

Fisher™ CCV-N Fuel Gas Control Valve

Fisher CCV-N fuel gas control valves are used in gas turbines which meter the fuel gas to the combustion chamber of the turbine and provide linear flow with the ability to choke very quickly at a low pressure drop. CCV-N valve provides precise control of fuel and efficient downstream static pressure recovery with reliable shutoff.

CCV-N valves are single port, angle-style, and balanced valves with metal seat, seat ring retainer guide and push-down-to-close valve plug action.

Materials for CCV-N valve body and trim components are in compliance with NACE MR0103.

The CCV-N valves offers reliable shutoff with process temperature limited up to 316°C (600°F) by using PEEK (PolyEtherEtherKetone) anti-extrusion rings in combination with a spring-loaded PTFE seal. The PEEK anti-extrusion rings expand to help close off the clearance gaps on the plug outside diameter and the seat ring retainer inside diameter where the PTFE seal may extrude at high temperatures and pressures.



X1430

FISHER CCV-N CHOKE CONTROL VALVE (NPS 3) - SECTION VIEW

Features

- **Valve Plug Stability**— Rugged seat ring retainer guiding the plug provides increased valve plug stability, which reduces vibration and mechanical noise.
- **Sour Service Trims**— Standard trims are in compliance with NACE MR0103 which yields long lasting, erosion and corrosion resistant parts.
- **Stringent Valve Capacity Tolerance**— Teardrop shape seat ring retainer is used to minimize flow restriction in order to attain the required pressure recovery ratio and achieve the C_g (specified in table 3).
- **Linear Characteristics**— The pointed cone shaped plug and seat ring design helps to achieve the linear characteristic for the specified travel.
- **Reliable Shutoff**— Metal-to-metal seat and PEEK anti-extrusion seal ring construction meets Class IV shutoff per ANSI B16.104 for temperatures up to 316°C (600°F).
- **Efficient Pressure Recovery**— This valve provides efficient pressure recovery and achieves critical flow conditions with low pressure drops.

Specifications

Available Configuration and Valve Sizes

Single port, angle-style valve with balanced valve plug and push-down-to-close valve plug action
Available sizes are NPS ■ 2, ■ 3, and ■ 4

End Connection Style

Raised-face (RF) flanges

Maximum Inlet Pressure and Temperature

Consistent with CL300 pressure-temperature ratings per ASME B16.34

Maximum Pressure Drop

Consistent with pressure-temperature ratings per ASME B16.34

Shutoff Classification

Class IV shutoff per ASME B16.104

Construction Materials

CF8M valve body and stainless steel trims
Refer table 2

Material Temperature Capability

See table 2

Flow Direction

Flow down

Flow Characteristic

Linear from 15% to 100% travel

Flow Coefficient

See table 3

Port Diameter/ Plug Travel and Stem Diameter

See table 1

Bonnet/ Yoke Boss

Plain bonnet and 2 13/16 inch yoke boss

Packing

Double PTFE

Approx. Weights

NPS 2: 31 kg (68 lb)

NPS 3: 51 kg (112 lb)

NPS 4: 77 kg (168 lb)

Table of Contents

Features	1
Specifications	2
Tables	
Port Diameter and Valve Plug Travel	3

Materials and Temperature Capabilities	3
Flow Coefficient Values	7
Dimensions	7

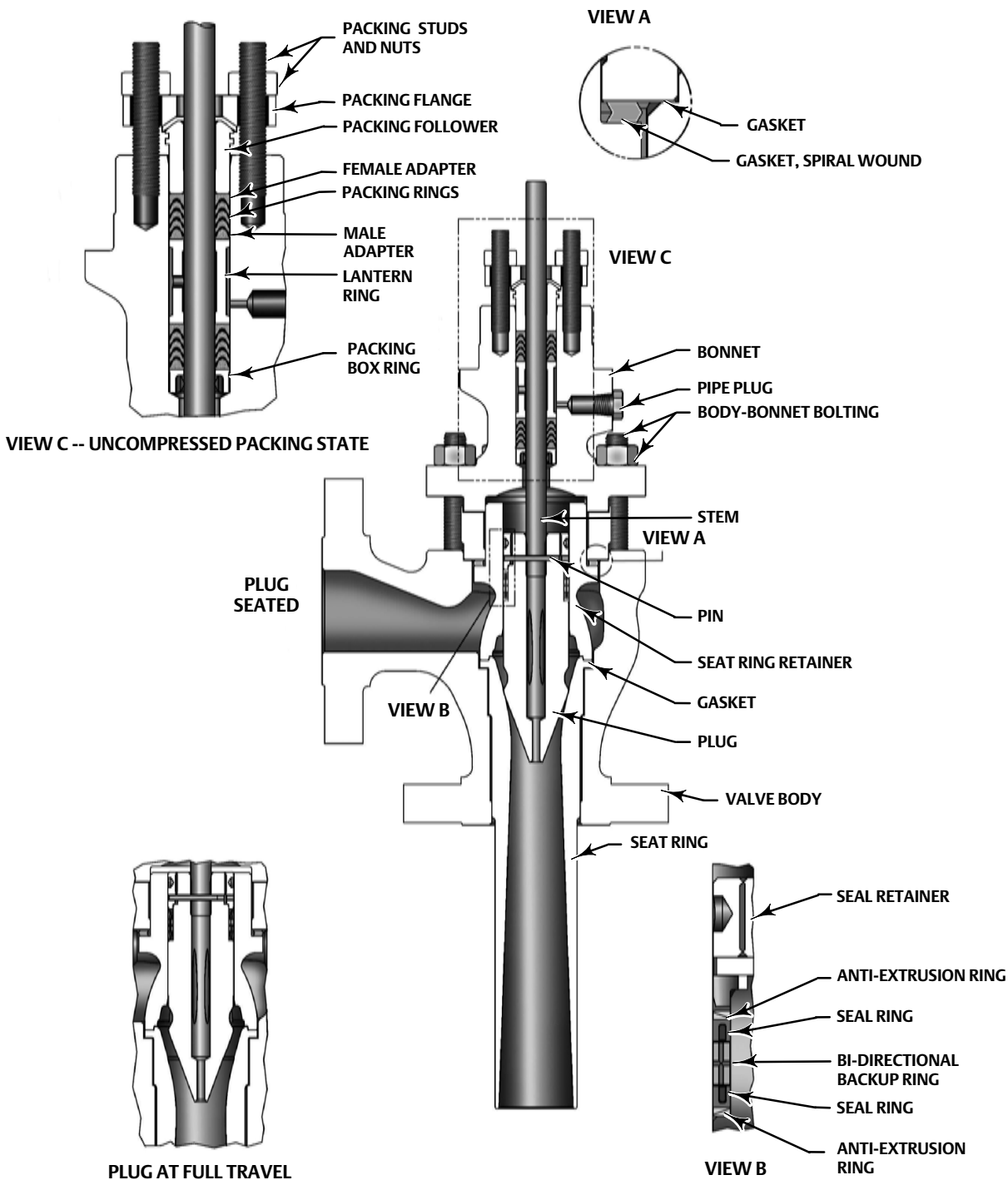
Table 1. Port Diameter and Valve Plug Travel

VALVE SIZE NPS	PORT DIAMETER		TRAVEL		YOKE BOSS SIZE		STEM DIAMETER	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch
2	38.1	1 1/2	19.1	3/4	71.4	2 13/16	12.7	1/2
3	57.1	2 1/4	28.6	1 1/8	71.4	2 13/16	12.7	1/2
	57.1	2 1/4	28.6	1 1/8	71.4	2 13/16	12.7	1/2
4	78.7	3 1/10	38.1	1 1/2	71.4	2 13/16	12.7	1/2

Table 2. Construction Materials and Temperature Limits

PART		MATERIAL	TEMPERATURE CAPABILITIES	
			°C	°F
Valve Plug		S17400 Double H1150	-29 to 316	-20 to 600
Seat Ring Retainer		S17400 Double H1150 CRPL		
Seat Ring		S17400 Double H1150		
Valve Plug Stem		S20910		
Spring-loaded valve plug seal	Backup Ring Bi-Direction	S17400 Double H1150		
	Backup Ring	S17400 Double H1150		
	Retaining Ring	N07750		
	Seal Ring	PTFE with R30003 Spring		
	Anti-extrusion rings	PEEK (PolyEtherEtherKeton)		
Cage gasket		N06600/Graphite		
Seat ring gasket		Graphite/SST		
Valve Body-to- bonnet bolting	Studs	Steel SA193-B7		
	Nuts	Steel SA194-2H		
Packing		Double PTFE		
Packing follower, spring, or lantern ring		S31600 Stainless Steel		
Packing box ring		S31600 Stainless Steel		
Packing flange, studs, or nuts	Packing Flange	S31600 Stainless Steel		
	Studs	Steel SA193-B8M		
	Nuts	S31600 Stainless Steel		

Figure 1. CCV-N NPS 2 Assembly Detail



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Figure 2. CCV-N NPS 3 Assembly Detail

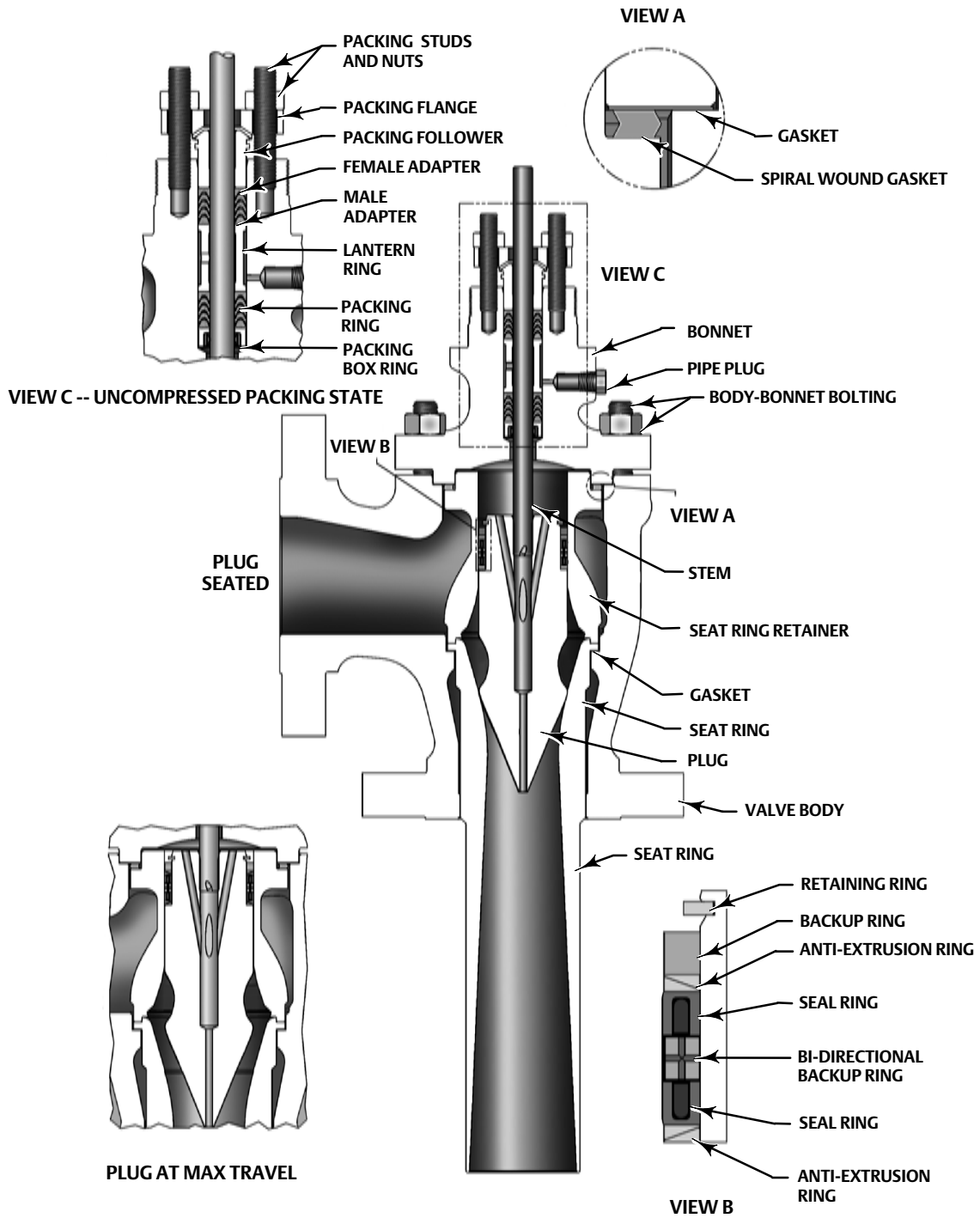
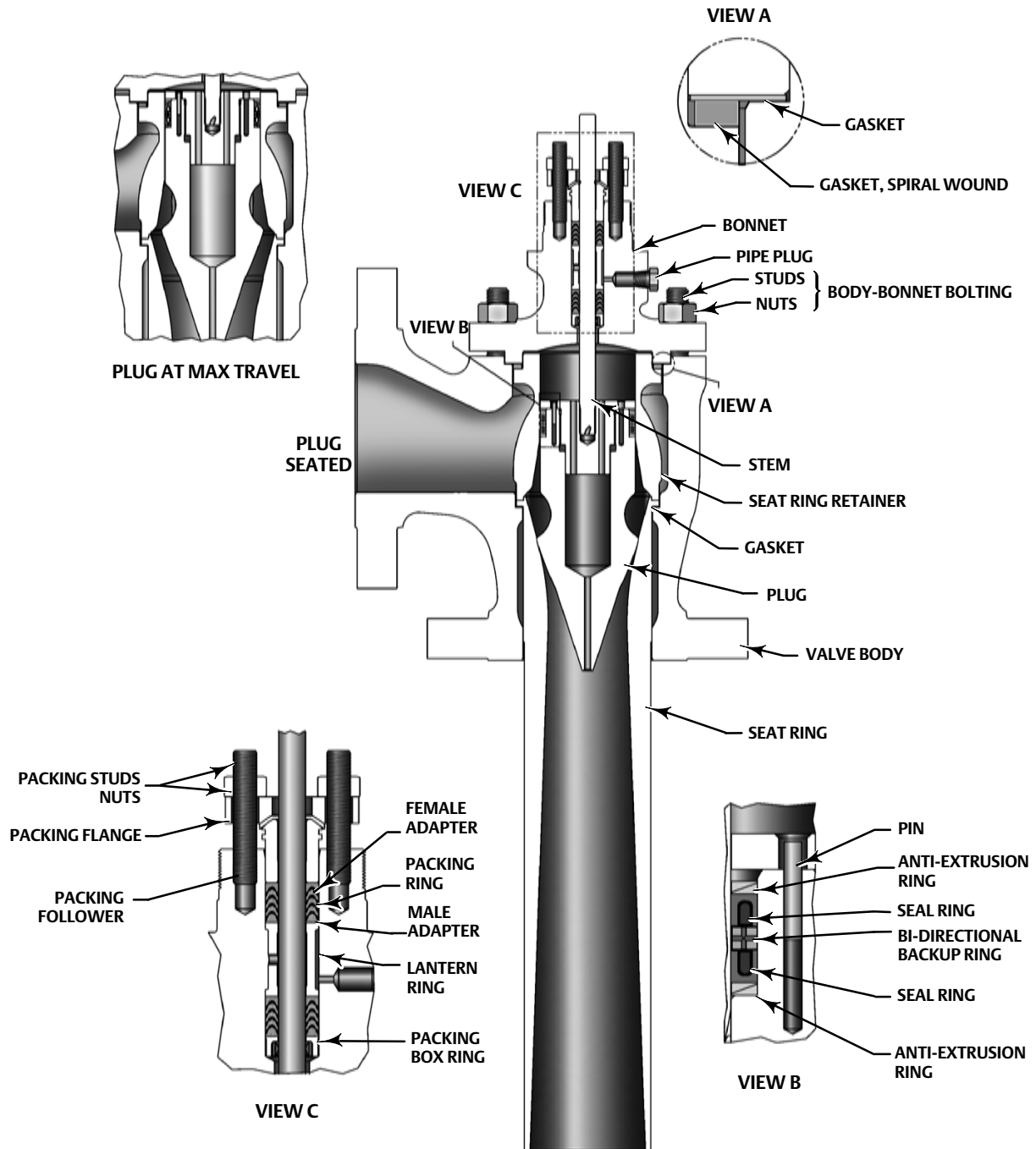


Figure 3. CCV-N NPS 4 Assembly Detail



X1351-1

Table 3. Flow Coefficient Values

VALVE SIZE NPS	PORT DIAMETER		MAXIMUM TRAVEL		C _g - VALVE OPENING - PERCENTAGE OF TOTAL TRAVEL									
	mm	Inch	mm	Inch	10	20	30	40	50	60	70	80	90	100
2	38.1	1.50	19.1	0.750	78.7	145	256	370	489	610	730	845	973	1080
3	57.1	2.25	28.6	1.125	146	345	568	793	1020	1260	1490	1730	1970	2210
	57.1	2.25	28.6	1.125	160	377	634	889	1160	1420	1700	1930	2220	2480
4	78.7	3.10	38.1	1.500	251	567	1010	1470	1930	2390	2850	3300	3690	4120

Figure 4. CCV-N Valve Dimensions

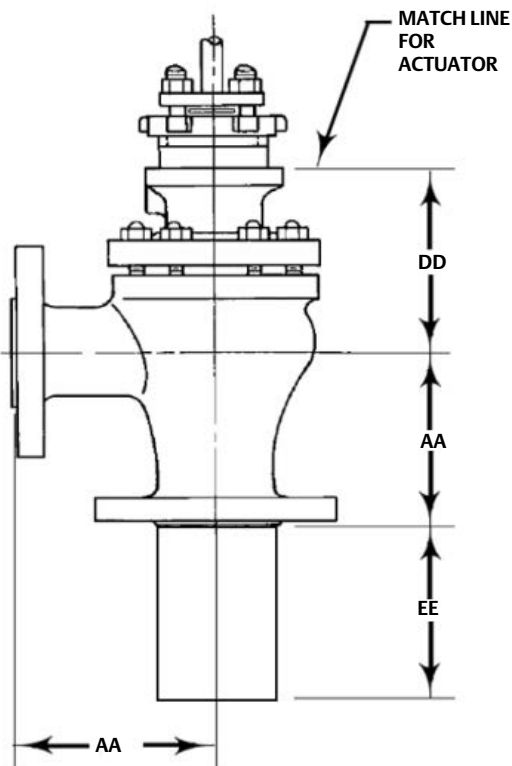


Table 4. Valve Dimensions CL300 RF, Plain Bonnet

Valve Size, NPS	AA	DD	EE
	mm		
2	133	121	178
3	159	149	81
	159	149	234
4	184	140	394
Inch			
2	5.25	4.75	7.00
3	6.25	5.88	3.20
	6.25	5.88	9.20
4	7.25	5.50	15.50

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