



### Features

- Uni-directional control valve
- Zero leakage shutoff, soft seated
- Upstream Cv plate control element
- Field replaceable Cv control element
- Customizable flow configurations
- Seat or Cv insert to ball lapping is not required
- Same additional features as 3000 Series valve

Note: Refer to 3000 Series for dimensional data.

### CV3000F-xxx Series Full Port Valve

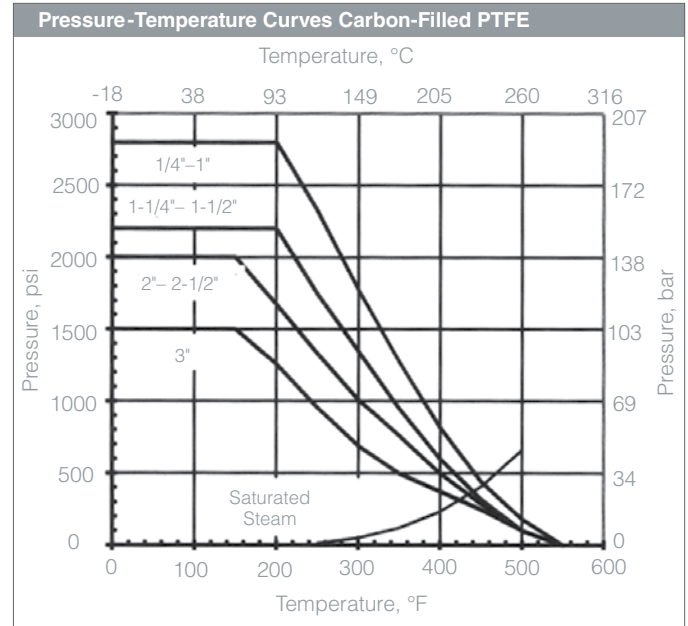
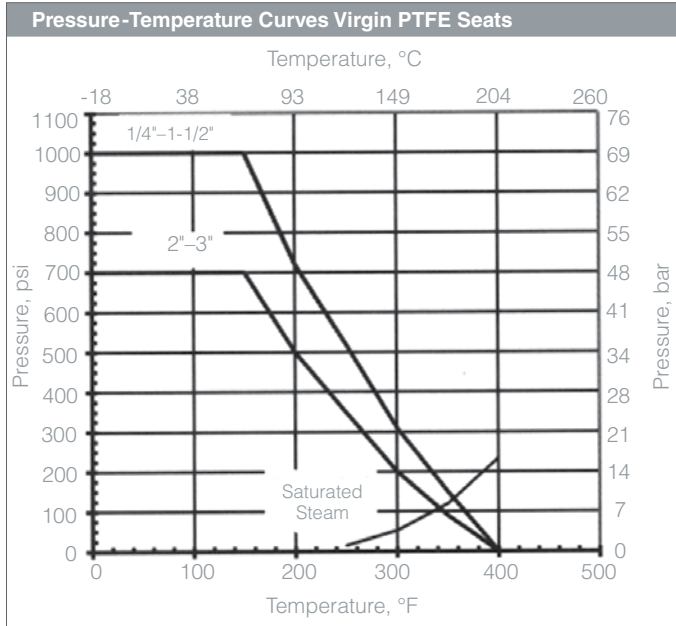
### CV3000R-xxx Series Reduced Port Valve

Quick Spec	
<b>Product Scope</b>	
Size Range	1/2" – 4" Reduced Port 1/4" – 3" Full Port
Body Type	3-pc, non Swing-out design, Optional Ends
Standard Cv Plate Sizes	15°, 30°, 60°, 90° + 1/16" & 1/8" Linear Slot
Pressure Rating	up to 4000 psi WOG (275 bar) and ASME Class 1500
Temperature Range / WSP	-20°F up to 550°F / up to 450 psi steam -29°C up to 288°C / up to 31 bar steam
Body, Ball, Stem Material	Standard and Special Alloys, Most Barstocks
Ball Seats	PTFE, UHMWPE, CRPTFE or others
Stem Seal & Thrust Washer	Viton / CRPTFE or others
Stem Packing	Adjustable, live loaded PTFE or Graphite
Body Seals	PTFE, RPTFE, Graphite or others
Operator / Mounting Pad	Manual Lever with Optional Lock / non-ISO Mtg
<b>Design Standards</b>	
Face to Face	ASME B16.34 / ANSI B16.10
Flange / Thread / Weld Ends	ASME B16.5 / ASME B1.20.1 / ASME B16.11
<b>Testing Standards</b>	
Pressure Testing	API 598
<b>Approvals</b>	
ISO 9001:2008 Certified Manufacturer	
NQA-1 Compliant Quality System	
Canadian Registration Number	

Materials of Construction		
Part	Carbon Steel	Stainless Steel
Body	WCB	CF8M
End Cap	WCB	CF8M
Seat	CRPTFE	CRPTFE
Ball	316 SS	316 SS
Stem	S31600	S31600
Seal, Body	CRPTFE	CRPTFE
Secondary Seal, Body	Non-Asbestos	Non-Asbestos
Lock Washer	SS	SS
Anti-Static Spring	316 SS	316SS
Bolt, Body	A193 B8 CI 1	A193 B7
Thrust Washer	CRPTFE	CRPTFE
Packing	PTFE	PTFE
Gland Bushing	316 SS	316 SS
Belleville Washer	17-7PH SS	17-7PH SS
Nut, Stem	316 SS	316 SS
O-Ring, Stem	Viton	Viton
Characterized Insert	S31600	S31600
Index Pin	S31600	S31600

**Pressure / Temperature Limits (Maximum flowing pressure drop limits: 300 psi steam; 500 psi liquid)**

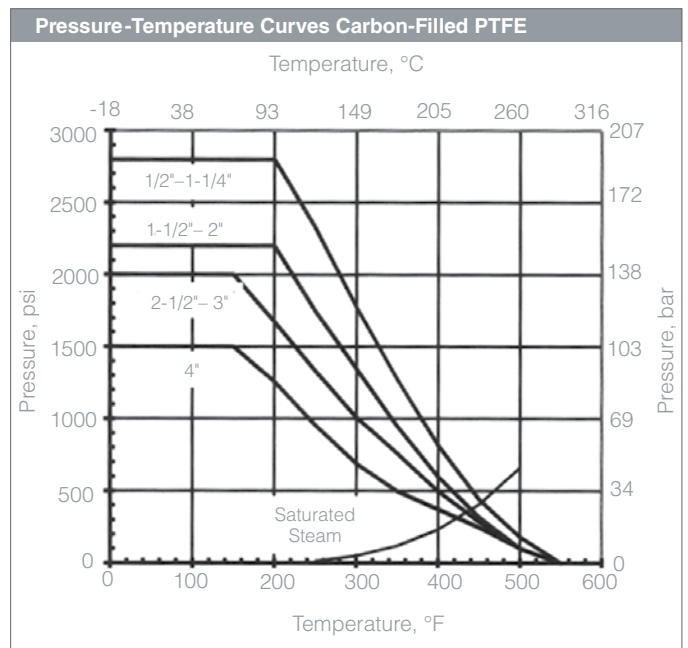
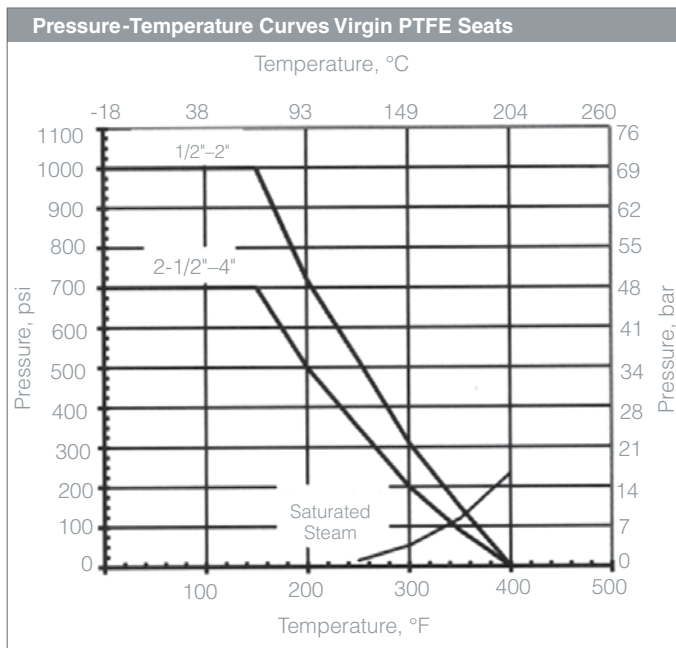
**CV3000F Series**



PTFE: PolyTetraFluoroEthylene – Virgin Teflon is a dense Fluorocarbon based polymer that has excellent chemical resistance, good thermal stability, and low coefficient of friction. (White, -50°F to +450°F)

CRPTFE: 25% Carbon Filled Teflon – Carbon reinforced PTFE has improved mechanical strength, stability and wear resistance compared to glass reinforced PTFE. (Black, -50°F to +475°F)

**CV3000R Series**



PTFE: PolyTetraFluoroEthylene – Virgin Teflon is a dense Fluorocarbon based polymer that has excellent chemical resistance, good thermal stability, and low coefficient of friction. (White, -50°F to +450°F)

CRPTFE: 25% Carbon Filled Teflon – Carbon reinforced PTFE has improved mechanical strength, stability and wear resistance compared to glass reinforced PTFE. (Black, -50°F to +475°F)

Cv vs. Travel (Full Port Valve)												
Size	Type	Characterized Insert	0-10% (0-9°)	20% (18°)	30% (27°)	40% (36°)	50% (45°)	60% (54°)	70% (63°)	80% (72°)	90% (81°)	100% (90°)
1/4"F	1/32	SA	0.00	0.033	0.074	0.12	0.16	0.20	0.24	0.28	0.32	0.40
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	0.99	1.10
	30°V	A1	0.00	0.10	0.20	0.34	0.55	0.83	1.11	1.59	2.08	2.50
	60°V	A2	0.00	0.12	0.33	0.49	0.84	1.35	1.95	3.10	4.37	5.92
	Round Port	R1	0.00	0.29	0.46	0.70	1.09	1.76	2.60	2.24	6.40	8.00
3/8"F	1/32	SA	0.00	0.033	0.074	0.12	0.16	0.20	0.24	0.28	0.32	0.40
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	0.99	1.10
	30°V	A1	0.00	0.10	0.20	0.34	0.55	0.83	1.11	1.59	2.08	2.50
	60°V	A2	0.00	0.12	0.33	0.49	0.84	1.35	1.95	3.10	4.37	5.92
	Round Port	R1	0.00	0.29	0.46	0.70	1.09	1.76	2.60	2.24	6.40	8.00
1/2"F	1/16" Slot	S1	0.00	0.06	0.24	0.40	0.56	0.73	0.90	1.00	1.20	1.30
	1/8" Slot	S3	0.00	0.14	0.39	0.65	0.90	1.20	1.40	1.70	1.90	2.90
	30°V	A1	0.00	0.11	0.24	0.41	0.67	1.00	1.40	1.90	2.60	3.00
	60°V	A2	0.00	0.13	0.36	0.55	1.00	1.50	2.30	3.60	5.00	6.70
	Round Port	R1	0.00	0.43	0.70	1.10	1.60	2.60	4.00	6.40	9.60	12.00
3/4"F	1/16" Slot	S1	0.00	0.10	0.40	0.67	0.94	1.20	1.50	1.70	1.90	2.10
	3/16" Slot	S4	0.00	0.22	0.82	1.40	1.90	2.50	3.10	3.50	4.00	4.30
	30°V	A1	0.00	0.21	0.56	1.00	1.60	2.40	3.40	4.60	6.20	7.30
	60°V	A2	0.00	0.30	0.78	1.20	2.30	3.60	5.30	8.30	11.60	15.50
	90° V	A4	0.00	0.48	1.20	2.30	3.50	5.40	7.70	10.80	12.10	19.70
Round Port	R1	0.00	1.20	1.90	2.80	4.30	7.00	10.50	17.00	26.00	32.00	
1"F	3/16" Slot	S4	0.00	0.38	1.40	2.40	3.40	4.40	5.40	6.20	6.90	7.50
	30°V	A1	0.00	0.39	1.00	1.80	2.90	4.40	6.40	8.60	11.40	13.50
	60°V	A2	0.00	0.48	1.30	2.00	3.70	5.80	8.50	13.40	18.70	25.00
	90° V	A3	0.00	0.78	2.00	3.70	5.70	8.80	12.50	17.50	19.70	32.00
	Round Port	R1	0.00	1.80	3.00	4.40	6.70	10.90	16.40	26.60	40.60	50.00
1-1/4"F	3/16" Slot	S4	0.00	0.47	1.80	3.00	4.20	5.40	6.80	7.70	8.60	9.40
	30°V	A1	0.00	0.41	1.20	2.10	3.50	5.20	7.60	10.30	13.70	16.30
	60°V	A2	0.00	0.57	1.70	3.00	5.60	9.10	13.20	19.80	28.40	37.50
	90° V	A3	0.00	1.00	2.80	4.50	8.10	13.40	19.70	30.90	47.10	71.70
	Round Port	R1	0.00	3.00	4.8	7.20	11.00	18.00	27.00	44.00	65.50	82.00
1-1/2"F	1/4" Slot	S5	0.00	0.75	2.90	4.80	6.80	8.70	10.80	12.30	13.80	15.00
	30°V	A1	0.00	0.55	1.70	3.40	5.70	8.30	12.10	16.60	22.20	26.50
	60°V	A2	0.00	0.70	2.60	4.90	9.30	15.50	22.20	32.10	47.20	61.60
	90° V	A3	0.00	0.88	3.30	6.10	11.70	19.40	27.50	40.10	59.00	77.00
	Round Port	R1	0.00	4.30	7.00	10.50	16.20	26.40	39.60	64.00	96.00	120.00
2"F	3/8" Slot	S6	0.00	1.00	3.80	6.40	9.00	11.60	14.40	16.40	18.40	20.00
	30°V	A1	0.00	1.00	3.20	6.40	10.60	15.40	22.60	31.00	41.50	49.50
	60°V	A2	0.00	1.00	3.80	7.10	13.50	22.50	32.20	46.60	68.50	89.40
	90° V	A3	0.00	1.90	7.10	13.10	25.00	41.60	58.90	85.90	126.40	165.00
	Round Port	R1	0.00	9.40	15.10	22.80	35.10	57.20	85.80	138.70	208.00	260.00
2-1/2"F	7/16" Slot	S7	0.00	1.20	4.60	7.80	11.00	14.20	17.60	20.00	22.40	24.40
	30°V	A1	0.00	0.75	2.70	6.00	10.20	16.90	24.50	33.90	44.80	54.20
	60°V	A2	0.00	1.00	4.30	10.10	18.60	29.40	46.30	67.20	94.40	124.60
	90° V	A3	0.00	1.20	8.00	14.00	26.00	44.00	67.00	102.00	151.00	230.00
	Round Port	R1	0.00	12.60	20.20	31.10	47.40	77.80	115.00	187.00	280.00	350.00
3"F	1/2" Slot	S8	0.00	2.50	9.30	15.70	22.10	28.40	35.3	40.20	45.10	49.00
	30°V	A1	0.00	0.90	3.60	8.50	16.10	26.80	40.20	56.60	72.50	90.00
	60°V	A2	0.00	1.20	5.70	15.40	28.80	48.60	73.40	107.00	150.70	200.00
	90° V	A3	0.00	2.00	9.00	23.00	42.00	72.00	110.00	167.00	250.00	380.00
	Round Port	R1	0.00	26.00	42.10	63.10	97.20	159.00	238.00	385.00	575.00	720.00

Cv is defined as flow of liquid in gallons per minute through a valve with a pressure drop of 1 psi across the valve at 60°F. Recommended usage is between 25% and 85% travel. Maximum flowing pressure drop limits: 300 psi steam; 500 psi liquid.

Cv vs .Travel (Reduced Port Valve)												
Size	Type	Characterized Insert	0-10% (0-9°)	20% (18°)	30% (27°)	40% (36°)	50% (45°)	60% (54°)	70% (63°)	80% (72°)	90% (81°)	100% (90°)
1/2"R	1/64" Slot	SB	0.00	0.01	0.03	0.40	0.06	0.08	0.09	0.11	0.12	0.14
	1/32" Slot	SA	0.00	0.03	0.07	0.12	0.16	0.20	0.24	0.28	0.32	0.36
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	1.00	1.10
	30°V	A1	0.00	0.11	0.24	0.36	0.56	0.84	1.10	1.60	2.10	2.60
	60°V	A2	0.00	0.12	0.33	0.60	0.84	1.40	2.00	3.10	4.40	5.90
	Round Port	R1	0.00	0.29	0.46	0.70	1.10	1.80	2.60	4.30	6.40	8.00
3/4"R	1/16" Slot	S1	0.00	0.06	0.24	0.40	0.56	0.73	0.90	1.00	1.20	1.30
	1/8" Slot	S3	0.00	0.14	0.39	0.65	0.90	1.20	1.40	1.70	1.90	2.90
	30°V	A1	0.00	0.11	0.24	0.41	0.67	1.00	1.40	1.90	2.60	3.00
	60°V	A2	0.00	0.13	0.36	0.55	1.00	1.50	2.30	3.60	5.00	6.70
		Round Port	R1	0.00	0.43	0.70	1.10	1.60	2.60	4.00	6.40	9.60
1"R	1/16" Slot	S1	0.00	0.10	0.40	0.67	0.94	1.20	1.50	1.70	1.90	2.10
	3/16" Slot	S4	0.00	0.22	0.82	1.40	1.90	2.50	3.10	3.50	4.00	4.30
	30°V	A1	0.00	0.21	0.56	1.00	1.60	2.40	3.40	4.60	6.20	7.30
	60°V	A2	0.00	0.30	0.78	1.20	2.30	3.60	5.30	8.30	11.60	15.50
	90° V	A3	0.00	0.48	1.20	2.30	3.50	5.40	7.70	10.80	12.10	19.70
		Round Port	R1	0.00	1.20	1.90	2.80	4.30	7.00	10.50	17.00	26.00
1-1/4"R	3/16" Slot	S4	0.00	0.38	1.40	2.40	3.40	4.40	5.40	6.20	6.90	7.50
	30°V	A1	0.00	0.39	1.00	1.80	2.90	4.40	6.40	8.60	11.40	13.50
	60°V	A2	0.00	0.48	1.30	2.00	3.70	5.80	8.50	13.40	18.70	25.00
	90° V	A3	0.00	0.78	2.00	3.70	5.70	8.80	12.50	17.50	19.70	32.00
		Round Port	R1	0.00	1.80	3.00	4.40	6.70	10.90	16.40	26.60	40.60
1-1/2"R	3/16" Slot	S4	0.00	0.47	1.80	3.00	4.20	5.40	6.80	7.70	8.60	9.40
	30°V	A1	0.00	0.41	1.20	2.10	3.50	5.20	7.60	10.30	13.70	16.30
	60°V	A2	0.00	0.57	1.70	3.00	5.60	9.10	13.20	19.80	28.40	37.50
	90° V	A3	0.00	1.00	2.80	4.50	8.10	13.40	19.70	30.90	47.10	71.70
		Round Port	R1	0.00	3.00	4.80	7.20	11.00	18.00	27.00	44.00	65.50
2"R	1/4" Slot	S5	0.00	0.75	2.90	4.80	6.80	8.70	10.80	12.30	13.80	15.00
	30°V	A1	0.00	0.55	1.70	3.40	5.70	8.30	12.10	16.60	22.20	26.50
	60°V	A2	0.00	0.70	2.60	4.90	9.30	15.50	22.20	32.10	47.20	61.60
	90° V	A3	0.00	0.88	3.30	6.10	11.70	19.40	27.50	40.10	59.00	77.00
		Round Port	R1	0.00	4.30	7.00	10.50	16.20	26.40	39.60	64.00	96.00
2-1/2"R	3/8" Slot	S6	0.00	1.00	3.80	6.40	9.00	11.60	14.40	16.40	18.40	20.00
	30°V	A1	0.00	1.00	3.20	6.40	10.60	15.40	22.60	31.00	41.50	49.50
	60°V	A2	0.00	1.00	3.80	7.10	13.50	22.50	32.20	46.60	68.50	89.40
	90° V	A3	0.00	1.90	7.10	13.10	25.00	41.60	58.90	85.90	126.40	165.00
		Round Port	R1	0.00	9.40	15.10	22.80	35.10	57.20	85.80	138.70	208.00
3"R	7/16" Slot	S7	0.00	1.20	4.60	7.80	11.00	14.20	17.60	20.00	22.40	24.40
	30°V	A1	0.00	0.75	2.70	6.00	10.20	16.90	24.50	33.90	44.80	54.20
	60°V	A2	0.00	1.00	4.30	10.10	18.60	29.40	46.30	67.20	94.40	124.60
	90° V	A3	0.00	1.20	8.00	14.00	26.00	44.00	67.00	102.00	151.00	230.00
		Round Port	R1	0.00	12.60	20.20	31.10	47.40	77.80	115.00	187.00	280.00
4"R	1/2" Slot	S8	0.00	2.50	9.30	15.70	22.10	28.40	35.30	40.20	45.10	49.00
	30°V	A1	0.00	0.90	3.60	8.50	16.10	26.80	40.20	56.60	72.50	90.00
	60°V	A2	0.00	1.20	5.70	15.40	28.80	48.60	73.40	107.00	150.70	200.00
	90°V	A3	0.00	2.00	9.00	23.00	42.00	72.00	110.00	167.00	250.00	380.00
		Round Port	R1	0.00	26.00	42.10	63.10	97.20	159.00	238.00	385.00	575.00

Cv is defined as flow of liquid in gallons per minute through a valve with a pressure drop of 1 psi across the valve at 60°F. Recommended usage is between 25% and 85% travel. Maximum flowing pressure drop limits: 300 psi steam; 500 psi liquid.

Prefix	Model	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Prefix	
CV	Control Valve

Model Number	
3000F	Full Port
3000R	Reduced Port

Size	
050	1/2"
075	3/4"
100	1"
125	1-1/4"
150	1-1/2"
200	2"
300	3"
400	4" (Reduced Port Only)

Body Material	
CS	Carbon Steel WCB
S6	Stainless Steel CF8M
ZZ	Other Special Alloy

1 & 2	End Connections
PT	FNPT
SW	FSW
SE	FSW Extended
F1	150# FE
F3	300# FE
F6	600# FE
E4	XBWE Extended Sch 40
E8	XBWE Extended Sch 80
F9	900# FE
F5	1500# FE
ZZ	Non-Standard

3 & 4	Character Insert / Trim Material
A1	30° / 316SS
A2	60° / 316SS
A3	90° / 316SS
S3	1/8" slot / 316SS
S1	1/16" slot / 316SS
R1	Round slot / 3165SS

5 & 6	Seat / Body Seals / Thrust Washer
TF	PTFE/PTFE/Viton
RT	RPTFE/RPTFE/RPTFE
PA	PFA/PFA/PFA
SF	C-RPTFE/RPTFE/C-RPTFE
DL	Delrin/Viton/RPTFE
CP	C-PEEK/Graphite/PEEK
KF	Kel-F/PTFE/PTFE
UM	UHMWPE/Viton/UHMWPE
ZZ	Non-Standard

7 & 8	Packing / Stem O-Ring
TV	PTFE/Viton
TE	PTFE/EPDM
GV	Frafoil/Viton
GE	Grafoil/EPDM
UV	UHMWPE/Viton
UE	UHMWPE/EPDM
TK	PTFE/Kalrez
ZZ	Non-Standard

9 & 10	Handle & Gear Operator
NN	None
HL	Handle Lever
HD	Handle Lever with Locking Device
ZZ	Non-Standard

11 & 12	Operation		
00	None		
P1	UT-0A-DA STD	S1	UT-0-SR STD
P2	UT-0-DA STD	S2	UT-1-SR STD
P3	UT-1-DA STD	S3	UT-2-SR STD
P4	UT-2-DA STD	S4	UT-2.5-SR STD
P5	UT-2.5-DA STD	S5	UT-3-SR-STD
P6	UT-3-DA STD	S6	UT-3.5-SR STD
P7	UT-3.5-DA STD	S7	UT-4-SR STD
P8	UT-4-DA STD	SF	UT-4.5-SR STD
PF	UT-4.5-DA STD	S8	UT-5-SR STD
P9	UT-5-DA STD	S9	UT-6-SR STD
PA	UT-6-DA STD	SA	UT-7-SR STD
PB	UT-7-DA STD	SJ	UT-7.5-SR STD

11 & 12	Operation
M1	ER-1-2.5-4 110 VAC
M2	ER-2-5-4 110 VAC
M3	ER-3-5-4 110 VAC
M8	ER-4-10-4 110 VAC
M4	ER-6-15-4 110 VAC
M5	ER-10-15-4 110 VAC
M9	ER-15-30-4 110 VAC
MA	ER-20-12-4 110 VAC
M7	ER-38-14-4 110 VAC
MC	ER-50-68-4 110 VAC
MD	ER-70-68-4 110 VAC
ZZ	Non-Standard

13 & 14	Positioner
00	None
P1	Siemens 760P (3-15 psi), for UT-0/3
P2	Siemens 760P (3-15 psi), for UT-3.5/7
P3	Siemens 760E (4-20mA), for UT-0/3
P4	Siemens 760E (4-20mA) for UT-3.5/7
A1	Siemens 2-IQ (4-20mA) for UT-0/3DA
A2	Siemens 2-IQ (4-20mA) for UT-3.5/7DA
A5	Siemens 2-IQ (4-20mA) for UT-0/3SR
A6	Siemens 2-IQ (4-20mA) for UT-3.5/7SR
ZZ	Non-Standard

15,16,17	Fail Position
000	None / No Spring Actuator
001	Fail Open - 80 psi supply
002	Fail Closed - 80 psi supply
003	Fail Open - 60 psi supply
004	Fail Closed - 60psi supply