter elements of fine filtration grade. Seamless 316 stainless tubing and double-ferrule compression fittings of the same material.

■ SIZES, CLASSES AND TEMPERATURE

Supply pressure up to 10 bar, with regulator output ranges per the spring selected. Connections from ¼" to 1" NPT; larger sizes give a higher flow coefficient to reduce the stroke time of large actuators. Tubing of ¼", ⅜" and ½" outside diameter. Service temperature depends on the elastomers, with low-temperature versions.

■ OPERATION

The filter regulator cleans and stabilizes the supply at actuator pressure. The booster delivers high flow without overloading the positioner and speeds up modulating response. The quick exhaust vents the actuator next to its ports and reduces the ESD closing time. The pilot-operated check holds position on loss of supply. With instrument gas, vents are piped.

■ CONNECTIONS AND ENDS

Female NPT threads from ¼" to 1" on the bodies; tubing inlets and outlets through 316 stainless double-ferrule compression fittings. Direct mounting on the actuator, on mounting plates or on panels, with stainless brackets. Silencers or mesh vent plugs on exhaust ports to prevent dust and insects from entering.

■ APPLICABLE STANDARDS

They integrate with actuators having a NAMUR VDI/VDE 3845 interface or mount on a panel; they have no single product standard and their performance is declared by the manufacturer. In emergency shutdown loops they are considered in the verification per IEC 61511. NOM-020-ASEA-2024 requires ESD at compression stations, whose closing times depend on these accessories.

■ APPLICATIONS IN MEXICO

ESD valve packages with pneumatic actuator at compression stations and city gates. Large-volume Scotch yoke actuators that must close in a few seconds. Control valves with positioner at M&R stations. Actuator control panels and skids operating on instrument natural gas at sites without air.

■ TESTING, INSPECTION AND DOCUMENTS

Leak test of bodies and seals with air or nitrogen, verification of regulator and gauge set point, and flow and response test of the booster and quick exhaust. If delivered mounted, actuator stroke time test and tubing leak test. Data sheet, material certificate and test report are delivered.



4 Aluminum filter regulator



5 Volume booster relay



6 Quick exhaust valve

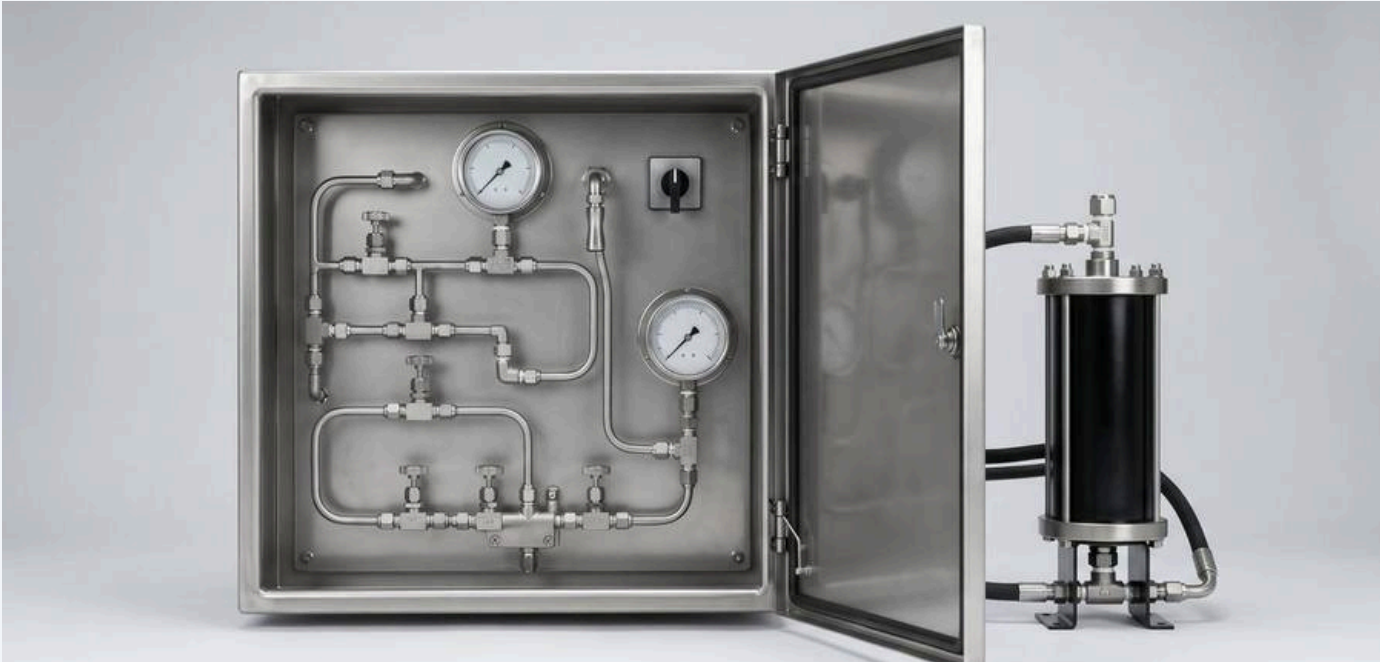


7 Plate with tubed accessories

✓ To quote this family, send us

- ✓ Supply medium (air or instrument natural gas) and pressure
- ✓ Actuator type and volume, single or double acting
- ✓ Target opening and closing stroke time
- ✓ Accessories: filter regulator, booster, quick exhaust, check valve
- ✓ Material (aluminum or 316 stainless) and min. ambient temp.
- ✓ NPT connection size and tubing diameter
- ✓ Loose, on a panel, or mounted and tubed on actuator

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

FUNCTION Closure on rate of pressure drop	TYPE Mechanical-pneumatic or electronic	PROTECTION Stainless cabinet, outdoor
INTEGRATION Gas-over-oil, pneumatic and hydraulic actuators	ACCESSORIES Accumulators, hand pumps, tanks	TYPICAL LEAD TIME 30 to 50 business days

49

Technical validation

Line Break Detection and Control Panels

Detect a sudden pressure drop and automatically command the valve to close to isolate a leak.

Where it is used: Pipeline block valves and gas-over-oil or pneumatic actuators.

VARIANTS WE QUOTE

- Rate-of-drop detection
- Low-pressure trip
- Hydraulic control panels
- Telemetry and event logging

TO QUOTE, SEND US

- ✓ Pipeline pressure
- ✓ Actuator type
- ✓ Trip functions
- ✓ Remote signals

Full list of data to quote on page 111. →

Typical buyer: Pipeline Engineering

49 DETAILED DATA SHEET Line Break Detection and Control Panels

■ CONSTRUCTION

Mechanical-pneumatic detector with reference chamber and calibrated orifice: it compares pipeline pressure with a reference that equalizes slowly and trips when the set rate of drop is exceeded. Electronic version with pressure transmitter and programmable logic. Both mount in a stainless cabinet with tubing, needle valves, gauges, accumulator and control block.

■ MATERIALS

304 or 316 stainless steel cabinet for outdoor use with vents. 316 stainless tubing and valves with double-ferrule fittings. Nitrile or fluorocarbon diaphragms and seals compatible with natural gas. Carbon steel or stainless accumulators. Electronics in an Ex d enclosure with stainless pressure transmitter. Glycerin-filled stainless case gauges.

■ SIZES, CLASSES AND TEMPERATURE

Rate-of-drop setting in pressure units per minute, with a time delay to avoid false trips from transients, and additional low-pressure trip. Inlet pressure equal to that of the protected pipeline, transmission or high-pressure distribution. Ambient temperature per the range of the associated actuator. Cabinet sized according to the number of functions.

■ OPERATION

On a rupture, pipeline pressure drops faster than the reference; the detector sends a pneumatic or hydraulic signal to the control block and the actuator closes the valve. The trip stays latched until manual reset on site. The electronic version logs events, sends alarms by telemetry and allows settings to be changed remotely. Hand pump and accumulator operate without gas.

■ CONNECTIONS AND ENDS

Pipeline pressure tap through a block valve and stainless tubing with double-ferrule fittings or NPT thread. Connection to the control block of the gas-over-oil, pneumatic or hydraulic actuator. NPT cable entries with Ex cable glands for transmitter, solenoids and switches, with output to the remote terminal unit (RTU) or telemetry system.

■ APPLICABLE STANDARDS

NOM-020-ASEA-2024 requires pipeline sectionalizing per ASME B31.8 and automatic or remote-controlled valves in the zones it defines; rupture detection is one way to automate that closure. IEC 60079 and NOM-001-SEDE-2012 apply to electrical components in classified areas. IEC 61511 applies when the closure is part of a safety instrumented function.

■ APPLICATIONS IN MEXICO

Transmission pipeline sectionalizing valves at river, road and railway crossings and near populated areas. Remote valve sites with gas-over-oil actuators. Compression station outlets. High-pressure distribution branches where a major leak must be isolated without waiting for the emergency crew to arrive.

■ TESTING, INSPECTION AND DOCUMENTS

Tubing leak test at design pressure, rate-of-drop and low-pressure calibration on the bench with controlled depressurization, latch and reset verification, and functional test with the actuator when supplied as a package. Pneumatic or hydraulic diagram, settings sheet, test report and operating manual are delivered.



4 Mechanical-pneumatic detector



5 Electronic rupture detector



6 Hydraulic control panel



7 Stainless cabinet, telemetry

✓ To quote this family, send us

- ✓ Maximum and minimum pipeline operating pressure
- ✓ Pipeline diameter and desired trip rate of drop
- ✓ Actuator type: gas-over-oil, pneumatic or hydraulic
- ✓ Functions: rate of drop, low pressure, manual reset, remote
- ✓ Mechanical-pneumatic or electronic; power available on site
- ✓ Required signals and telemetry (contacts, 4–20 mA, Modbus)
- ✓ Area classification and minimum ambient temperature

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

LENGTH 0.5 to 3 m (telescopic or fixed)	TYPE Extensions, valve boxes, T-keys, indicators	MATERIALS Galvanized steel, cast iron, polymer
CONNECTION 2" square or other per drawing	FINISH Galvanized or epoxy	TYPICAL LEAD TIME 15 to 30 business days

50

Quick entry

Stem Extensions, Valve Boxes and T-Keys

Everything needed to safely operate buried valves from the surface.

Where it is used: Buried valves in distribution networks and pipelines.

VARIANTS WE QUOTE

- Telescopic extensions for PE
- Valve boxes with cast iron lid
- Operating T-keys
- Indicators and padlocks

TO QUOTE, SEND US

- ✓ Valve depth
- ✓ Valve head type
- ✓ Vehicle or pedestrian traffic
- ✓ Quantity

Full list of data to quote on page 111. →

Typical buyer: **Construction / Distribution Companies**

50 DETAILED DATA SHEET Stem Extensions, Valve Boxes and T-Keys

■ CONSTRUCTION

Stem extension with protective outer tube and inner shaft that transmits torque, with a 2" square head at the surface and a lower coupling to the valve; adjustable telescopic versions or fixed made-to-measure. Sliding-body valve boxes for height adjustment, with removable cover. Steel tube T-keys with female square and position indicators.

■ MATERIALS

Galvanized or epoxy-coated carbon steel shafts; PE or PVC protective tubes on extensions for polyethylene valves. Gray or ductile cast iron boxes with iron cover for vehicle traffic, or reinforced polymer for sidewalks and green areas. Galvanized steel T-keys. Covers painted yellow for gas identification.

■ SIZES, CLASSES AND TEMPERATURE

Lengths of 0.5 to 3 m, fixed or telescopic with adjustment travel, according to valve depth. Operating head with 2" square, or adapters to flat, smaller square or handwheel. Boxes in several inner diameters and heights, with covers for pedestrian or vehicle loads. T-keys with length matching the depth plus a handling margin.

■ OPERATION

The operator inserts the T-key through the valve box, couples it to the upper square of the extension and turns to open or close; on quarter-turn valves, a 90° turn completes the stroke. Indicators on the head show open or closed. Padlocks or locking covers prevent unauthorized operation of sector valves.

■ CONNECTIONS AND ENDS

Lower coupling to the valve head: 2" square on polyethylene and steel distribution valves, or flat and other square sizes through an adapter. Fixing with through bolt or roll pin. Upper head with 2" square for standard T-key. Coupling to buried gear operators through square or shaft, per drawing.

■ APPLICABLE STANDARDS

Supplied for distribution networks under NOM-003-ASEA-2016 and pipelines under NOM-020-ASEA-2024, where buried sectionalizing valves must be accessible for operation from the surface. The coupling is verified against the polyethylene (ASME B16.40, ISO 4437-4) or steel valve of each project. Covers are selected according to the site traffic load.

■ APPLICATIONS IN MEXICO

Buried polyethylene and steel sectionalizing valves in urban distribution networks. Service and tap valves on sidewalks. Buried transmission pipeline valves operated from the surface. Internal networks of industrial parks. Operating and emergency crew kits with T-keys for rapid closure of network sectors.

■ TESTING, INSPECTION AND DOCUMENTS

Dimensional inspection of the square and coupling against a sample valve or drawing, torque test of the extension and key, verification of galvanizing or epoxy thickness and cover load test per the specified traffic. Dimensional drawing, material certificate and inspection report per lot are delivered.



4 Telescopic extension for PE



5 Polymer valve box



6 Cast iron box for heavy traffic



7 Position indicator with padlock

✓ To quote this family, send us

- ✓ Depth from valve to surface (0.5 to 3 m)
- ✓ Valve head (2" square, flat or other) and its material
- ✓ Fixed or telescopic extension and required adjustment range
- ✓ Valve box: vehicle or pedestrian traffic and inner diameter
- ✓ Material: galvanized steel, cast iron or polymer
- ✓ T-keys: length and quantity per crew; indicators or padlocks
- ✓ Quantity per lot and delivery schedule

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



1 Overview



2 Detail



3 In use

SEALS PTFE, PEEK, nylon, NBR, FKM, HNBR, AED	TYPE Seats, stem packing, O-rings, diaphragms	SEALANTS Valve greases and sealants, cleaners
INJECTION Sealant fittings, hand pumps	STANDARDS ISO 23936-2 (elastomers), API 6D	TYPICAL LEAD TIME 15 to 30 business days

51

Technical validation

Seal Kits, Sealants and Valve Spare Parts

Spare parts to keep the installed valve fleet in service, by part number or drawing.

Where it is used: Maintenance of valves in pipelines, stations, compression and plants.

VARIANTS WE QUOTE

- Complete kits per valve model
- Explosive decompression resistant (AED) elastomers
- Injection fittings and adapters
- Spare parts by drawing or sample

TO QUOTE, SEND US

- ✓ Valve make and model
- ✓ Part number or drawing
- ✓ Service and temperature
- ✓ Annual quantity

Full list of data to quote on page 111. →

Typical buyer: Maintenance

51 DETAILED DATA SHEET Seal Kits, Sealants and Valve Spare Parts

■ CONSTRUCTION

Kits by valve model with seats, seat inserts, V-type or graphite stem packing, O-rings, backup rings, body and cover gaskets and seat springs. Injection fittings with double check for sealant and purge. Molded diaphragms for regulators and actuators. Manufactured by part number or by reverse engineering from a sample or drawing.

■ MATERIALS

Thermoplastics: virgin or reinforced PTFE, PEEK, nylon and PCTFE. Elastomers: NBR, HNBR and FKM, with explosive decompression resistant (AED) compounds for high pressure. Flexible graphite for fire-safe packing. Valve sealants and greases compatible with natural gas and cleaners to remove hardened sealant. For high pressure, elastomers qualified per ISO 23936-2.

■ SIZES, CLASSES AND TEMPERATURE

Dimensions per the valve, from O-rings of a few millimeters to seats for large-diameter pipeline valves. Temperature by material: NBR for general service, HNBR and FKM for higher temperature and chemical aggressiveness, PEEK for high pressure and temperature. Design pressure equal to that of the original valve, up to ASME Class 2500 in pipeline kits.

■ OPERATION

Sealants are injected with a manual or pneumatic pump through the seat fittings to temporarily restore tightness in case of a leak; greases lubricate and protect the seats during routine maintenance. The cleaner dissolves hardened sealant before reinjection. Kit replacement is scheduled by cycles or inspection and restores tightness without replacing the valve.

■ CONNECTIONS AND ENDS

Sealant injection fittings with internal check and NPT thread for body and stem; adapters between injection head types and pump couplings. Body purges and vents with NPT thread. Gaskets for RF and RTJ flanges with ASME B16.5 dimensions. High-pressure hand pumps with hose, quick coupling and gauge.

■ APPLICABLE STANDARDS

ISO 23936-2: qualification of elastomers for the oil and gas industry, including resistance to rapid gas decompression. API 6D: pipeline valve requirements that the spare parts must match. ASME B16.5: flange gasket dimensions. Compatibility with the original valve is validated against part number, drawing or sample.

■ APPLICATIONS IN MEXICO

Preventive and corrective maintenance of trunnion ball sectionalizing valves on transmission pipelines. Valves at compression and M&R stations. Regulators and actuators at city gates. Lubricated plug valves in distribution. Response to seat leak emergencies by sealant injection in the field.

■ TESTING, INSPECTION AND DOCUMENTS

Dimensional and hardness inspection of elastomers by lot, seat material verification and AED qualification certificate per ISO 23936-2 when applicable. Compatibility check against drawing or sample before production. Parts list, material certificates, elastomer cure date and sealant safety data sheet are delivered.



4 PEEK seat kit



5 High-pressure AED O-rings



6 Injection fittings and adapters



7 Manual pump for sealant

✓ To quote this family, send us

- ✓ Valve type, model, size and class
- ✓ Part number, drawing or physical sample of the spare part
- ✓ Service: sweet or sour gas, operating pressure and temperature
- ✓ Required seal material (PTFE, PEEK, NBR, FKM, HNBR, AED)
- ✓ Sealant or grease type and injection fitting type
- ✓ Whether a manual injection pump and adapters are needed
- ✓ Annual quantity and number of valves in the installed base

General data list on page 111. Reply includes a data sheet and drawing from the proposed manufacturer.



Technical validation

Valves: data to quote

Valves contain pressurized gas, so we validate the standard, tests, certificates and manufacturer before offering. Send us this data or the equipment data sheet; if you do not have one, we will help you fill it out.

1 Type and size

- ✓ Type: ball, gate, plug, check, butterfly, globe or other
- ✓ Nominal diameter (inches or mm) and quantity per size
- ✓ Full or reduced bore; pigging capable
- ✓ ASME class (150 to 2500), PN, or SDR if PE
- ✓ Aboveground, buried or station installation; extended stem

2 Connections and materials

- ✓ Ends: RF, RTJ, butt-weld (schedule), SW, NPT or PE spigot
- ✓ Body material: WCB / A105, LCC / LF2, CF8M, duplex, PE100
- ✓ Seats and seals: PTFE, nylon, PEEK, metal, NBR, FKM, AED
- ✓ Coating and color

3 Operating conditions

- ✓ Dry or wet gas, with H2S or CO2 (or chromatography)
- ✓ Maximum operating and design pressure
- ✓ Minimum and maximum temperature
- ✓ Function: shutoff, sectionalizing, control, relief or emergency

4 Testing and tightness

- ✓ Body and seat tests per API 598 or API 6D
- ✓ Fire-safe API 6FA or API 607
- ✓ Fugitive emissions ISO 15848-1 / API 641
- ✓ Additional tests: high-pressure gas, cryogenic, third-party inspection

5 Operation

- ✓ Lever, gear operator or actuator
- ✓ Actuator type and fail mode
- ✓ Area classification (Class I Div 1/2, Zone 1/2)
- ✓ Accessories: lock, extension, limit switches

6 Certificates and documents

- ✓ Manufacturing standard: API 6D, API 6A, ASME B16.34, ISO 17292, B16.38 or B16.40
- ✓ EN 10204 3.1 material certificate and manufacturer ISO 9001
- ✓ NACE MR0175 / ISO 15156 if H2S is present
- ✓ Compliance with the NOM for your installation (NOM-020-ASEA, NOM-003-ASEA, NOM-002-SECRE)

Your quote includes: data sheet and drawings from the proposed manufacturer, bill of materials, test plan, sample certificates, lead time in business days and delivered cost in Mexico.



Technical validation

Actuators and regulators: data to quote

An actuator is sized by the valve's real torque and fail mode. If replacing an existing actuator, send us a photo of its nameplate and mounting flange.

1 Valve data

- ✓ Valve type, size and class
- ✓ Breakaway, running and closing torque (or valve model)
- ✓ Flange and coupling: ISO 5211 / ISO 5210, square or keyway
- ✓ Quarter-turn, multi-turn or linear (stroke)

2 Operating medium

- ✓ Air, nitrogen or pipeline natural gas and its pressure
- ✓ Electric: voltage, phases and frequency
- ✓ Hydraulic or self-contained electro-hydraulic
- ✓ Backup: handwheel, hand pump or accumulator

3 Function and safety

- ✓ On/off, modulating or emergency shutdown
- ✓ Fail mode: closes, opens or stays put
- ✓ Required opening and closing time
- ✓ SIL level and partial stroke test if applicable

4 Control and signals

- ✓ Solenoid: voltage, 3/2 or 5/2, manual reset
- ✓ Limit switches: mechanical, inductive, SPDT / DPDT
- ✓ 4–20 mA, HART, Modbus, Profibus or Fieldbus
- ✓ Line-break detection and telemetry

5 Area and environment

- ✓ Class I Div 1/2 Group C-D or Zone 1/2 IIB / IIC
- ✓ Certification: IECEx, ATEX, UL / CSA
- ✓ Protection rating: NEMA 4X / 7, IP66 / IP67 / IP68
- ✓ Ambient temperature, altitude, coastal or desert

6 Regulators and relief

- ✓ Minimum and maximum inlet pressure, outlet pressure
- ✓ Minimum and maximum flow (standard m³/h)
- ✓ Monitor, overpressure shutoff and relief required
- ✓ Set pressure, backpressure and relief valve capacity

Assembled package: we quote valve + actuator + accessories mounted and factory-tested, with a single test certificate for the assembly.



How we handle your order

Direct factory purchasing in China, with technical and quality control from our Dongguan office.

1

Data sheet

We receive your specification, drawing, nameplate photo or part number.

2

Technical proposal

Data sheet, dimensional drawings and bill of materials from the proposed manufacturer.

3

Approval

Your engineering reviews and approves drawings and test plan before manufacturing.

4

Manufacturing

Weekly progress follow-up from our Dongguan office.

5

Testing

Inspection and tests before shipment, witnessed by you or a third party.

6

Delivery

Export packing, FOB, CIF or delivered in Mexico (DDP).

Inspection and testing

- ✓ Hydrostatic body and seat test (API 598 / API 6D)
- ✓ Low-pressure gas or air seat test
- ✓ Dimensional, visual and coating inspection
- ✓ Operation test with the actuator and timing measurement
- ✓ Special tests: high-pressure gas, cryogenic, fire-safe, fugitive emissions
- ✓ Third-party inspection at customer request

Documents we deliver

- ✓ EN 10204 3.1 material certificates
- ✓ Test reports by serial number
- ✓ Fire-safe, SIL, IECEx or ATEX certificates where applicable
- ✓ Drawings, installation and maintenance manual
- ✓ Quality dossier and packing list
- ✓ Nameplate in Spanish or English

Logistics

- ✓ Sea: 30 to 58 business days door to door
- ✓ Air: 15 to 29 business days for urgent orders and spare parts
- ✓ Wooden crate packing, with flange covers and end protection
- ✓ Consolidation of several manufacturers into one shipment
- ✓ Customs clearance and on-site delivery (DDP) on request

No price list: each quote is built on your specification and quantity, and we compare it against your current supplier.



Espinoza Trading

Next-generation trading between China and Latin America

Request your quote

Send us the data sheet, drawing, nameplate photo or part number. We quote delivered cost in Mexico and compare it against your current supplier.

1

Data sheet or part number

Even if from another manufacturer

2

Drawing, photo or nameplate

For replacements and spare parts

3

Standard and certificates

API, ASME, ISO and NOM required

4

Quantity and date

To negotiate lead times and terms

Company

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