TRIAD®
process equipment

V Ball Control Valves

9150V/9300V
66FV

TRIAD 9150V
with modulating
electric actuator

V CHARACTERIZED PORT OPTION FOR FINE THROTTLING APPLICATIONS

Triad offers a characterized V ball available as an option on the series 66 threaded and 9000 flanged ball valves. This option provides a cost effective alternative to traditional style globe control valves. The various angles of "v" machining in the valve ball provides endless control options for all process applications.
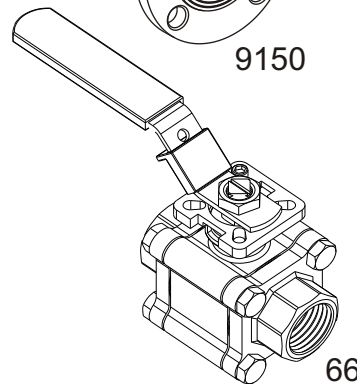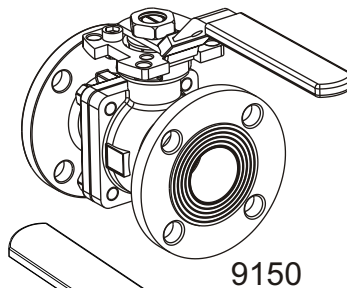
Control valves with the V ball option come standard with our Flex-Metal™ high performance seat material and our proven pyramidal stem seal that eliminates pre-mature stem leakage. Our stem seals are known for their self adjusting high cycle v ring design.
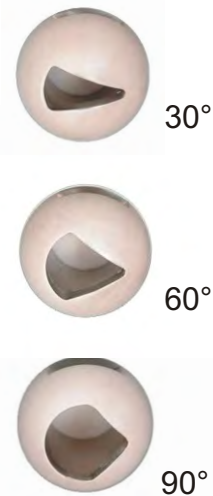
SPECIFICATIONS:

• Pressure rating: 9150 and 9300 per ANSI 150# and 300# ratings.
66 series 2000 psi WOG through 1", 1500 psi 1-1/4" through 2" & 1000 psi 2-1/2" through 4"

• Temperatures to 425° F

• Metal seats option for high temperature and abrasive applications.

The Triad series **9150** and **9300** valves are both available with the V ball option. Please consult the series 9000 brochure for additional valve specifications.

The Triad series **66** three piece process ball valve are available with the V ball option. Please consult the Series 66 brochure for additional individual valve specifications.

9150

66
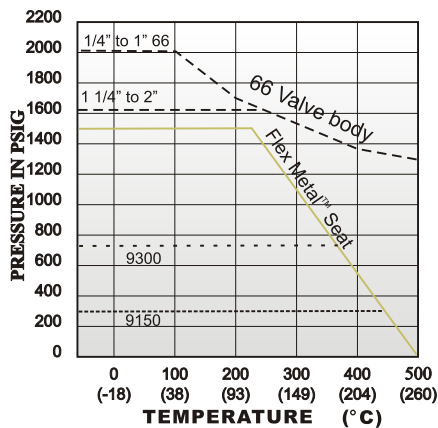
Both valves can be outfitted with modulating electric, pneumatic or electro-pneumatic valve actuators.

Standard V angles:

30°

60°

90°

Triad can custom design special v angles. Please consult the factory.

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TRIAD V BALL Flow Coefficients - Cv Chart and Sizing Data

VALVE SIZE	V ANGLE	0%	15%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	30	0	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.6	2.2	2.6
1/2"	60	0	0.1	0.1	0.3	0.5	0.9	1.4	2	3.3	4.4	6
	90	0	0.1	0.2	0.4	0.6	0.9	1.5	2.2	3.8	5.4	6.9
	30	0	0.1	0.2	0.5	0.7	1.1	1.8	2.4	3.3	4.5	5.4
3/4"	60	0	0.1	0.2	0.7	1	1.7	2.8	4	6.5	9	12
	90	0	0.2	0.4	0.8	1.2	2	3.1	4.6	8	11.3	14
	30	0	0.1	0.3	0.8	1.3	2.3	3.5	5.1	6.8	8.5	10
1"	60	0	0.2	0.4	1.1	1.8	3.4	5.3	7.9	12.3	15.3	21
	90	0	0.2	0.6	1.8	3.4	5.1	8.1	11.4	16	21	29
	30	0	0.2	0.4	1.1	2	3.7	5.5	8	10	13	15
1 1/4"	60	0	0.2	0.6	1.8	3	5.5	9.5	12.8	19	26	39
	90	0	0.3	0.8	2	5	8	14	19	28	39	55
	30	0	0.3	0.6	1.6	3	5	7.5	11	14	17	20
1 1/2"	60	0	0.4	0.8	2.5	4	8	13	19	27	40	52
	90	0	0.4	0.9	3.5	7	13	20	31	42	63	78
	30	0	0.4	1.2	3.8	6	10	15	23	31	43	60
2"	60	0	0.4	1.5	4.6	9	16.5	27	39	55	83	110
	90	0	0.5	2	6	12	22	35	45	70	105	135
	30	0	0.4	1	4	8	12	18	28	37	62	75
2 1/2"	60	0	0.4	1.5	5	10	21	34	53	75	103	150
	90	0	0.5	1.7	7	14	28	48	70	106	160	218
	30	0	0.5	1.2	4	8	14	23	33	46	65	82
3"	60	0	0.5	2.5	6	14	25	40	65	91	128	165
	90	0	0.7	3.5	8	18	35	60	90	135	205	310
	30	0	0.6	2	6	15	29	48	71	100	130	159
4"	60	0	0.7	3	11	25	40	59	90	141	212	356
	90	0	1	3.5	16	40	75	125	190	295	442	670
	30	0	0.9	3.2	14	33	60	103	155	220	280	350
6"	60	0	2	5	22	60	110	190	285	416	586	800
	90	0	3	8	35	90	160	280	425	650	970	1480

Pressure Vs. Temperature Chart

Rate of Flow Calculations

For Liquids:
To determine the flow rate of a liquid passing through a valve use the following formula:

$$QL = Cv \ x \ \sqrt{\frac{\Delta P}{SL}}$$

Where: QL = Flow of liquid in GPM
Cv = Flow Coefficient
ΔP = Pressure drop (psi)
SL = Specific gravity of liquid

For Gases:
For gases the relationship between flow in standard cubic feet per hour Qg and pressure drop is described by the following formula:

$$Qg = 1360 \ x \ Cv \ \sqrt{\frac{\Delta P}{SgT}} \ x \ \sqrt{\frac{P1 + P2}{2}}$$

Where: Qg = Volumetric flow of gas (SCFH)
Sg = Specific gravity of gas (air @ 14.7PSIA and 60° F = 1)
T = Absolute temperature of flowing medium (° F + 460)
P1 = Inlet pressure (PSIA)
P2 = Outlet pressure (PSIA)
ΔP = (P1 - P2) Pressure drop (PSIA)
Cv + Flow in GPM of water @ 1PSI pressure drop. Flow coefficient.

Triad Process Equipment ®

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