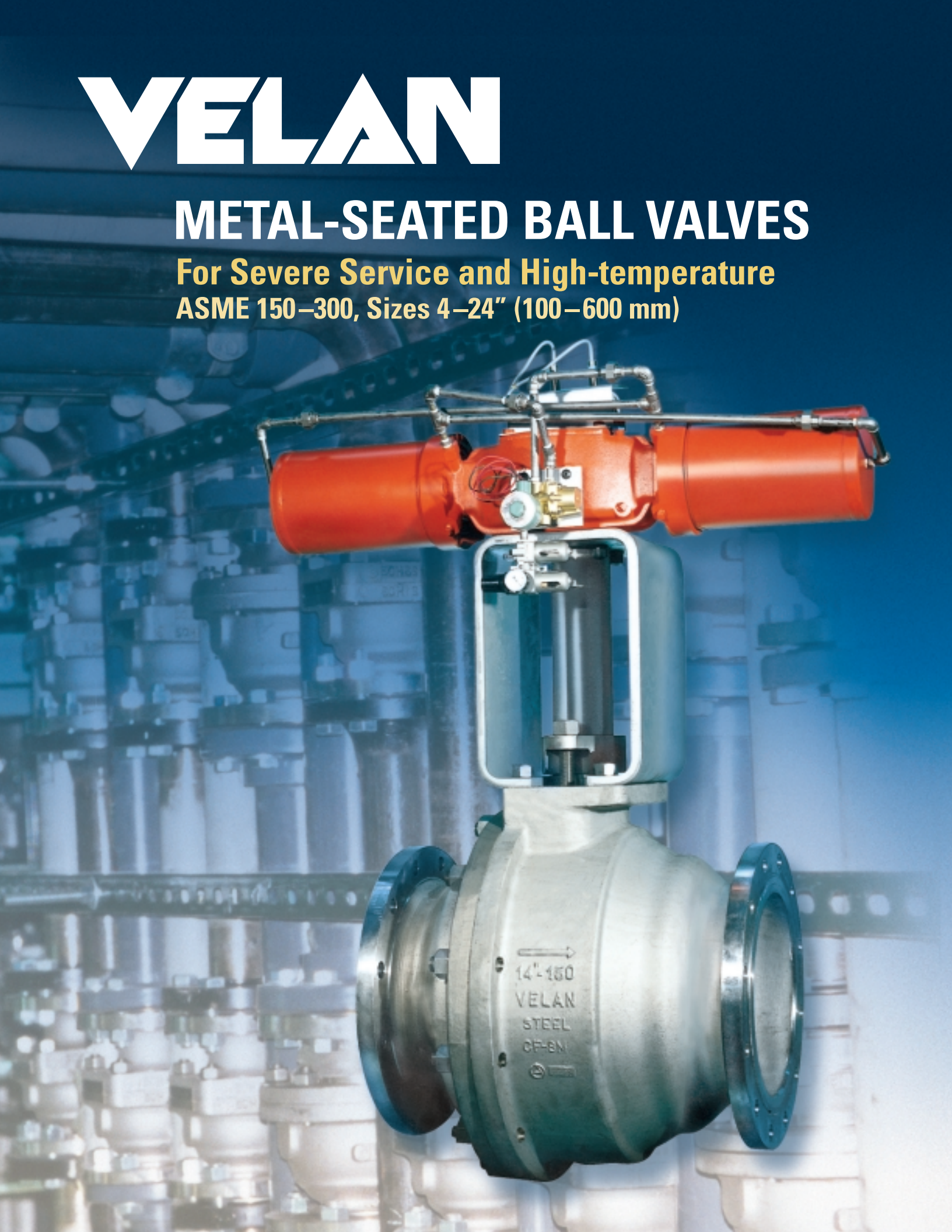
VELAN

METAL-SEATED BALL VALVES

For Severe Service and High-temperature

ASME 150–300, Sizes 4–24" (100–600 mm)



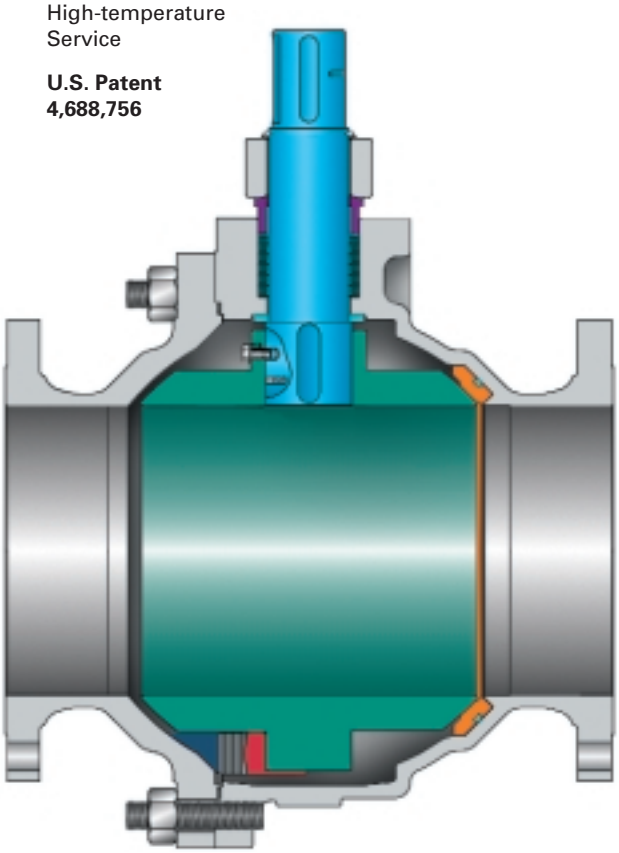
SB-150/300, SPLIT-BODY FULL PORT FLANGED METAL-SEATED BALL VALVES, 4–24" (100–600 mm)

ASME Classes 150, 300

Cover photograph shows a 14" (350 mm) Split-body Valve for iron pellets at 1,450ºF (788°C).

Single-seated for High-temperature Service

U.S. Patent 4,688,756



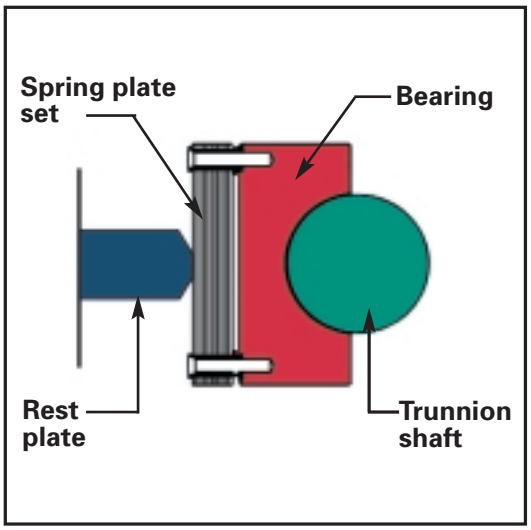
DESIGN FEATURES:

- **Wall thickness** complies with ASME B16.34.
- **This unique, patented single-seat ball valve offers many advantages.**

  Most two-seated ball valve designs are loaded with Belleville washers or E-springs which can become clogged by solids, lose flexibility and prevent free ball expansion at high temperatures between 1,000–1,450°F (538–788°C).

  The Velan Single-seat Ball Valve has a flat spring set acting through a hardfaced bearing against the bottom ball shaft which provides sufficient initial ball-seat load for valve tightness, even at low ΔP.
- **The Velan design** provides freedom for thermal expansion of the ball without jamming, even at extreme temperatures.
- **Proven in qualification tests and field operation** to be solids–proof, even for the toughest applications on slurry service with solids.
- **Tightness rates:** Allowable leakage rate at full ΔP: ASME/FCI 70-2 Class V. With special lappping: tighter shutoff available upon request.
- **Maximum operating temperature:**
  For CF8M valves: 1,450°F (788°C).
  For WCB valves: 800°F (426°C).
  For Chrome Moly C5 or C12: 1,000°F (538°C).

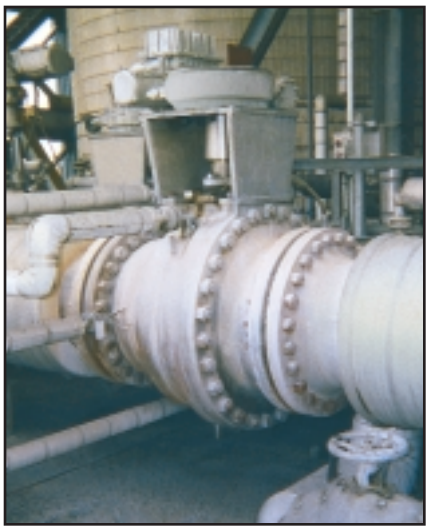
BOTTOM TRUNNION DETAIL



The Velan High-temperature Metal-seated Ball Valve is well suited for a variety of demanding services where high-temperature and abrasive solids are present.

Typical applications can be found in:

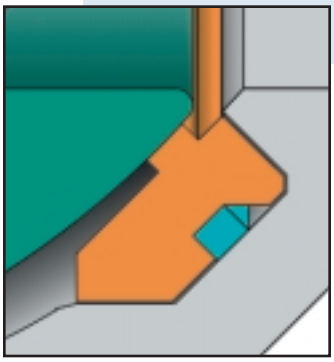
- PETROCHEMICAL
- OIL REFINING
- IRON ORE PROCESSING
- FILTER SKIDS
- SULPHUR REMOVAL



Hydrocarbon vapors at 900ºF (482ºC).

This photo shows a 16" Class 150 split-body ball valve with gear box and actuator.

SEAT DESIGN



SB-150, 300 Split-body Scraper seat 4–24" (100–600 mm)

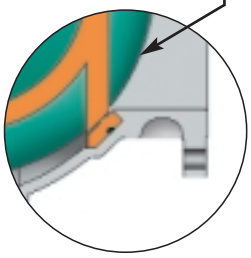
Application: Hot Gasses, Liquids, Solids and Slurries

Seat: Gr. 316 (stainless), Hardfaced with Stellite 6

Backup seal: Graphite to 1450°F (788°C)

The scraper seat design provides excellent ball cleaning capability in scaling, thermal cracking, polymerization and applications where the process tends to adhere to the ball surface.

Smooth operation unaffected by process accumulations.



Low Torque Ball Design

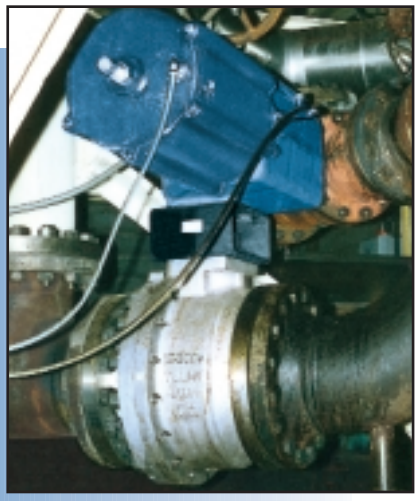
The optional ball construction incorporates the use of a reduced diameter ball where only the seating surfaces in both the closed and open position contact the seat.

The balance of the ball surface is below the seating surface allowing unobstructed ball travel when used in scaling, coking, polymerizing or other similar processes that will interfere with the smooth operation of a standard ball.

Also, the ball is available in the standard design with any one of the following hard coatings:

- STELLITE
- NICKEL BORON
- CHROME CARBIDE
- TUNGSTEN CARBIDE

VALVES INSTALLATIONS



12" Reactor discharge valve.

8" Hot caustic isolation valves at 345ºF.

HOW TO ORDER

METAL-SEATED BALL VALVES

The figure numbers shown on this key are designed to cover essential features of High-temperature Metal-seated Ball Valves. Please use figure numbers to ensure prompt and accurate processing of your order. A detailed description must accompany any special orders.

TYPE OF CONNECTION	SIZE OF CONNECTION*		MODEL NUMBER OR CLASS	PORT	TYPE	BODY MATERIAL		TRIM MATERIAL		SEAT/SEAL MATERIAL	SPECIAL SERVICE OR DESIGN
A	B		C	D	E	F		G		H	I
F	1	2	0	4	L	1	3	S	N	7	S

EXAMPLE: *Flanged, 4", Class 150, full port, Type L design, CF8M body, SS 316 CR plated ball, A 479 Gr. XM-19 stem, Stellite seat with Graphite Backup.*

A TYPE OF CONNECTION

A – Special **F** – Flanged **R** – Flanged, ring joint

B SIZE OF CONNECTION*

Customers have the choice of specifying valve size as part of the valve figure ("B") using the numbers below, or indicating valve size separately.

12 – 4" **16** – 10" **20** – 16" **24** – 24"
14 – 6" **18** – 12" **21** – 18" **99** – Special
15 – 8" **19** – 14" **22** – 20"

C BODY PRESSURE RATING(1)

0 – 150 **1** – 300

D PORT

4 – Full port, one seat **5** – Full port, short pattern

E TYPE

Metal Seat:

L – Split-body, trunnion and leaf spring

F BODY MATERIAL

01 – Special
02 – WCB
04 – Chr. moly, C5
05 – Chr. moly, WC6
09 – Chr. moly, C12
13 – Stainless steel, F316, CF8M
14 – Stainless steel, F316L, CF3M
28 – F317, CG8M
31 – LCC

G TRIM MATERIAL

CODE	BALL	STEM
CA	CA 6NM	CA 6NM
CB	C 5	C 5
CT	C 12	C 12
SN	SS 316-Cr plated	XM-19
CR	SS 316-Cr plated	SS 630
NN	SS 316-Ni plated	XM-19

CODE	BALL	STEM
TT	Stellite or Stellited(3)	Stellite
TN	Stellite or Stellited(3)	XM-19
TP	Stellite or Stellited(3)	SS 316
TR	Stellite or Stellited(3)	SS 630
XX	Special	Special

H SEAT MATERIAL

Metal Seat:

6– Stellited seat, PTFE seal
7– Stellited seat, graphite seal (standard)
9– Special

I SPECIAL SERVICE OR DESIGN (2)

A – Standard (top-entry)
H – Cryogenic
I – NACE sour gas
L – Locked scraper seat
M – Locked standard seat
P – Powders
S – Scraper seat (standard split-body)
T – Bonnet, double packing
X – Special

(1) Actual valve pressure/temperature ratings depend on choice of materials.

(2) If no special service or design is specified use "S".

(3) Specify if solid Stellite, Stellite overlay or Stellite ring.

NOTE: *The material in this catalog is for general information. For specific performance data and proper material selection, consult your Velan representative. Although every attempt has been made to ensure that the information contained in this catalog is correct, Velan reserves the right to change designs, materials or specifications without notice.*