

# Mark D and DA Series

## Globe and Angle Style Control Valves

The Mark D Series and Mark DA Series are single port, screwed-in metal-seated valves with unbalanced post-guided valve plugs, and push-down-to-close plug action used for high pressure applications. These valves are used in the oil and gas industry, and are especially useful for throttling or on/off control of liquids or gases, providing excellent pressure and flow control of gases and various liquid processes.

The Series D valve is available in 25.4 mm (1") and 50.8 mm (2") sizes, with cast integral flanges, welded flanges, screwed, flat face or socket weld connections. Series DA Angle Valve is available in 25.4 mm (1") and 50.8 (2") sizing, with welded flanges, screwed, flat face or socket weld connections.

The valve plug and seat ring can be fitted with tungsten carbide inserts or stellite overlay.

### FEATURES

- Available in in-line or angle design
- Equal percentage flow characteristic is standard
- High pressure capability
- Available in a variety of body and trim materials, the
- Mark D/DA Series is suitable for a variety of liquid and gas applications
- Optional trim materials are available for erosive applications
- Sour service capability: Optional NACE MR0175/ISO 15156-2009
- Tight shutoff



Mark D Series Globe Valve

## SPECIFICATIONS

**Sizes:** 25.4 mm (1") and 50.8 (2")

**End Connections:**

- ASME Class 150 through 2500
- D Series are available with cast integral flanges, welded flanges, screwed or socket weld connections
- DA Series are available with welded flanges, screwed or socket welded end connections

**Body Materials:**

- LCC
- WCB
- WCC
- WC9
- C5
- Monel
- CF8M SST
- Additional materials may be available upon request

**Trim Materials:**

- 316 Stainless steel
- Tungsten Carbide
- Stellite Overlay
- Cobalt
- Ceramic

**Seats:** Metal

**Shutoff:** Class IV and V

**Maximum Inlet Pressures and Temperatures:** The Maximum Inlet Pressure and Temperature is consistent with ASME Class per ASME 16.34

**Maximum Pressure Drops:** Capable of full rated pressure drops

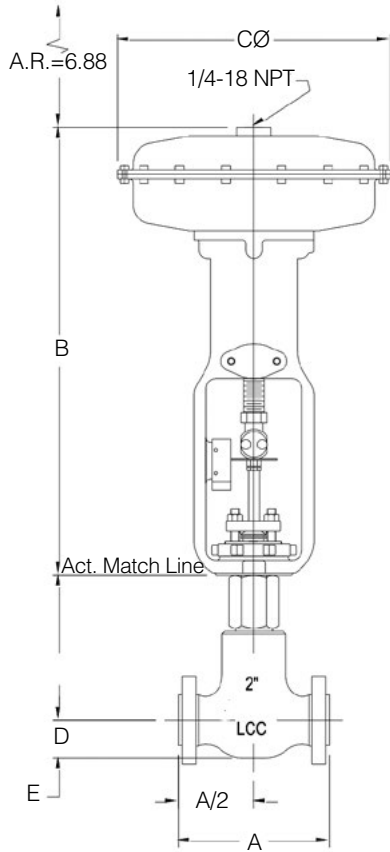
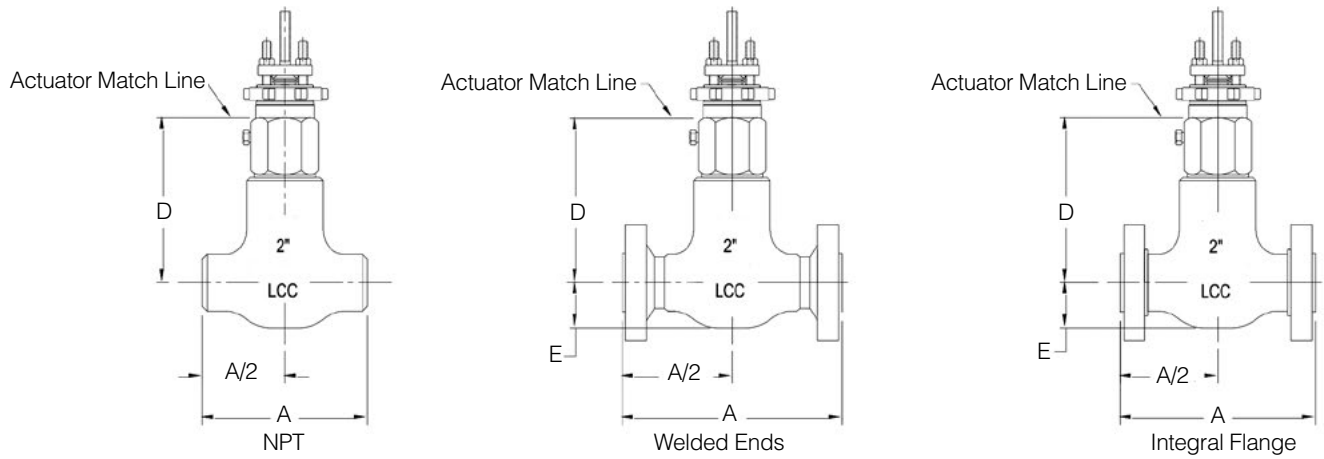
**Flow Characteristics:** Equal Percentage

**Flow Direction:**

- Mark D Series: Flow up through Seat Ring
- Mark DA Series: Flow in either direction

**Valve Travel Indication:** Valves are Supplied with Visual Travel Indicator

# MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES



Actuator Dimensions		657		667	
		B	C	B	C
Size	30	17.31	11.38	18.81	11.38
	34	19.62	13.13	22.56	13.13
	40	21.56	13.13	23.38	13.13
	45	25.94	16.00	30.25	16.00
	46	25.81	18.63	29.44	18.63
	50	28.44	16.00	30.88	18.63
	60	28.44	18.63	30.88	18.63
	70	33.06	21.12	36.75	21.12

Face to Face Valve Dimensions							
Flanged Dimensions "A"	Valve Size	Flange Style	3600 body				6000 Body
			150 ANSI	300 ANSI	600 ANSI	900/1500 ANSI	2500 ANSI
Welded Flange	1"	RF	9.00	9.75	10.25	11.38	13.25
		RTJ	---	---	10.25	11.38	13.25
	2"	RF	12.00	12.63	13.38	15.00	17.50
		RTJ	---	---	13.50	15.13	17.63
Integral Flange	2"	RF	10.50	10.50	11.25	12.12	15.38
		RTJ	---	---	---	12.25	15.50
Screwed Body			"A"	"E"	Dimension "D"		
3600 Class	1"	NPT	6.63	1.81	3/8" Stem	7.50	
	2"		9.00	2.75	1/2 Stem	8.50	
6000 Class	1"	NPT	7.25	2.13	3/8" Stem	7.50	
	2"		10.50	3.25	1/2 Stem	8.50	

## Mark D Series Dimensional Drawings

Note: All dimensions are in inches

## MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES

### Mark DA Series Dimensions

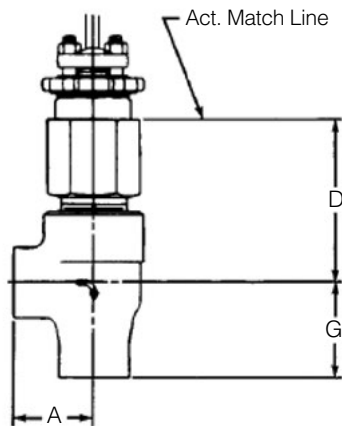
Face to Center measurements

Flanged Valve Size, Inches	A				D- All Ratings		
	ASME						
	Class 300		Class 600		Stem Size		
	Raised Face	Ring-Type Joint	Raised Face	Ring-Type Joint	9.5 (3/8)	12.7 (1/2)	19.1 (3/4)
Inches							
1	4.31	4.56	4.56	4.56	5.31	6.06	5.56
2	6.12	6.44	6.5	6.56	---	6.44	6.25

Flanged Valve Size, Inches	A							D- All Ratings		
	ASME				API					
	Class 900 and 1500		Class 2500		10,000 lb.			Stem Size		
	Raised Face	Ring-Type Joint	Raised Face	Ring-Type Joint	Spec A.	Spec B.	Spec C.	9.5 (3/8)	12.7 (1/2)	<b>19.1 (3/4)</b>
Inches										
1	5	5	6.06	6.06	---	---	---	5.31	6.06	5.56
2	7	7.06	7.69	7.75	7.17	7.81	7.09	---	6.44	6.25

Screwed Valve Size, Inches	3600 psi		6000 psi and 9000 psi		D- All Ratings		
					Stem Size		
	A	G	A	G	9.5 (3/8)	12.7 (1/2)	19.1 (3/4)
Inches							
1 <sup>(1)</sup>	3	3.5	3.5	4	5.25	6	5.5
2	4	4.88	4.5	5.12	---	6.38	6.19

1. For 3600 psi and 6000 psi only.



\*Approximate Shipping weights – 1” – 34 kg (75 lbs), 2” – 45 kg (100lbs)

## MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES

### PRODUCT BULLETIN- MARK D AND DA SERIES CONTROL VALVES

#### Mark D: M-Form Valve Plug

M-Form- Flow Up					Equal Percentage											
Valve Size, NPS	Port Diameter		Total Travel		Flow Coefficient	Valve Opening- Percent of Total Travel										FL (1)
	mm	in.	mm	in.		10	20	30	40	50	60	70	80	90	100	
1	6,4	0.25	19	0.75	Cv	0.070	0.115	0.164	0.224	0.315	0.450	0.641	0.921	1.28	1.66	.87
					Kv	0.061	0.099	0.142	0.194	0.272	0.389	0.554	0.797	1.11	1.44	---
					XT	0.783	0.783	0.744	0.691	0.625	0.614	0.608	0.611	0.610	0.611	---
					Fd	0.12	0.14	0.17	0.20	0.24	0.29	0.35	0.43	0.55	0.68	---
	9,5	0.375	19	0.75	Cv	0.155	0.260	0.407	0.596	0.858	1.21	1.65	2.22	3.00	4.03	.84
					Kv	0.134	0.225	0.352	0.516	0.742	1.05	1.43	1.92	2.60	3.49	---
					XT	0.625	0.535	0.534	0.539	0.535	0.535	0.538	0.534	0.537	0.536	---
					Fd	0.11	0.13	0.16	0.19	0.23	0.27	0.33	0.40	0.48	0.56	---
	12,7	0.5	19	0.75	Cv	0.273	0.436	0.631	0.911	1.30	1.84	2.57	3.65	5.08	6.51	.84
					Kv	0.236	0.377	0.546	0.788	1.13	1.59	2.22	3.16	4.39	5.63	---
					XT	0.673	0.644	0.641	0.590	0.592	0.587	0.586	0.557	0.523	0.549	---
					Fd	0.11	0.13	0.16	0.19	0.23	0.27	0.33	0.40	0.48	0.56	---
	19,1	0.75	19	0.75	Cv	0.483	0.775	1.25	1.97	2.89	4.13	5.87	8.16	10.9	12.3	.92
					Kv	0.418	0.670	1.08	1.70	2.50	3.57	5.08	7.06	9.43	10.6	---
					XT	0.571	0.599	0.527	0.473	0.492	0.519	0.537	0.505	0.486	0.628	---
					Fd	0.10	0.39	0.47	0.18	0.22	0.26	0.31	0.37	0.43	0.49	---
2	12,7	0.5	19	0.75	Cv	0.070	0.115	0.164	0.224	0.315	0.450	0.641	0.921	1.28	1.66	.87
					Kv	0.061	0.099	0.142	0.194	0.272	0.389	0.554	0.797	1.11	1.44	---
					XT	0.783	0.783	0.744	0.691	0.625	0.614	0.608	0.611	0.610	0.611	---
					Fd	0.12	0.14	0.17	0.20	0.24	0.29	0.35	0.43	0.55	0.68	---
	9,5	0.375	19	0.75	Cv	0.155	0.260	0.407	0.596	0.858	1.21	1.65	2.22	3.00	4.03	.84
					Kv	0.134	0.225	0.352	0.516	0.742	1.05	1.43	1.92	2.60	3.49	---
					XT	0.625	0.535	0.534	0.539	0.535	0.535	0.538	0.534	0.537	0.536	---
					Fd	0.11	0.13	0.16	0.19	0.22	0.27	0.33	0.41	0.50	0.61	---
	12,7	0.5	19	0.75	Cv	0.348	0.505	0.709	0.998	1.38	1.92	2.69	3.82	5.25	6.82	.81
					Kv	0.301	0.437	0.613	0.863	1.19	1.66	2.33	3.30	4.54	5.90	---
					XT	0.613	0.627	0.585	0.576	0.565	0.553	0.535	0.509	0.490	0.501	---
					Fd	0.11	0.13	0.16	0.19	0.23	0.27	0.33	0.40	0.48	0.56	---
	19,1	0.75	19	0.75	Cv	0.613	0.952	1.44	2.06	2.92	4.13	5.87	8.16	11.1	14.1	.81
					Kv	0.530	0.823	1.25	1.78	2.53	3.57	5.08	7.06	9.60	12.2	---
					XT	0.581	0.616	0.581	0.586	0.581	0.573	0.549	0.541	0.529	0.528	---
					Fd	0.10	0.39	0.47	0.18	0.22	0.26	0.31	0.37	0.43	0.49	---
25,4	1	19	0.75	Cv	1.20	1.68	2.44	3.53	5.05	7.28	10.5	14.0	18.4	23.7	.82	
				Kv	1.04	1.45	2.11	3.05	4.37	6.30	9.08	12.1	15.9	20.5	---	
				XT	0.517	0.569	0.559	0.542	0.544	0.540	0.507	0.508	0.507	0.508	---	
				Fd	0.11	0.12	0.15	0.18	0.21	0.25	0.30	0.35	0.41	0.46	---	
31,8	1.25	19	0.75	Cv	1.32	1.76	2.50	3.66	5.42	8.25	12.7	20.6	29.0	34.5	.85	
				Kv	1.14	1.52	2.16	3.17	4.69	7.14	11.0	17.8	25.1	29.8	---	
				XT	0.521	0.563	0.548	0.534	0.498	0.503	0.553	0.528	0.524	0.579	---	
				Fd	0.087	0.10	0.12	0.15	0.18	0.22	0.28	0.33	0.39	0.44	---	

1. At 100% travel

MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES

PRODUCT BULLETIN- MARK D AND DA SERIES CONTROL VALVES

Mark D: M-Flute Valve Plug

M-Flute- Flow Up					Equal Percentage											
Valve Size, NPS	Port Diameter		Total Travel		Flow Coefficient	Valve Opening-Percent of Total Travel										FL (1)
	mm	in.	mm	in.		10	20	30	40	50	60	70	80	90	100	
All Sizes 1 and 2	6,4 1 Flute	0.25 1 Flute	19	0.75	Cv	0.0385	0.0455	0.0560	0.0719	0.0942	0.124	0.162	0.212	0.278	0.354	.87
					Kv	0.0333	0.0394	0.0484	0.0622	0.0815	0.107	0.140	0.183	0.240	0.306	---
					XT	0.778	0.734	0.690	0.653	0.642	0.635	0.637	0.634	0.632	0.656	---
	6,4 3 Flute	0.25 3 Flute	19	0.75	Cv	0.0562	0.0725	0.101	0.146	0.216	0.312	0.433	0.588	0.802	1.07	.90
					Kv	0.049	0.0627	0.0874	0.126	0.187	0.270	0.375	0.509	0.694	0.926	---
					XT	0.692	0.648	0.639	0.625	0.600	0.586	0.597	0.613	0.620	0.624	---

Mark DA: Equal Percentage Valve Plug

Equal Percentage- Flow Down																
Valve Size, NPS	Port Diameter		Total Travel		Flow Coefficient	Valve Opening- Percent of Total Travel										FL (1)
	mm	in.	mm	in.		10	20	30	40	50	60	70	80	90	100	
1	6,4	0.25	19	0.75	Cv	0.096	0.173	0.294	0.481	0.727	0.995	1.35	1.99	2.73	3.21	0.45
					Kv	0.0830	0.150	0.254	0.416	0.629	0.861	1.17	1.72	2.36	2.78	---
					XT	0.578	0.379	0.271	0.201	0.154	0.144	0.148	0.129	0.127	0.153	---
	9,5	0.375	19	0.75	Cv	0.189	0.343	0.624	1.05	1.45	1.84	2.47	3.81	5.58	7.06	0.45
					Kv	0.164	0.297	0.540	0.908	1.25	1.59	2.14	3.30	4.83	6.11	---
					XT	0.516	0.355	0.220	0.151	0.152	0.180	0.194	0.163	0.163	0.163	---
	12,7	0.5	19	0.75	Cv	0.487	0.952	1.40	2.07	2.90	3.55	4.54	6.16	8.79	11.2	0.50
					Kv	0.421	0.823	1.21	1.79	2.51	3.07	3.93	5.33	7.60	9.69	---
					XT	0.226	0.137	0.124	0.111	0.111	0.144	0.174	0.185	0.180	0.186	---
	19,1	0.75	19	0.75	Cv	0.840	1.58	2.25	2.86	3.82	5.51	8.69	11.8	14.4	16.8	0.67
					Kv	0.727	1.37	1.95	2.47	3.30	4.77	7.52	10.2	12.5	14.5	---
					XT	0.194	0.142	0.168	0.238	0.288	0.292	0.242	0.259	0.318	0.372	---
2	6,4	0.25	19	0.75	Cv	0.096	0.177	0.353	0.546	0.742	0.995	1.35	1.99	2.73	3.21	0.50
					Kv	0.0830	0.153	0.305	0.472	0.642	0.861	1.17	1.72	2.36	2.78	---
					XT	0.578	0.362	0.188	0.156	0.148	0.144	0.148	0.138	0.139	0.164	---
	9,5	0.375	19	0.75	Cv	0.256	0.445	0.734	1.09	1.45	1.84	2.47	3.81	5.58	7.06	0.45
					Kv	0.221	0.385	0.635	0.943	1.25	1.59	2.14	3.30	4.83	6.11	---
					XT	0.394	0.237	0.164	0.140	0.152	0.180	0.194	0.163	0.163	0.163	---
	12,7	0.5	19	0.75	Cv	0.641	1.03	1.55	2.20	2.90	3.55	4.63	7.13	9.86	12.1	0.45
					Kv	0.555	0.891	1.34	1.90	2.51	3.07	4.01	6.17	8.53	10.5	---
					XT	0.265	0.195	0.162	0.143	0.146	0.168	0.179	0.165	0.165	0.164	---
	19,1	0.75	19	0.75	Cv	1.06	1.70	2.25	2.86	3.82	5.51	8.69	13.1	17.4	21.2	0.55
					Kv	0.917	1.47	1.95	2.47	3.30	4.77	7.52	11.3	15.1	18.3	---
					XT	0.209	0.195	0.235	0.295	0.325	0.306	0.245	0.210	0.222	0.235	---
25,4	1	19	0.75	Cv	2.04	2.93	3.59	4.32	5.98	8.71	13.0	19.9	26.7	31.8	0.55	
				Kv	1.76	2.53	3.11	3.74	5.17	7.53	11.2	17.2	23.1	27.5	---	
				XT	0.171	0.176	0.242	0.342	0.343	0.313	0.274	0.227	0.225	0.255	---	
31,8	1.25	19	0.75	Cv	1.72	2.31	3.31	4.71	6.78	10.5	17.6	26.0	35.2	44.9	0.59	
				Kv	1.49	2.00	2.86	4.07	5.86	9.08	15.2	22.5	30.4	38.8	---	
				XT	0.312	0.311	0.311	0.311	0.310	0.310	0.310	0.312	0.311	0.310	---	

1.At 100% travel

MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES

PRODUCT BULLETIN- MARK D AND DA SERIES CONTROL VALVES

Mark DA: Equal Percentage Valve Plug

Equal Percentage- Flow Up																
Valve Size, NPS	Port Diameter		Total Travel		Flow Coefficient	Valve Opening- Percent of Total Travel										FL (1)
	mm	in.	mm	in.		10	20	30	40	50	60	70	80	90	100	
1	6,4	0.25	19	0.75	Cv	0.070	0.115	0.164	0.224	0.315	0.450	0.641	0.921	1.28	1.66	0.87
					Kv	0.060	0.100	0.142	0.194	0.273	0.389	0.555	0.797	1.11	1.44	---
					XT	0.783	0.783	0.744	0.695	0.625	0.614	0.609	0.611	0.610	0.611	---
	9,5	0.375	19	0.75	Cv	0.155	0.260	0.407	0.596	0.858	1.21	1.65	2.22	3.00	4.03	0.84
					Kv	0.134	0.225	0.352	0.516	0.742	1.05	1.43	1.92	2.60	3.49	---
					XT	0.625	0.535	0.534	0.539	0.535	0.535	0.538	0.534	0.537	0.536	---
	12,7	0.5	19	0.75	Cv	0.273	0.436	0.631	0.911	1.30	1.84	2.57	3.65	5.08	6.51	0.84
					Kv	0.236	0.377	0.546	0.788	1.12	1.59	2.22	3.16	4.39	5.63	---
					XT	0.673	0.644	0.641	0.590	0.592	0.587	0.586	0.557	0.524	0.549	---
	19,1	0.75	19	0.75	Cv	0.483	0.775	1.25	1.97	2.89	4.13	5.87	8.16	10.9	12.3	0.92
					Kv	0.418	0.670	1.08	1.70	3.50	3.57	5.08	7.06	9.43	10.6	---
					XT	0.571	0.599	0.527	0.473	0.492	0.519	0.537	0.505	0.486	0.628	---
2	6,4	0.25	19	0.75	Cv	0.070	0.115	0.164	0.224	0.315	0.450	0.641	0.921	1.28	1.66	0.87
					Kv	0.061	0.100	0.142	0.194	0.273	0.389	0.555	0.797	1.11	1.44	---
					XT	0.783	9.783	0.744	0.695	0.625	0.614	0.609	0.611	0.610	0.611	---
	9,5	0.375	19	0.75	Cv	0.155	0.260	0.407	0.596	0.858	1.21	1.65	2.22	3.00	4.03	0.84
					Kv	0.134	0.225	0.352	0.516	0.742	1.05	1.43	1.92	2.60	3.49	---
					XT	0.625	0.535	0.534	0.539	0.535	0.535	0.538	0.534	0.537	0.536	---
	12,7	0.5	19	0.75	Cv	0.348	0.505	0.709	0.989	1.38	1.92	2.69	3.82	5.25	6.82	0.81
					Kv	0.301	0.437	0.613	0.856	1.19	1.66	2.33	3.30	4.54	5.90	---
					XT	0.613	0.627	0.585	0.587	0.565	0.553	0.535	0.509	0.490	0.501	---
	19,1	0.75	19	0.75	Cv	0.613	0.952	1.44	2.06	2.92	4.13	5.87	8.16	11.1	14.1	0.81
					Kv	0.530	0.824	1.25	1.78	2.53	3.57	5.08	7.06	9.60	12.2	---
					XT	0.582	0.616	0.581	0.586	0.581	0.573	0.549	0.541	0.529	0.528	---
	25,4	1	19	0.75	Cv	1.20	1.68	2.44	3.53	5.05	7.28	10.5	14.0	18.4	23.7	0.81
					Kv	1.04	1.45	2.11	3.05	4.37	6.30	9.08	12.1	15.9	20.5	---
					XT	0.516	0.569	0.556	0.542	0.544	0.540	0.507	0.508	0.507	0.508	---
	31,8	1.25	19	0.75	Cv	1.32	1.76	2.50	3.66	5.42	8.25	12.7	20.6	29.0	34.5	0.87
					Kv	1.14	1.52	2.16	3.17	4.69	7.14	11.0	17.8	25.1	29.8	---
					XT	0.520	0.563	0.548	0.534	0.498	0.503	0.554	0.528	0.524	0.578	---

1.At 100% travel

MARK D AND DA SERIES GLOBE AND ANGLE STYLE CONTROL VALVES

PRODUCT BULLETIN- MARK D AND DA SERIES CONTROL VALVES

Mark DA: M-Flute Valve Plug

M-Flute- Flow Down					Equal Percentage											
Valve Size, NPS	Port Diameter		Total Travel		Flow Coefficient	Valve Opening-Percent of Total Travel										FL (1)
	mm	in.	mm	in.		10	20	30	40	50	60	70	80	90	100	
1 and 2	6.4 1 Flute	0.25 1 Flute	19	0.75	Cv	0.0313	0.0377	0.0470	0.0624	0.0874	0.124	0.175	0.243	0.330	0.407	0.79
					Kv	0.0271	0.0326	0.0407	0.0540	0.0756	0.107	0.151	0.210	0.286	0.352	---
					XT	0.990	0.975	0.867	0.765	0.659	0.569	0.494	0.450	0.450	0.550	---
	6.4 3 Flute	0.25 3 Flute	19	0.75	Cv	0.0612	0.0900	0.136	0.210	0.310	0.430	0.573	0.784	1.12	1.42	0.68
					Kv	0.0529	0.0779	0.118	0.182	0.268	0.372	0.496	0.678	0.969	1.23	---
					XT	0.669	0.520	0.388	0.313	0.295	0.306	0.326	0.326	0.313	0.378	---
M-Flute- Flow Up					Equal Percentage											
1 and 2	6.4 1 Flute	0.25 1 Flute	19	0.75	Cv	0.0385	0.0455	0.0560	0.0719	0.0942	0.124	0.162	0.212	0.278	0.354	.87
					Kv	0.0333	0.0394	0.0484	0.0622	0.0815	0.107	0.140	0.183	0.240	0.306	---
					XT	0.778	0.734	0.690	0.653	0.642	0.635	0.637	0.634	0.632	0.656	---
	6.4 3 Flute	0.25 3 Flute	19	0.75	Cv	0.0562	0.0725	0.101	0.146	0.216	0.312	0.433	0.588	0.802	1.07	.90
					Kv	0.049	0.0627	0.0874	0.126	0.187	0.270	0.375	0.509	0.694	0.926	---
					XT	0.692	0.648	0.639	0.625	0.600	0.586	0.597	0.613	0.620	0.624	---



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