

8000 Series Cryogenic Option

Fractional Flow Control Valves

CRN Registration Number Available

FRACTIONAL FLOW CONTROL VALVES

The cryogenic option offers an 8" bonnet extension that provides protection for the packing and actuator by preventing the formation and build-up of ice, which can interfere with movement of the valve stem and affect valve performance and control. This model is for use on cryogenic services with temperatures as low as -320°F (-195°C).

The Mark 8000 Series is a heavy-duty pneumatic control valve developed for cryogenic services. It is recommended for use with process below -40°F (-40°C).

Features:

- Extended bonnet protects the packing and actuator by preventing ice build-up, which can interfere with stem movement and/or damage packing
- For services as low as -320°F (-195°C).
- Barstock construction eliminate possible porosity concerns
- For industrial process applications requiring precision low flow control and durable construction

SPECIFICATIONS

Sizes: 1/2" – 2" (DN15 – DN50)

End Connections

- Threaded – NPT, BSPT
- Raised-face flanges (300#, 600#, 900#)
- Ring-type joint flanges (150#, 300#, 600#)
- Socket weld (schedule 40, 80, or 160)
- Special connections upon request

Actuator (*Positioner required with all actuators*)

- Standard – 35M (35 in²) multi-spring
- Optional – 55M (55 in²) or 85M (85 in²). See Maximum Allowable ΔP Ratings Chart



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MK8000 SERIES CRYOGENIC OPTION SPECIFICATIONS

Body Material: 316 Stainless Steel

Trim Material

- 316 SST
- Monel

Bonnet Material: 316 SST

Actuator Material: Steel

Diaphragm Material: Buna-N

Stem Packing Material

- Standard – Teflon V-Rings
- Optional – braided

Service: gas or liquid

Shutoff

- Standard – ANSI Class III (Cv's < 3.5/3,01 Kv); ANSI Class IV (Cv's 3.5/3,01 Kv and higher)
- Optional – ANSI Class VI with soft RPTFE seat (consult factory for other soft seat material options)

Ranges: 3-15 (0,2-1,0); 3-9 (0,2-0,6); 9-15 (0,6-1,0); 6-30 (0,4-2,1) psi (bar). Note: valves using 55M or 85M are not available with 9-15 psi (0,6-1,0 bar) range

Valve Action

- Direct (ATC)
- Reverse (ATO)

Flow Characteristics:

- Linear
- Equal Percentage
- Quick Opening

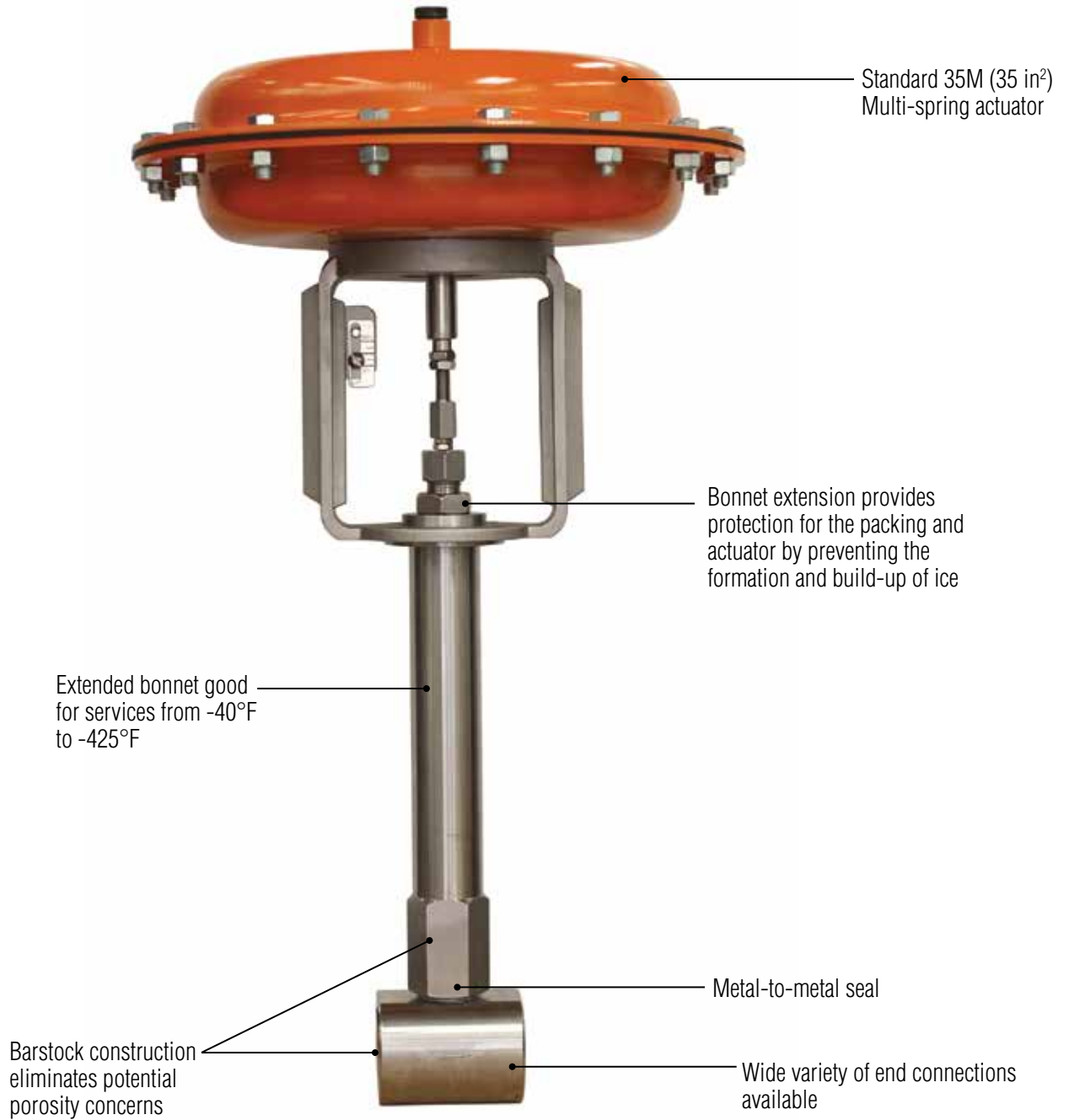
Cv (Kv) Selection

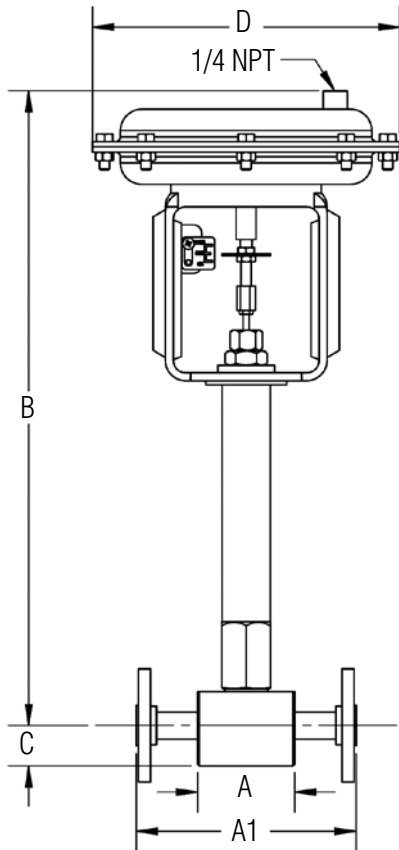
Valve Size	Standard Cv (Kv)
1/2"/DN15	0.05; 0.1; 0.2; 0.5; 1.0; 1.8 (0,04; 0,09; 0,17; 0,43; 0,86; 1,6)
3/4"/DN20	1.0; 2.0; 3.0 (0,86; 1,7; 2,6)
1"/DN25	2.0; 4.0; 4.3 (1,7; 3,4; 3,7)
1-1/4"/DN32	4.0; 6.5; 7.1 (3,4; 5,6; 6,1)
1-1/2"/DN40	6.5; 9.0; 17.0 (5,6; 7,7; 10,8)
2"/DN50	9.0; 16.0; 17.0 (7,7; 13,8; 14,6)

Maximum Allowable ΔP Ratings

Act. Size	Cv (Kv)	Air to Open		Air to Close		Pos. @ 40 psi
		3-15 @ 20 psi	6-30 @ 40 psi*	3-15 @ 20 psi	6-30 @ 40 psi	
35M	0.05-0.2 (0,4-0,2)	5000 (345)	5000 (345)	5000 (345)	5000 (345)	N/A
	0.5-1.0 (0,4-0,9)	3030 (209)	5000 (345)	5000 (345)	5000 (345)	N/A
	1.25-2.0 (1,1-1,7)	950 (66)	1900 (131)	1580 (109)	3160 (218)	N/A
	3.0-4.0 (2,6-3,4)	600 (41)	1300 (90)	1000 (69)	2200 (152)	N/A
	4.3-6.5 (3,7-5,6)	400 (28)	800 (55)	650 (45)	1400 (97)	3500 (241)
	7.1-9.0 (6,1-7,7)	270 (19)	550 (38)	450 (31)	950 (66)	2400 (165)
	12.5-16.0 (10,8-13,8)	150 (10)	300 (21)	250 (17)	500 (34)	1300 (90)
	55M	4.3-6.5 (3,7-5,6)	550 (38)	1100 (76)	900 (62)	1900 (131)
7.1-9.0 (6,1-7,7)		370 (26)	750 (52)	600 (41)	1250 (86)	N/A
12.5-16.0 (10,8-13,8)		200 (14)	400 (28)	350 (24)	700 (48)	N/A
17.0 (14,6)		130 (9)	250 (17)	225 (16)	448 (31)	N/A
85M	4.3-6.5 (3,7-5,6)	850 (59)	1700 (117)	1400 (97)	2930 (202)	N/A
	7.1-9.0 (6,1-7,7)	570 (39)	1150 (79)	920 (63)	1930 (133)	N/A
	12.5-16.0 (10,8-13,8)	300 (21)	610 (42)	540 (37)	1080 (74)	N/A
	17.0 (14,6)	200 (14)	380 (26)	350 (24)	690 (48)	N/A

MK8000 SERIES CRYOGENIC OPTION FEATURES & BENEFITS



MK8000 SERIES CRYOGENIC OPTION, THREADED & FSW DIMENSIONS


Dimensions shown with 8" bonnet. Contact factory for optional 14" dimensions.

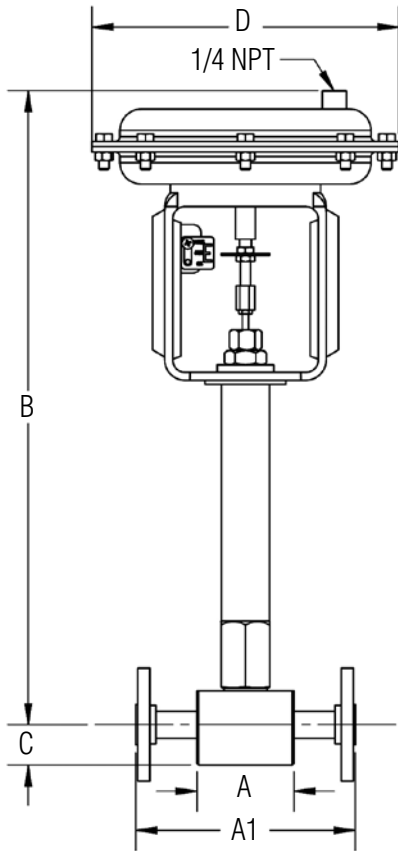
Mark 8000CRY Series, Threaded & Socket Weld

VALVE SIZE	DIMENSIONS, INCHES								WEIGHT, LBS		
	A	B			C	D			ACTUATOR SIZE		
		ACTUATOR SIZE				ACTUATOR SIZE			35M	55M	85M
		35M	55M	85M		35M	55M	85M	35M	55M	85M
1/2"	3.00	19.65	19.88	-	1.25	9.50	12.50	-	23	30	37
3/4"	3.00	19.65	19.88	-	1.25	9.50	12.50	-	23	30	37
1"	3.75	19.28	19.51	20.95	1.50	9.50	12.50	15.00	26	33	40
1-1/4"	5.00	19.61	19.84	21.28	1.65	9.50	12.50	15.00	29	36	43
1-1/2"	4.75	-	21.94	23.38	2.00	-	12.50	15.00	-	30	41
2"	5.75	-	21.77	23.21	2.25	-	12.50	15.00	-	39	50

Mark 8000CRY Series, Threaded & Socket Weld, Metric

VALVE SIZE	DIMENSIONS, MILLIMETERS								WEIGHT, KGS		
	A	B			C	D			ACTUATOR SIZE		
		ACTUATOR SIZE				ACTUATOR SIZE			35M	55M	85M
		35M	55M	85M		35M	55M	85M	35M	55M	85M
1/2"	76,2	499	505	-	31,8	241	318	-	10	14	17
3/4"	76,2	499	505	-	31,8	241	318	-	10	14	17
1"	95,3	190	496	532	38,1	241	318	381	12	15	18
1-1/4"	127	498	504	541	41,9	241	318	381	13	16	20
1-1/2"	121	-	557	594	50,8	-	318	381	-	14	19
2"	146	-	553	590	57,2	-	318	381	-	18	23

MK8000 SERIES CRYOGENIC OPTION, FLANGED DIMENSIONS



- Mark 8000CRY Series, Flanged End

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES									WEIGHT, LBS		
		A1	B			C	D			ACTUATOR SIZE			
			35	55	85		35	55	85	35	55	85	
1/2"	150#	7.00	19.65	19.88	-	1.25	9.5	12.50	-	26	33	-	
	300#	7.50	19.65	19.88	-	1.25	9.5	12.50	-	27	34	41	
	600#	8.00	19.65	19.88	-	1.25	9.5	12.50	-	29	36	43	
3/4"	150#	7.00	19.65	19.88	-	1.25	9.5	12.50	-	26	33	40	
	300#	7.63	19.65	19.88	-	1.25	9.5	12.50	-	29	36	43	
	600#	8.12	19.65	19.88	-	1.25	9.5	12.50	-	30	37	44	
1"	150#	7.25	19.28	19.51	20.95	1.50	9.5	12.50	15.00	30	37	44	
	300#	7.75	19.28	19.51	20.95	1.50	9.5	12.50	15.00	33	40	47	
	600#	8.25	19.28	19.51	20.95	1.50	9.5	12.50	15.00	34	41	48	
1-1/4"	150#	8.75	19.61	19.84	21.28	1.625	9.5	12.50	15.00	34	41	48	
	600#	9.50	19.61	19.84	21.28	1.625	9.5	12.50	15.00	39	46	53	
1-1/2"	150#	8.75	-	21.94	23.38	2.00	-	12.50	15.00	-	48	55	
	300#	9.25	-	21.94	22.38	2.00	-	12.50	15.00	-	53	60	
	600#	9.88	-	21.94	22.38	2.00	-	12.50	15.00	-	57	64	
2"	300#	10.50	-	21.77	23.21	2.25	-	12.50	15.00	-	53	60	
	600#	11.25	-	21.77	23.21	2.25	-	12.50	15.00	-	58	65	

- Mark 8000CRY Series, Flanged End, Metric

VALVE SIZE	ANSI FLANGE	DIMENSIONS, MILLIMETERS									WEIGHT, KGS		
		A1	B			C	D			ACTUATOR SIZE			
			35	55	85		35	55	85	35	55	85	
1/2"	150#	178	499	505	-	31,8	241	317,5	-	12	15	-	
	300#	190,5	499	505	-	31,8	241	317,5	-	12	15	19	
	600#	203,2	499	505	-	31,8	241	317,5	-	13	16	20	
3/4"	150#	178	499	505	-	31,8	241	317,5	-	12	15	18	
	300#	193,8	499	505	-	31,85	241	317,5	-	13	16	20	
	600#	206,22	499	505	-	31,8	241	317,5	-	14	17	20	
1"	150#	184,2	490	496	532	38,1	241	317,5	381	14	17	20	
	300#	196,9	490	496	532	38,1	241	317,5	381	15	18	21	
	600#	209,3	490	496	532	38,1	241	317,5	381	15	19	22	
1-1/4"	150#	222,3	498	504	541	41,3	241	317,5	381	15	19	22	
	600#	241,3	498	504	541	41,3	241	317,5	381	18	21	24	
1-1/2"	150#	222,3	-	557	594	50,8	-	317,5	381	-	22	25	
	300#	235	-	557	594	50,8	-	317,5	381	-	24	27	
	600#	251	-	557	594	50,8	-	317,5	381	-	26	29	
2"	300#	266,7	-	553	590	57,2	-	317,5	381	-	24	27	
	600#	285,8	-	553	590	57,2	-	317,5	381	-	26	29	

MARK 8000 SERIES ORDERING SCHEMATIC

Model No.	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

MODEL	
8000G	Two-Way Globe Valve
8000GTP	with Top Mounted Positioner
8000GSP	with Side Mounted Positioner
8000GMV	with Motor Actuator
8000A	Two-Way Angle Valve
8000ATP	with Top Mounted Positioner
8000ASP	with Side Mounted Positioner
8000T	Three-Way Globe Valve
8000TTP	with Top Mounted Positioner
8000TSP	with Side Mounted Positioner

SIZE	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
125	1-1/4" (DN32)
150	1-1/2" (DN40)
200	2" (DN50)

BODY MATERIAL	
CB	Carbon Steel
SB	316SS
BR	Brass
MN	Monel
HC	Hastelloy C
A2	Alloy 20
KN	Kynar
PV	PVC

1 & 2	END CONNECTIONS
PT	FNPT
BT	BSPT
BP	BSPP
SW	FSW
R5	150# RF
J5	150# RTJ
R3	300# RF
J3	300# RTJ
R6	600# RF
J6	600# RTJ
R9	900# RF
J9	900# RTJ
R1	1500# RF
J1	1500# RTJ
R2	2500# RF
J2	2500# RTJ
B4	BWE Sch 40
B8	BWE Sch 80
B6	BWE Sch 160
ZZ	Non-standard

3 & 4	BONNET/PACKING
METAL BODIES	
ET	8" Extended/TFE (Cryogenic)

MARK 8000 SERIES ORDERING SCHEMATIC

5 PLUG & SEAT	
Stem/Plug/Seat Material	
8000G/GTP/GSP/GMV	
Metal Bodies	
A	Standard – Linear Hard
B	Standard – =% Hard
C	Standard – Q.O. Hard
D	Standard – Linear Soft (RPTFE)
E	Standard – =% Soft (RPTFE)
F	Standard – Q.O. Soft (RPTFE)
G	316/Stellite/Stell – Linear Hard
H	316/Stellite/Stell – =% Hard
I	316/Stellite/Stell – Q.O. Hard
M	Alloy 20/AL20/AL20 – Linear Hard
N	Alloy 20/AL20/AL20 – % Hard
P	Alloy 20/AL20/AL20 – Q.O. Hard
Q	Alloy 20/AL20/AL20 – Linear Soft (RPTFE)
R	Alloy 20/AL20/AL20 – % Soft (RPTFE)
S	Alloy 20/AL20/AL20 – Q.O. Soft (RPTFE)
T	Monel/Mon/Mon – Linear Hard
U	Monel/Mon/Mon – =% Hard
V	Monel/Mon/Mon – Q.O. Hard
W	Monel/Mon/Mon – Linear Soft (RPTFE)
X	Monel/Mon/Mon – =% Soft (RPTFE)
Y	Monel/Mon/Mon – Q.O. Soft (RPTFE)
1	Hastelloy C/H-C/H-C – Linear Hard
2	Hastelloy C/H-C/H-C =% Hard
3	Hastelloy C/H-C/H-C – Q.O. Hard
4	Hastelloy C/H-C/H-C – Linear Soft (RPTFE)
5	Hastelloy C/H-C/H-C =% Soft (RPTFE)
6	Hastelloy C/H-C/H-C – Q.O. Soft (RPTFE)
Z	Non-standard

6 CV (KV)	
A	0.05 (0,043)
B	0.1 (0,086)
C	0.2 (0,17)
D	0.5 (0,43)
E	1.0 (0,86)
F	2.0 (1,72)
G	4.0 (3,44)
H	6.5 (5,63)
I	9.0 (7,74)
J	16.0 (13,8)
K	25 (21,5)
M	1.5 (1,3)
N	1.8 (1,6)
P	3.0 (2,6)
Q	3.5 (3,01)
R	4.3 (3,7)
S	7.1 (6,1)
T	12.5 (10,8)
U	17 (14,6)

7 & 8 ACTUATOR			
TYPE		SIZE	
ALL VALVES EXCEPT SP			
D	Air-to-Close	3	35M
R	Air-to-Open	5	55M
FOR SP		8	85M
S	W/SMP		
Z	Non-standard		
8000GMV			
N	On-Off	2	NEMA 12
M	Ma/Voltage	4	NEMA 4 & X-P
ZZ	Non-standard		

MARK 8000 SERIES ORDERING SCHEMATIC

9 & 10		RANGE	
	RANGE	ACTUATOR	
A	3-15 DIR	3	35M
B	3-15 REV	5	55M
G	6-30 DIR	8	85M
H	6-30 REV		
Z	Non-standard		
8000GMV			
NF	On-Off		
42	4-20 mA		
41	4-12 mA		
12	12-20 mA		
V5	0-5V		
V1	0-10V		
ZZ	Non-standard		

11 & 12		LIMIT SWITCHES (2LS)	
	ACTUATOR	ACTION/TYPE	
3	35M	D	Direct/Standard
5	55M	X	Direct/X-P
8	85M	R	Reverse/Standard
		P	Reverse/X-P
00	None		
ZZ	Non-standard		

13 & 14		SOLENOID & HARDWARE	
00	None		
SD	Standard Solenoid		
WT	Water-Tight Solenoid		
XP	X-Proof Solenoid		
H3	Handwheel 35M Dir		
H5	Handwheel 55M Dir		
H8	Handwheel 85M Dir		
R3	Handwheel 35M Rev		
R5	Handwheel 55MK Rev		
R8	Handwheel 85M Rev		
ZZ	Non-standard		

15		ACCESSORIES	
0	None		
A	Air Regulator		
B	I/P 35M Act. 4-20Ma/3-15 psi		
C	I/P 55M Act. 4-20Ma/3-15 psi		
D	I/P 85M Act. 4-20Ma/3-15 psi		
E	I/P 35M/55M/85M Act. 4-20Ma/6-30 psi		
1	1 Gauge for Tmp.		
2	2 Gauge for Tmp.		
3	3 Gauge for Tmp.		
X	Oxygen Clean		
Z	Non-standard		

16		ACTION	
D	Direct (Air-To-Close)		
R	Reverse (Air-To-Open)		

17		SMP	
0	None		
A	SMP Direct/Reverse 3-15		
D	SMP-IP Direct/Reverse 4-20		
G	SMP 16IQ-S Direct/Reverse		
H	SMP 16IQ-B Direct/Reverse		
Z	Non-standard		

18		PED COMPLIANCE	
0	Not Required		
F	CE Category 1		
Z	Non-standard		



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