



VALVES

HIGHSTANDARD

enthusiasm and effort



CAM[®]
VALVES



ESTABLISHED IN 1968

Founded by Angelo Brignoli and Pietro Brignoli in 1968, CAM S.p.A. is a family owned and operated group, which has been working since its foundation in the series machining of medium and high precision range mechanical components for the automotive industry by metal-taking-off machines.

In 2015 the young generation of the Brignoli family decided to bring their experience in the Oil and Gas business, taking on people with a huge knowledge and experience in design and manufacture of valves. With the support of the new valve team our aim are short lead times, exemplary quality and good Customer service.

Our modern manufacturing processes enable us to produce a wide range of products from both bar materials and forgings. CAM valves are made to order, in large or small quantities, depending on the Customer's wishes.







WE ARE

OUR CAPABILITIES

In-House Engineering and R&D in our manufacturing facilities in Trescore Balneario (BG, Italy) include a state of art engineering department. All of our technical staff and engineers are highly qualified and fully up to date on the latest in design and production technologies. Our highly-experienced team of engineers and technical staff are all experts in their field. The CAM Valves engineering team has the proper commitment and experience to provide you with a wide range of high-level engineering services: design, analysis and testing services. Advanced software tools and technologies are necessary to develop the high performance products you are searching for.

MANAGEMENT AT 360°

The service offered by CAM includes a range of activities that fully cover the development of a product:

- Co-design during the product design phase to optimize the product.
- Feasibility studies and realization of pre-series prototypes.
- Direct management of the raw material, with search and selection of Suppliers according to quality/cost/service requirements.
- Realization of the most efficient production solutions, also through specific investments.
- Supply of heat and/or surface protection treatments (zinc-coating, phosphating, cataphoresis, painting, etc.) through a network of highly qualified Suppliers, both Italian and international, selected through years of collaboration.
- Management of the Customers' orders and of the delivery notes in E.D.I. format and of "Consignment Stock" warehouse at the Customers' premises.
- Management of logistics in all European countries.

VALVES

QUALITY

The production process of CAM is managed in compliance with the reference standards of each particular product.

CAM ensures the quality of its products through:

- Measuring instruments of high precision and reliability.
 - Highly qualified and constantly trained personnel.
 - Accurate control procedures.
 - In process control instrumentation installed on its machines.
 - Metrological laboratory for the whole production control.
- Such accurate controls allow the achievement of the very high quality standards of CAM products.





ND MORE



BALL VALVES

8



GATE VALVES

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GLOBE VALVES



57

CHECK VALVES



64 **MAIN FEATURES**



BALL

STANDARD BALL VALVES

MODULAR BALL VALVES

SPECIAL BALL VALVES

SEVERE SERVICE BALL VALVES

CRYOGENIC BALL VALVES

VALVES



■ STANDARD BALL VALVES

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TECHNICAL DATA

Commercial figure	CAM code	Type of valve	Size	Pressure	Temperature
F2P	VBA	Floating side entry	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
FTE	VBF	Floating top entry	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
F3P	VBB	Floating three pieces	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
T2P	VBC	Floating threaded two pieces	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
TW2P	VBD	Floating threaded two pieces welded	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
FEE	VBE	Floating end entry	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
TSE	VAA	Trunnion side entry	NPS ½ to 42	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
TTE	VAB	Trunnion top entry	NPS ½ to 42	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
TSE-NGF	VAQ	Trunnion side entry NGF	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
BNB-FSE	VED	BNB Floating side entry	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 230°C (-51°F to 446°F)
BNB-FTE	VEF	BNB Floating top entry	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
BNB-FEE	VEH	BNB Floating end entry	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
BNB-FT	VEG	BNB Floating threaded	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 230°C (-51°F to 446°F)
BNB-F2P	VEL	BNB Floating two pieces	NPS ½ to 6	Class ASME 150 to 2500	-46°C to 230°C (-51°F to 446°F)
BN-F	VEC	BN Floating	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
BBB-F	VEB	BBB Floating	NPS ½ to 6	Class ASME 150 to 1500	-46°C to 230°C (-51°F to 446°F)
BNB-TSE	VEA	BNB Trunnion side entry	NPS ½ to 24	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
BNB-TTE	VEE	BNB Trunnion top entry	NPS ½ to 24	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
F3W-T3W	VAF	3-Way	NPS ½ to 24	Class ASME 150 to 4500	-46°C to 325°C (-51°F to 617°F)
F4W-T4W	VAN	4-Way	NPS ½ to 24	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
SUB	VAG-VAL	Subsea	NPS ½ to 24	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
PIG	VAH-VAP	Pigging	NPS ½ to 12	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
HYP	VFA	Hyperball®	NPS ½ to 6	Class ASME 150 to 4500	-29°C to 650°C (-20°F to 1202°F)
SS	VFB	Severe service	NPS ½ to 16	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
SS-HT	VFC	Severe service-High Temperature	NPS ½ to 16	Class ASME 150 to 4500	-29°C to 650°C (-20°F to 1202°F)
CR-T	VA-Cryo	Cryogenic Trunnion	NPS ½ to 42	Class ASME 150 to 2500	-196°C to 200°C (-320°F to 392°F)
CR-F	VB-Cryo	Cryogenic Floating	NPS ½ to 6	Class ASME 150 to 2500	-196°C to 200°C (-320°F to 392°F)

Different sizes, classes and temperatures are available on request.



Floating side entry ball valve

F2P

Standard floating ball valve with side entry mounting.

CAM code

VBA

Size

NPS ½ to 6

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or metal



Floating top entry ball valve

FTE

Standard floating ball valve with top entry mounting.

CAM code

VBF

Size

NPS ½ to 6

Pressure

Class ASME
150 to 1500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol

Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Seat

Soft

Operator

Manual or Actuated

Construction

Top entry

End

Flanged, clamps, screwed
and welded connection





Floating three pieces ball valve

F3P

Floating three pieces with bolted body. This type of valve allows in-line maintenance.

CAM code

VBB

Size

NPS ½ to 6

Pressure

Class ASME
150 to 1500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft



Floating threaded two pieces ball valve

T2P

Floating Ball valve two pieces with screwed body.

CAM code

VBC

Size

NPS ½ to 6

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Screwed side entry

End

Clamps, screwed and
welded connection

Seat

Soft



Floating threaded two pieces welded ball valve

TW2P

Floating Ball valve two pieces with screwed and welded body.

CAM code

VBD

Size

NPS ½ to 6

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Screwed and welded
side entry

End

Clamps, screwed and
welded connection

Seat

Soft

Floating end entry ball valve

FEE

Floating ball valve with screwed closure from the end of the valve.

CAM code

VBE

Size

NPS ½ to 6

Pressure

Class ASME
150 to 1500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

End entry

End

Flanged connection

Seat

Soft

General features

Floating features



Trunnion side entry ball valve

TSE

Standard trunnion ball valve with side entry mounting.

CAM code

VAA

Size

NPS ½ to 42

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol**Design features**

API 6D, API 6A,
ASME B16.34

Operator

Manual or Actuated

Construction

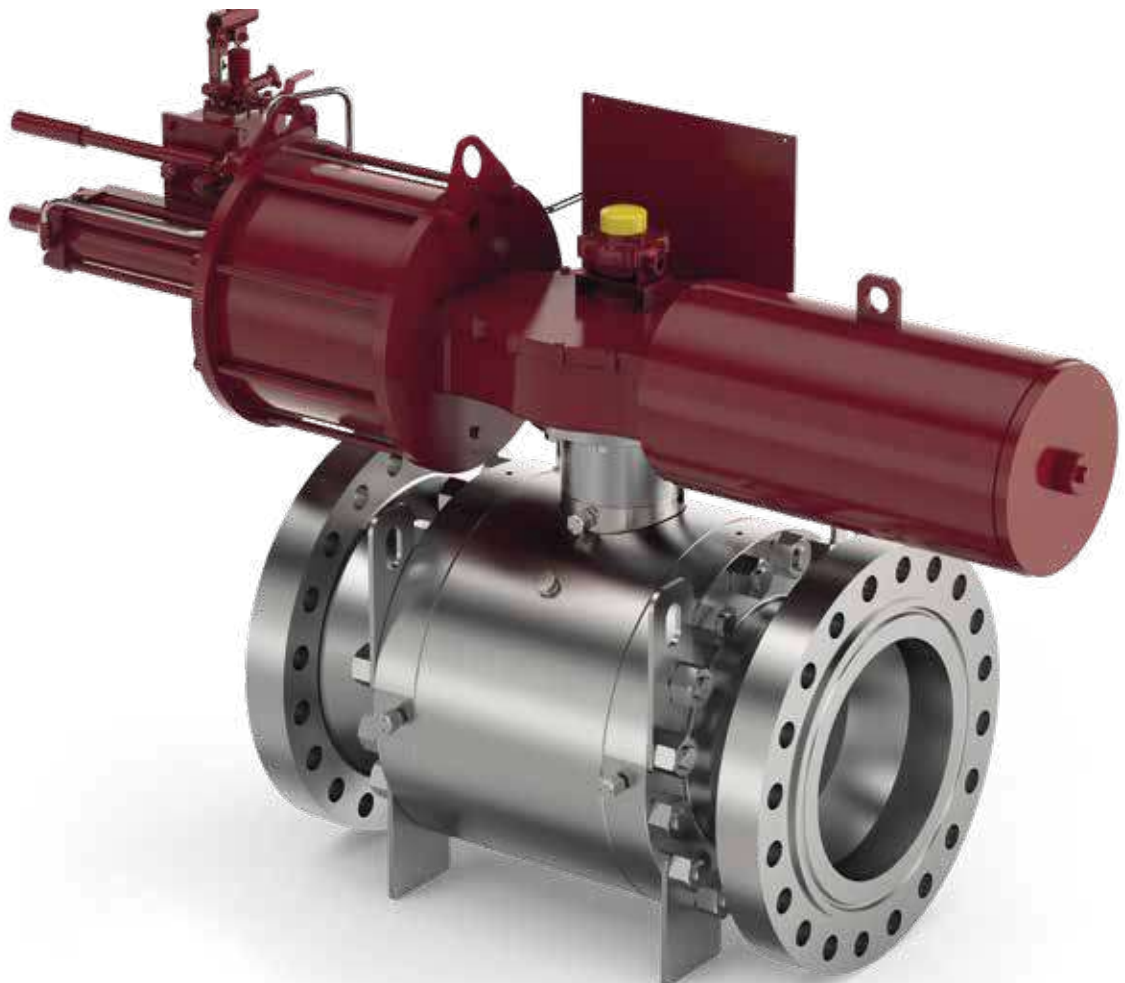
Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or metal





Trunnion top entry ball valve

TTE

Trunnion ball valve with top entry mounting.

CAM code

VAB

Size

NPS ½ to 42

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 6D, API 6A,
ASME B16.34

Operator

Manual or Actuated

Construction

Top entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or metal



Trunnion side entry NGF ball valve

TSE-NGF

Trunnion side entry NGF has the characteristic of having fewer leak points than a standard trunnion ball valve. The valve is assembled entirely from the side.

CAM code

VAQ

Size

NPS ½ to 6

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol

Design features

API 6D,
ASME B16.34

Operator

Manual or Actuated

Construction

Top entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or metal

Floating Ball-Needle-Ball (BNB) side entry valve

BNB-FSE

This valve is composed of two balls and one needle.
The closure is mounted from the side.

CAM code
VED

Size
NPS ½ to 6

Pressure
Class ASME
150 to 2500

Temperature
-46°C to 230°C
(-51°F to 446°F)

Design features
API 608, API 6D,
ASME B16.34
and ISO 17292

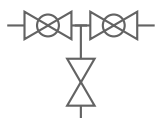
Operator
Manual or Actuated

Construction
Side entry

End
Flanged, Clamps,
screwed and welded
connection

Seat
Soft

Valve symbol



Floating Ball-Needle-Ball (BNB) top entry valve

BNB-FTE

This valve is composed of two balls and one needle.
The closure is mounted from the top.

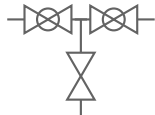
CAM code
VEF

Size
NPS ½ to 6

Pressure
Class ASME
150 to 1500

Temperature
-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Top entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft





Floating Ball-Needle-Ball (BNB) end entry valve

BNB-FEE

This valve is composed of two balls and one needle.
The closure is mounted from the end of the valve.

CAM code

VEH

Size

NPS ½ to 6

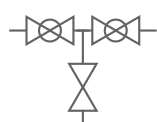
Pressure

Class ASME
150 to 1500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

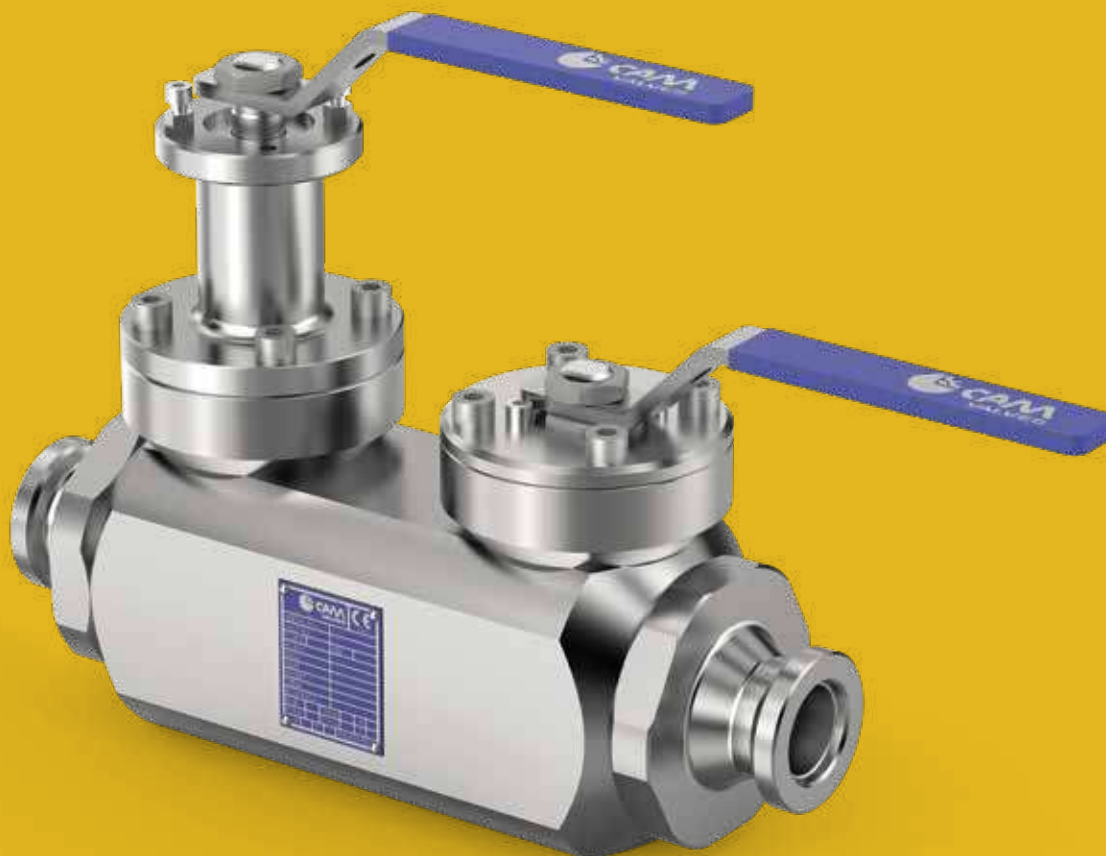
End entry

End

Flanged

Seat

Soft



Floating Ball-Needle-Ball (BNB) threaded valve

BNB-FT

This valve is composed of two balls and one needle. The closure is screwed.

CAM code

VEG

Size

NPS ½ to 6

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Screwed side entry

End

Clamps, screwed and
welded connection

Seat

Soft

Floating Ball-Needle-Ball (BNB) two pieces valve

BNB-F2P

This valve is composed of two balls and one needle. The difference with other BNB valve is that it has only one closure and consequently one less leakage point.

CAM code

VEL

Size

NPS ½ to 6

Pressure

Class ASME

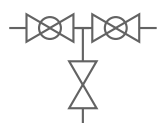
150 to 2500

Temperature

-46°C to 230°C

(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,

ASME B16.34

and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, Clamps, screwed

and welded connection

Seat

Soft



Floating Ball-Needle (BN) valve

BN-F

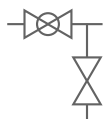
This valve is composed of one ball and one needle.
The needle valve is placed after the ball for pipeline discharge.

CAM code

VEC

Size

NPS ½ to 6

PressureClass ASME
150 to 1500**Temperature**-46°C to 230°C
(-51°F to 446°F)**Valve symbol****Design features**API 608, API 6D,
ASME B16.34
and ISO 17292**Operator**

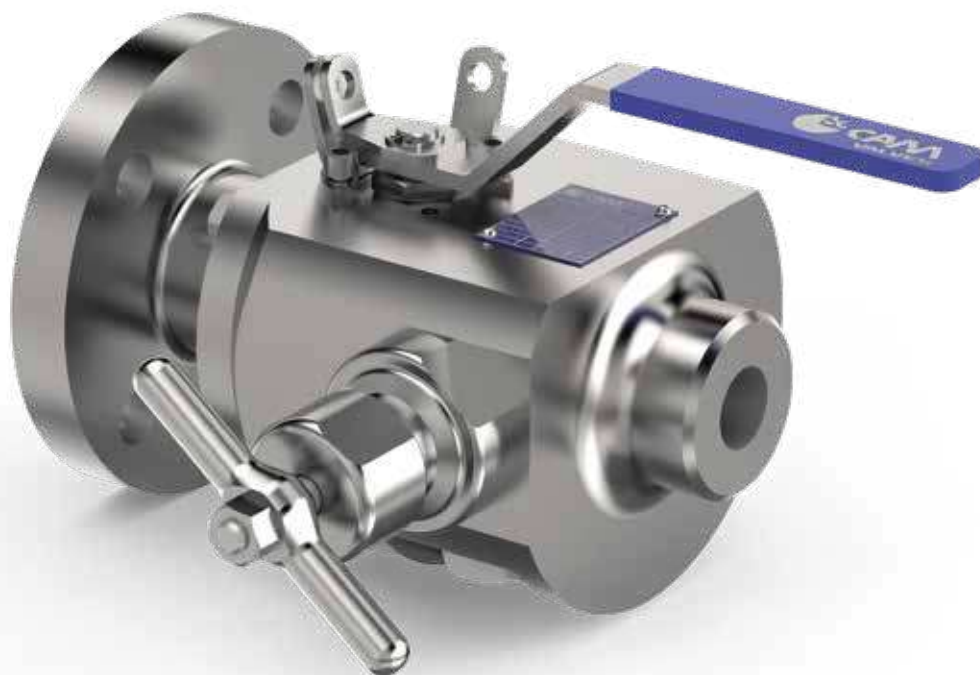
Manual or Actuated

Construction

Side entry

EndFlanged, clamps, screwed
and welded connection**Seat**

Soft





Floating Ball-Ball-Ball (BBB) valve

BBB-F

This valve has three balls in order to divert the flow as needed.

CAM code

VEB

Size

NPS ½ to 6

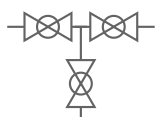
Pressure

Class ASME
150 to 1500

Temperature

-46°C to 230°C
(-51°F to 446°F)

Valve symbol



Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft



Trunnion Ball-Needle-Ball (BNB) side entry valve

BNB-TSE

Standard modular trunnion valve with two balls and one needle with the closure mounting from the side.

CAM code

VEA

Size

NPS ½ to 24

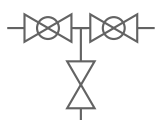
Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 6D,
ASME B16.34

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, Clamps,
screwed and welded
connection

Seat

Soft or metal



Trunnion Ball-Needle-Ball (BNB) top entry valve

BNB-TTE

Modular trunnion valve with two balls and one needle with the closure mounting from the top.

CAM code

VEE

Size

NPS ½ to 24

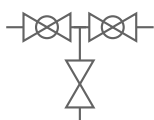
Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 6D,
ASME B16.34

Operator

Manual or Actuated

Construction

Top entry

End

Flanged, Clamps,
screwed and welded
connection

Seat

Soft or metal

3-Way ball valve

F3W-T3W

3-Way ball valve can be made with different types of port: L-port, T-port, L vertical-port. This type of valve can have floating or trunnion configuration, according to Customer's needs.

CAM code

VAF

Size

NPS ½ to 24

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol

Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or Metal





4-Way ball valve

F4W-T4W

4-Way ball valve can be made with different types of port: L-port, T-port, L vertical-port, X-port, straight port. This type of valve can have floating or trunnion configuration, according to Customer's needs.

CAM code

VAN

Size

NPS ½ to 24

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol

Design features

API 608, API 6D,
ASME B16.34
and ISO 17292

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Soft or Metal



Subsea ball valve

SUB

Subsea ball valve is used in the offshore industry, such as deep and ultra-deep water.

CAM code

VAG-VAL

Size

NPS ½ to 24

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 6D,
ASME B16.34

Operator

Actuated

Construction

Side or top entry

End

Flanged, Clamps,
screwed and welded
connection

Seat

Soft or metal

Pigging ball valve

PIG

Pigging valve is used to introduce and retrieve pipeline cleaning devices. In fact this valve is used as pig launcher and pig receiver. This type of valve minimizes environmental impact respect conventional barrel. By using the pig valve can you reduce the space and consequently reduce the infrastructure costs.

CAM code

VAH-VAP

Size

NPS ½ to 12

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Design features

API 6D,
ASME B16.34

Operator

Manual

Construction

Side and top entry

End

Flanged, Clamps,
screwed and welded
connection

Seat

Soft or metal

Valve symbol



Hyperball® ball valve

HYP

Hyperball® ball valve is used for high-pressure and high-temperature applications. Its characteristics are metal-seated design and one piece body to eliminate the potential leakage in correspondence of body/closure - body/bonnet interface.

CAM code

VFA

Size

NPS ½ to 6

PressureClass ASME
150 to 4500**Temperature**-29°C to 650°C
(-20°F to 1202°F)**Operator**

Manual or Actuated

Valve symbol**Construction**

One piece body

EndFlanged, clamps, screwed
and welded connection**Seat**

Metal





Severe service ball valve

SS

VFC design is used for extreme conditions. This valve is used for severe service, indeed its characteristics are metal-seated design and a particular stem design that extends packing life.

CAM code

VFB

Size

NPS ½ to 16

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Valve symbol



Design features

API 6D, API 6A,
ASME B16.34

Operator

Manual or Actuated

Construction

Side entry

End

Flanged, clamps, screwed
and welded connection

Seat

Metal



Severe service-High Temperature ball valve

SS-HT

This design is used for high-pressure, high temperature and in the extreme conditions. This type of design doesn't use any type of gasket in the ball and in the seats. In this way the ball-seat seal can last over time, reducing maintenance.

CAM code

VFC

Size

NPS ½ to 16

PressureClass ASME
150 to 4500**Temperature**-29°C to 650°C
(-20°F to 1202°F)**Design features**API 6D,
ASME B16.34**Operator**

Manual or Actuated

Construction

Side entry

EndFlanged, clamps, screwed
and welded connection**Seat**

Metal

Cryogenic Trunnion ball valve

CR-T

Cryogenic ball valve is used for low temperatures, range -100°C to -196°C. All cryogenic valves are equipped with cryogenic extension to allow valve operation. Configuration: trunnion mounted.

CAM code

VA-Cryo

Size

NPS ½ to 42

PressureClass ASME
150 to 2500**Temperature**-196°C to 200°C
(-320°F to 392°F)**Design features**API 6D, ASME B16.34,
BS6364**Operator**

Manual or Actuated

Construction

Side and top entry

EndFlanged, clamps, screwed
and welded connection**Seat**

Soft or metal



Cryogenic Floating ball valve

CR-F

Cryogenic ball valve is used for low temperatures, range -100°C to -196°C. All cryogenic valves are equipped with cryogenic extension to allow valve operation. Configuration: floating mounted.

CAM code

VB-Cryo

Size

NPS ½ to 6

PressureClass ASME
150 to 2500**Temperature**-196°C to 200°C
(-320°F to 392°F)**Design features**API 608, API 6D,
ASME B16.34,
BS6364**Operator**

Manual or Actuated

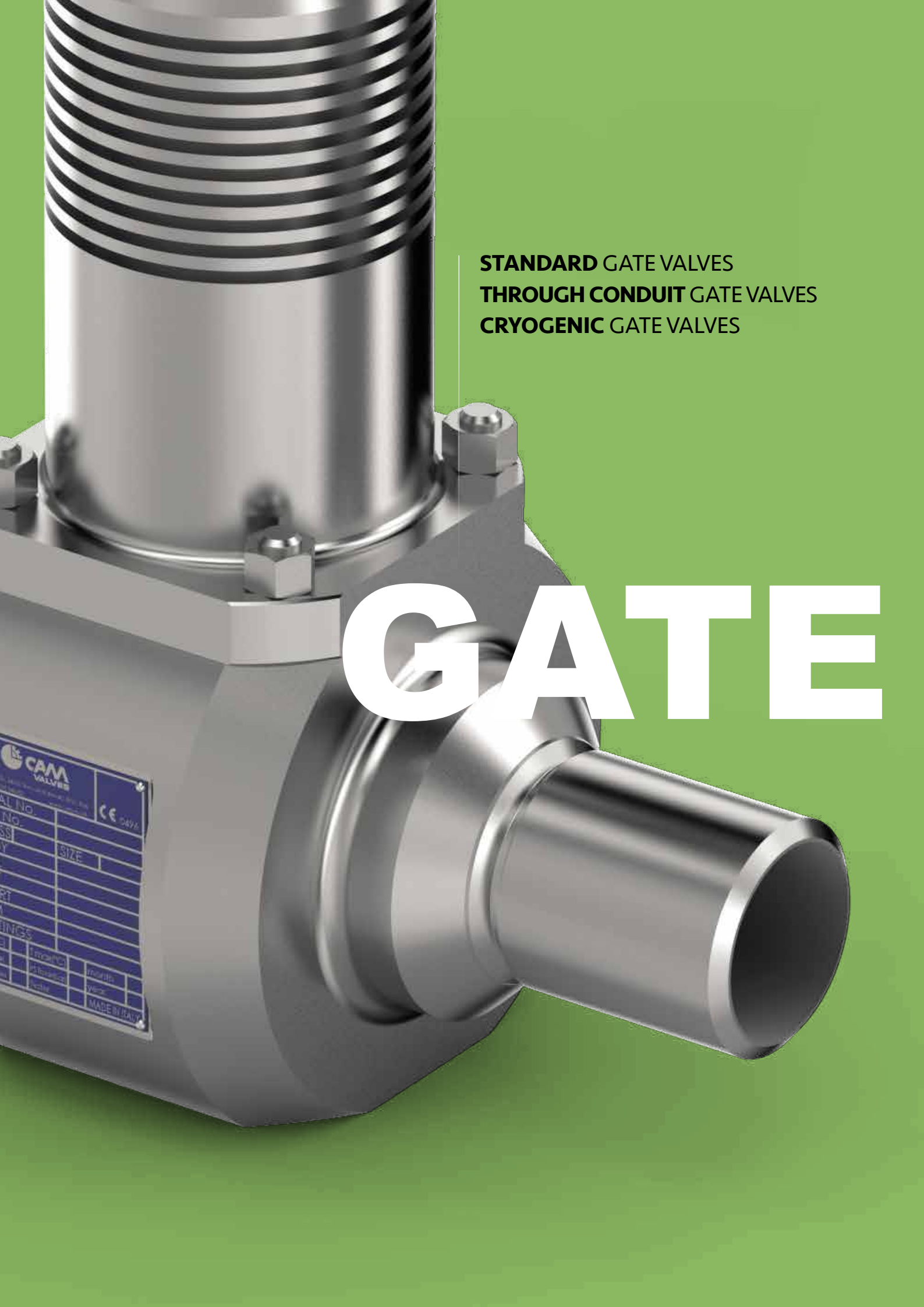
Construction

Side and top entry

EndFlanged, clamps, screwed
and welded connection**Seat**

Soft



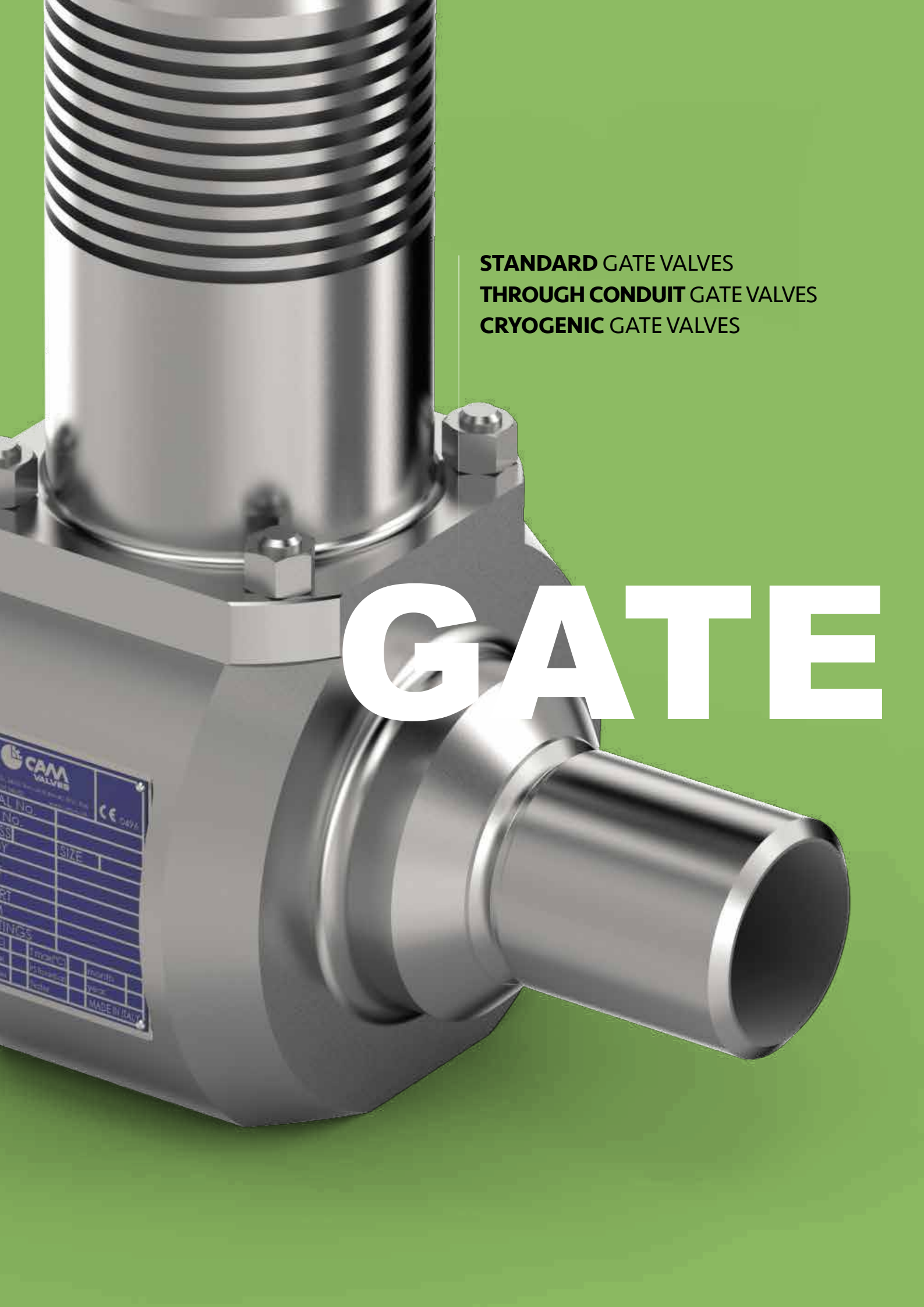


STANDARD GATE VALVES
THROUGH CONDUIT GATE VALVES
CRYOGENIC GATE VALVES

GATE

CAM VALVES
AL No.
NG.
SS
Y
RT
A
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E
K
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MADE IN ITALY

CE 0496

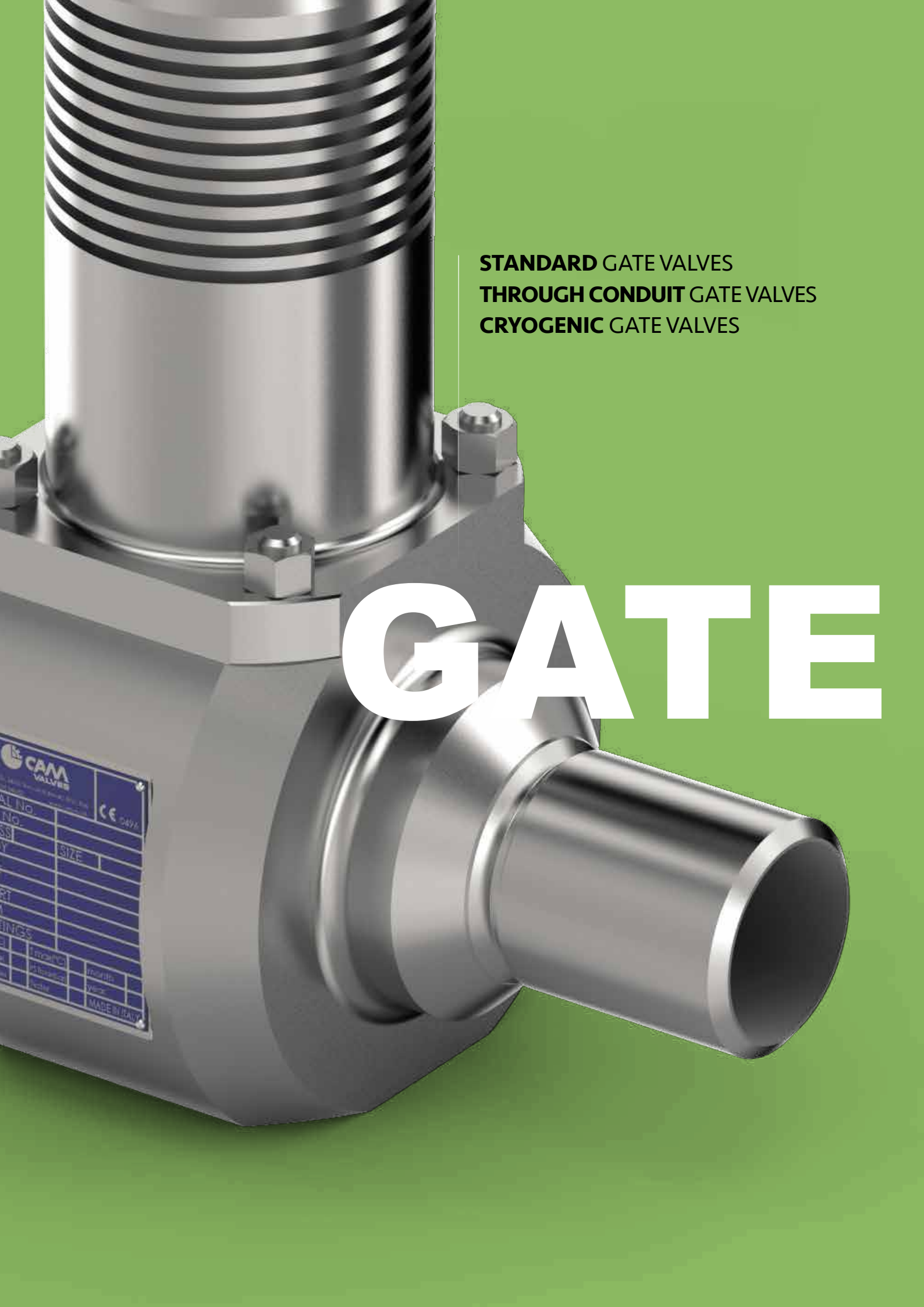


STANDARD GATE VALVES
THROUGH CONDUIT GATE VALVES
CRYOGENIC GATE VALVES

GATE

CAM VALVES
AL No.
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MADE IN ITALY

CE 0496



VALVES





■ GATE VALVES

STANDARD GATE VALVES	44
THROUGH CONDUIT GATE VALVES	45
CRYOGENIC GATE VALVES	46

TECHNICAL DATA

Commercial figure	CAM code	Type of valve	Size	Pressure	Temperature
GAV	VDA	Standard	NPS ½ to 36	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
TC	VC	Through conduit	NPS ½ to 24	Class ASME 150 to 2500	-46°C to 325°C (-51°F to 617°F)
CR-GAV	VDA Cryo	Cryogenic	NPS ½ to 24	Class ASME 150 to 2500	-196°C to 200°C (-320°F to 392°F)

Different sizes, classes and temperatures are available on request.



Standard Gate valve

GAV

Gate valves offer safe and reliable shut-off solutions in any above ground, underground or subsea applications, including critical environments.

CAM code

VDA

Size

NPS ½ to 36

PressureClass ASME
150 to 2500**Temperature**-46°C to 325°C
(-51°F to 617°F)**Valve symbol****Design features**

API 602, B16.34

Operator

Manual or Actuated

ConstructionSlab or expanding
wedge version**End**Flanged, Clamps, screwed
and welded connection**Seat**

Soft or metal

Through conduit gate valve

TC

Through Conduit Gate valves provide superior bubble tight sealing capabilities in gas service and unmatched robustness in harsh services with high pressure, high temperatures and solid particles. The full bore through conduit design minimizes the turbulence of the flow and when the valve is open the pressure drop is equivalent to that produced by a pipe with the same diameter and length. The valve is perfectly suitable for pigging operations.

CAM code

VC

Size

NPS ½ to 24

Pressure

Class ASME
150 to 2500

Temperature

-46°C to 325°C
(-51°F to 617°F)

Design features

API 602, B16.34

Operator

Manual or Actuated

Construction

Slab or expanding
wedge version

Valve symbol

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal



Cryogenic gate valve

CR-GAV

Cryogenic gate valve is used for low temperatures, range -100°C to -196°C. All cryogenic valves are equipped with cryogenic extension to allow valve operation.

CAM code

VDA Cryo

Size

NPS ½ to 24

PressureClass ASME
150 to 2500**Temperature**-196°C to 200°C
(-51°F to 392°F)**Design features**API 602, B16.34,
BS6364**Operator**


Manual or Actuated

Valve symbol**Construction**Slab or expanding
wedge version**End**Flanged, Clamps, screwed
and welded connection**Seat**

Soft or metal







GLOBE

STANDARD GLOBE VALVES

CRYOGENIC GLOBE VALVES

GLOBE-GLOBE VALVES

GLOBE-NEEDLE-GLOBE VALVES

VALVES





■ GLOBE VALVES

STANDARD GLOBE VALVES	52
CRYOGENIC GLOBE VALVES	53
GLOBE-GLOBE VALVES	54
GLOBE-NEEDLE-GLOBE VALVES	55

TECHNICAL DATA

Commercial figure	CAM code	Type of valve	Size	Pressure	Temperature
GLNV	VDB	Standard	NPS ½ to 36	Class ASME 150 to 2500	-50°C to 400°C (-58°F to 752°F)
CR-GLNV	VDB Cryo	Cryogenic	NPS ½ to 24	Class ASME 150 to 2500	-196°C to 200°C (-320°F to 392°F)
GL-GL	VGA	Globe-Globe	NPS ½ to 4	Class ASME 150 to 2500	-50°C to 400°C (-58°F to 752°F)
GL-N-GL	VGB	Globe-Needle-Globe	NPS ½ to 4	Class ASME 150 to 2500	-50°C to 400°C (-58°F to 752°F)

Different sizes, classes and temperatures are available on request.



Standard Globe valve

GLNV

The globe valve uses a linear motion to move a closure member into and out of a seating surface. This motion is used to stop, start and regulate flow.

CAM code

VDB

Size

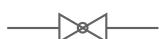
NPS ½ to 36

Pressure

Class ASME
150 to 2500

Temperature

50°C to 400°C
(-58°F to 752°F)

Valve symbol

Design features

API 602, B16.34

Operator

Manual or Actuated

Construction

Bolted or welded
bonnet

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal

Cryogenic Globe valve

CR-GLNV

Cryogenic globe valve is used for low temperatures, range -100°C to -196°C . All cryogenic valves are equipped with cryogenic extension to allow valve operation.

CAM code

VDB Cryo

Size

NPS $\frac{1}{2}$ to 24

Pressure

Class ASME
150 to 2500

Temperature

-196°C to 200°C
(-320°F to 392°F)

Design features

API 602, B16.34,
BS6364

Operator

Manual or Actuated

Construction

Bolted or welded
bonnet

Valve symbol

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal





Globe-Globe valve

GL-GL

Modular globe valve with two globes is used to guarantee zero leakage in case one of the two sealing areas suffers damage. This valve in fact is used for severe service.

CAM code

VGA

Size

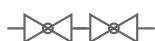
NPS ½ to 4

Pressure

Class ASME
150 to 2500

Temperature

-50°C to 400°C
(-58°F to 752°F)

Valve symbol

Design features

API 602, B16.34

Operator

Manual

Construction

Bolted or welded
bonnet

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal



Globe-Needle-Globe valve

GL-N-GL

This modular valve has two globe valves and one needle to connect or relieve the pressure between two valves.

CAM code

VGB

Size

NPS ½ to 4

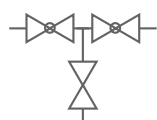
Pressure

Class ASME
150 to 2500

Temperature

-50°C to 400°C
(-58°F to 752°F)

Valve symbol



Design features

API 602, B16.34

Operator

Manual

Construction

Bolted or welded
bonnet

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal



CHECK

CHECK SWING VALVES
CHECK PISTON VALVES
CHECK POPPET VALVES

VALVES





■ CHECK VALVES

CHECK SWING VALVES	60
CHECK PISTON VALVES	61
CHECK POPPET VALVES	62

TECHNICAL DATA

Commercial figure	CAM code	Type of valve	Size	Pressure	Temperature
SCV	VDD	Swing	NPS ½ to 24	Class ASME 150 to 4500	-196°C to 650°C (-320°F to 1202°F)
PCV	VDC	Piston	NPS ½ to 24	Class ASME 150 to 4500	-196°C to 650°C (-320°F to 1202°F)
LCV	VDCN	Poppet	NPS ½ to 24	Class ASME 150 to 4500	-196°C to 650°C (-320°F to 1202°F)

Different sizes, classes and temperatures are available on request.



Check Swing valve

SCV

A check swing valve is mounted with a disc that swings on a shaft. The disc swings off the seat to allow forward flow and when the flow is stopped, the disc swings back onto the seat to block reverse flow.

CAM code

VDD

Size

NPS ½ to 24

Pressure

Class ASME
150 to 4500

Temperature

-196°C to 650°C
(-320°F to 1202°F)

Valve symbol

Design features

API 6D, API 602

Construction

Bolted or welded
bonnet

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal

Check Piston valve

PCV

A check piston valve is used to prevent back flow in the line. The piston moves linearly off the seat to allow forward flow and when the flow is stopped, the piston goes back onto the seat to block reverse flow.

CAM code

VDC

Size

NPS ½ to 24

Pressure

Class ASME
150 to 4500

Temperature

-196°C to 650°C
(-320°F to 1202°F)

Design features

API 6D, API 602

Valve symbol

Construction

Bolted or welded
bonnet

End

Flanged, Clamps, screwed
and welded connection

Seat

Soft or metal



Check Poppet valve

LCV

The poppet of a poppet valve is held in place by a spring. When the cracking pressure of a poppet valve is reached, the spring compresses, pushing the poppet back.

CAM code

VDCN

Size

NPS ½ to 24

Pressure

Class ASME
150 to 4500

Temperature

-196°C to 650°C
(-320°F to 1202°F)

Valve symbol

Design features

API 6D, API 602

Construction

Bolted or welded
bonnet

End

Screwed

Seat

Soft or metal

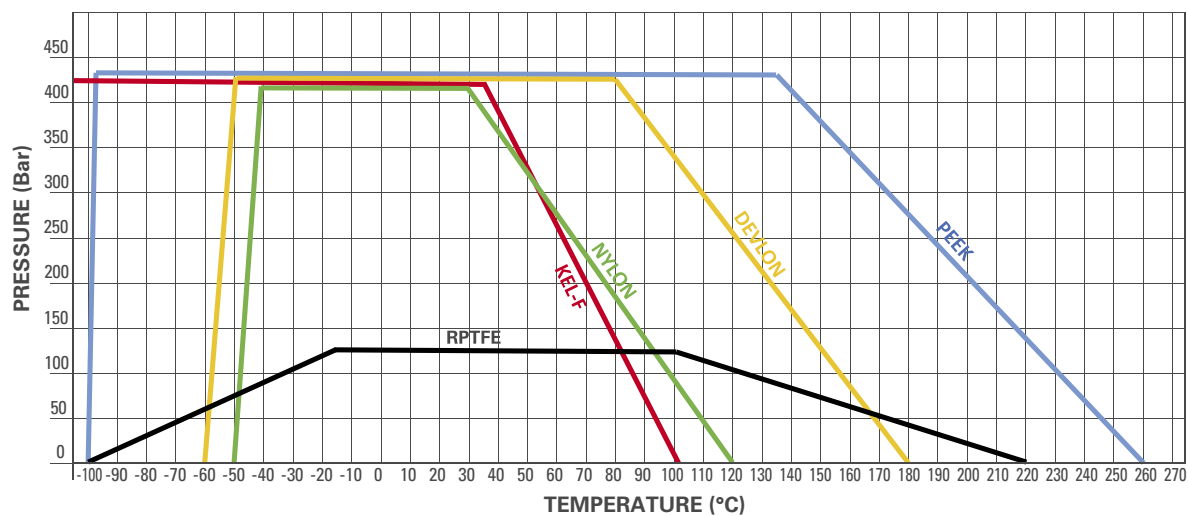




Materials

Seals pressure - Temperature chart

This table expresses the Seat material resistance as declared by the original Manufacturer. The values are to be considered together with the other parameters such as size, seat design (standard or encapsulated) and temperature limitations as given by ASME B16.34.



These values are for reference only, CAM recommends Customer's engineering to analyse service requirements and specify the material they consider optimum. CAM cannot be liable for any damage occurred due to the use of these values.





Seat and seals materials

SEAT MATERIALS

	Material Type	CAM Ref.	Main Properties	Temperature		Applications	Recommendations
				°C	°F		
Standard	Reinforced PTFE (25% Carbon)	RPTFE+ 25C	- Resistance to compression	-190 +210	-310 +410	- Medium pressure - Low/high temperature	- Higher pressure and temperature than virgin PTFE - Good for steam service
	Reinforced PTFE (25% Carbon +20% Graphite)	RPTFE+ 25C+20G	- Resistance to deformation	-190 +230	-310 +446	- Medium pressure - Low/high temperature	- Higher pressure and temperature than virgin PTFE - Auto lubricant properties
	Reinforced PTFE (20% Carbon + 5% Graphite)	RPTFE+ 20C+5G	- High mechanical properties	-190 +220	-310 +428	- Medium pressure - Low/high temperature	- Higher pressure and temperature than virgin PTFE - Auto lubricant properties
	Reinforced PTFE (25% Fiber glass)	RPTFE+ 25FG	- Wear resistance	-200 +180	-328 +356	- Medium pressure - Low/high temperature	- Higher pressure and temperature than virgin PTFE - Self-regulated wear
	Virgin PTFE	PTFE	- Low friction - Good temperature resistance	-200 +200	-328 +428	- Low torque/ low pressure - Low temperature	- Good for all services but subject to temperature and pressure limitations
High Performance	Devlon	DVL	- High pressure - Very good elasticity	-60 +125	-76 +257	- High pressure - Low temperature	- H2S and hydrocarbons - Do not use for oxygen
	Nylon 6	NYL6	- Low coefficients of friction And abrasion	-30 +105	-22 +221	- High pressure - Low temperature	- H2S and hydrocarbons
	Nylon PA12G	NYL12	- Low water absorption - Good compression resistance	-50 +120	-58 +248	- High pressure - Low temperature	- H2S and hydrocarbons
	Peek	PK	- NACE - High pressure and temperature	-65 +260	-85 +500	- High pressure - High temperature	- Hydrocarbons and nuclear services - Tobacco
	Kel-F	KF	- Excellent for cryogenic applications	-250 +130	-418 +266	- Cryogenic service	- Like virgin PTFE but improved resistance to nitric and hydrofluoric acid - Ok for liquid oxygen
	Vespel	VS	- High and low temperature - High pressure	-200 +260	-328 +500	- High temperature - Low temperature - High pressure	- Good chemical resistance - Suitable for gas, oil and petroleum - Not suitable for steam - Very expensive material
	Graphite	GR	- Low friction	-90 +350	-130 +662	- High temperature - Low pressure	- Not suitable for high cycle
	Metal seat	MTL	- High mechanical properties - Wear resistance	-200 +650	-328 +1202	- High temperature - High pressure	- Abrasion and high temperature application - Expensive machining and assembly

Seat and seals materials

SEALS MATERIALS

	Material Type	CAM Ref.	Main Properties	Temperature		Applications
				°C	°F	
O-ring	Nitrile (NBR)	NBR	- Excellent mechanical strength - Wear resistance	-30 +120	-22 +248	- Suitable for water - Poor resistance to fuels and outdoor weathering
	Hydrogenated nitrile (HNBR)	HNBR	- Good mechanical properties - Low gas permeability	-30 +160	-22 +320	- H2S - crude oil - Hydrocarbons
	Modified hydrogenated (HNBR MOD)	MHNBR	- Good mechanical properties - Low gas permeability	-40 +160	-40 +320	- H2S - crude oil - hydrocarbons - Small % of methanol
	Fluoroelastomers (FKM_B)	FKM B	- Easy availability	-20 +220	-4 +428	- Sour gas - Hydrocarbons
	Fluoroelastomers (FKM_AED)	FKM AED	- Like viton b - Anti explosive decompression	-20 +210	-4 +410	- Sour gas - Hydrocarbons
	Fluoroelastomers (FKM_GLT)	FKM GLT	- Good temperature range	-46 +230	-51 +446	- Sour gas - Hydrocarbons
	Perfluoroelastomers (FFKM)	CHEMRAZ	- High temperature	-25 +315	-13 +599	- Sour gas - hydrocarbons - High % of methanol
	Perfluoroelastomers (FFKM)	KALREZ	- High temperature - Chemical resistance	-25 +325	-13 +617	- Sour gas - Corrosive fluids
Special	Graphite	GRAP	- High temperature - Metal seated valves	-240 +650	-400 +1202	- High temperature - Abrasion resistance
	Lipseal	LIP	- Very low temperature (cryogenic) - Energized seals	-200 +260	-328 +500	- Cryogenic service / medium temperature - Good for chemical resistance

These values are for reference only, CAM recommends Customer's engineering to analyse service requirements and specify the material they consider optimum. CAM cannot be liable for any damage occurred due to the use of these values.

Quality control and testing

Rigorous control over the whole manufacturing process is crucial in our business. CAM Valves runs a Quality Management System aimed at achieving zero defect performance.

Highly trained and certified technicians test and control 100% of our production by using advanced equipment and instruments.

At all stages of the production process, the quality control is a very important activity which fulfills two main objectives: quality and reliability.

To achieve this goal, CAM Valves can count on high-

ly qualified quality controllers skilled in performing dimensional checks, non-destructive examination and also pressure testing (water and gas).

Metrology Lab

The technicians in the "metrology lab" work scrupulously to supervise the manufacturing procedures and dimensional control to ensure the manufacture of valve components that can stand up under the most severe operating conditions.



Dimensional control



Fugitive emission test



PMI - Positive Material Identification



Valve during Fire Testing



Valve Fire Tested

Technical data

Testing facilities

Standard tests:

Visual and dimensional check
High pressure Hydrostatic shell test
High pressure Hydrostatic seat test
Low pressure air seat test
High pressure gas shell test
High pressure gas seat test
Stem torque check

Non destructive testing examination

PT - Liquid Penetrant Testing
MT - Magnetic Particle Testing
UT - Ultrasonic Testing
RT - Radiographic Testing
VT - Visual Testing
LT - Leak testing
PMI - Positive Material Identification
FE - Ferrite Content

Certifications and quality assurance

ISO 9001:2015
ISO 14001:2015
ISO/TS 29001:2010
ISO 45001:2018
Directive 2014/34/EU - ATEX
TR Customs Union Certification EAC (TR-CU)
API 6D 25th
Directive 2014/68/EU-PED Module H
Safety integrity level according to IEC 61508:2010
Fire safe test certification API 607 6th Edition
Fire safe test certifications EN ISO 10497:2010
Fire safe certification API 6FA 3rd Edition
Fugitive emission ISO 15848 Part 1

Other tests available on request:

Cryogenic Test
Fugitive emission Test
Antistatic Test
Seat self relieving test
Special tests according to customer specifications

Destructive examination

BEND TEST
BREAK TEST
TENSILE TEST
IMPACT TEST
HARDNESS TEST
CORROSION TEST
MACRO EXAMINATION
MICRO EXAMINATION

Quality Management System

Are covered by a quality assurance program certified and continuously audit by accredited inspection authorities.

CAM Valves Manufacturing headquarter



Why choose CAM Valves?



HIGH QUALITY PRODUCTS

When it comes to product quality, we start from the beginning



FAST DELIVERY

Good organization skills



FLEXIBILITY

Tailor-made specialty solutions



INNOVATION

Always looking ahead, backed by experience



100% MADE IN ITALY

Italian know-how

CAM Valves are designed to exacting specifications and manufactured to the highest standards, resulting in an extensive range of flow controls that are built for dependability and years of use. CAM's products are found around the globe.



OIL and GAS production

- Pressure Control
- Water Injection
- Cavern Storage

GAS transportation

- Metering and Regulating Stations
- Temperature, Pressure and Flow Control
- Launcher/Receiver
- Natural Gas Pipelines
- Emergency Shut Down
- Off-Shore Platforms
- Compressor Stations



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