DATA SHEET

T 8086 EN

Series 240, 250 and SMS · Valves with perforated plug

DIN and ANSI versions

Application

Optimized trim for critical conditions in applications

Nominal size	**DN 25 to 500**	**NPS 1 to 20**
Pressure rating	**PN 16 to 400**	**Class 150 to 2500**
Medium temperature	**-273 to +550 °C**	**-459 to +1022 °F**

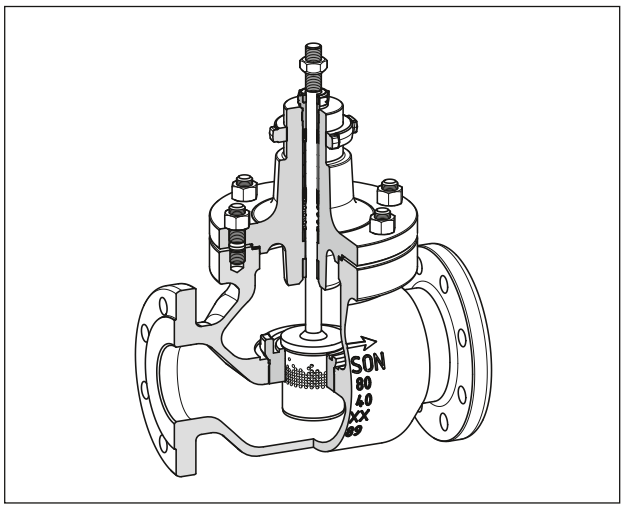

Fig. 1: *Type 3251 Globe Valve with perforated plug*

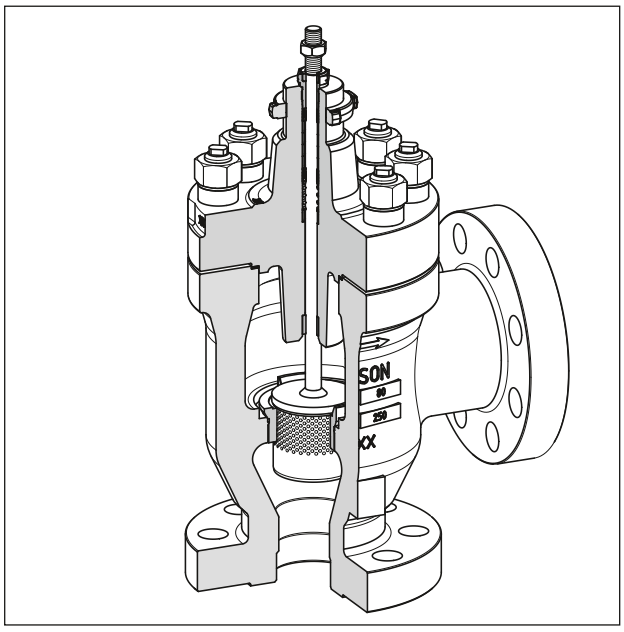

Fig. 2: *Type 3256 Angle Valve with perforated plug*

The perforated plug is mainly used for valves in steam applications, particularly for operation in the wet steam region. Additional fields of application include the control of two-phase medium flow, liquid media which vaporize on the outlet side (flashing valves) or emergency relief valves (blow-off valves) involving gas relief in which flow velocities lower than ≤0.3 Mach cannot be kept.

Special features

- Use in Series 240, 250 and SMS Valves with body material 1.0619/A216 WCC or higher grade steels
- Combined with seats of Series 240, 250 and SMS Valves
- Permissible actuator forces correspond to those of standard valve trims
- Avoid using media containing solids

Versions

Valves with leakage class IV

- **Type 3241** · Globe valve up to DN 300 and PN 40 (NPS 12, Class 300) · Trim and characteristic according to Table 2 to Table 5 · See Data Sheets ▶ T 8015/▶ T 8012
- **Type 3248** · Cryogenic valve with globe or angle-pattern body up to DN 150 and PN 100 (NPS 6, Class 600) · See Table 2 to Table 5 and Table 6 to Table 7 · See Data Sheets ▶ T 8093/▶ T 8093-1
- **Type 3251** (Fig. 1) · Globe valve up to DN 500 and PN 400 (NPS 20, Class 2500) · See Table 8 to Table 11 · See Data Sheets ▶ T 8051/▶ T 8052
- **Type 251GR** · Globe valve up to DN 300 and PN 160 (NPS 12, Class 900) · See Table 12 to Table 15 · See Data Sheets ▶ T 8003-GR/▶ T 8004-GR

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- **Type 251AR** · Angle valve up to DN 200 and PN 160 (NPS 8, Class 900) · See Table 12 to Table 15 · See Data Sheets ▶ T 8003-AR/▶ T 8004-AR
- **Type 3254** · Globe valve up to DN 500 and PN 400 (NPS 20, Class 2500) · See Table 16 to Table 19 · See Data Sheets ▶ T 8060/▶ T 8061
- **Type 3256** (Fig. 2) · Angle valve up to DN 300 and PN 400 (NPS 12, Class 2500) · See Table 8 to Table 11 and Table 20 to Table 21 · See Data Sheets ▶ T 8065/▶ T 8066

Options

- **Higher leakage classes** on request
- **Perforated plug for Type 3246** on request

Principle of operation

The medium flows through the perforated plug, splitting up the jet stream into numerous smaller jets to ensure low-noise energy transfer to the surrounding medium.

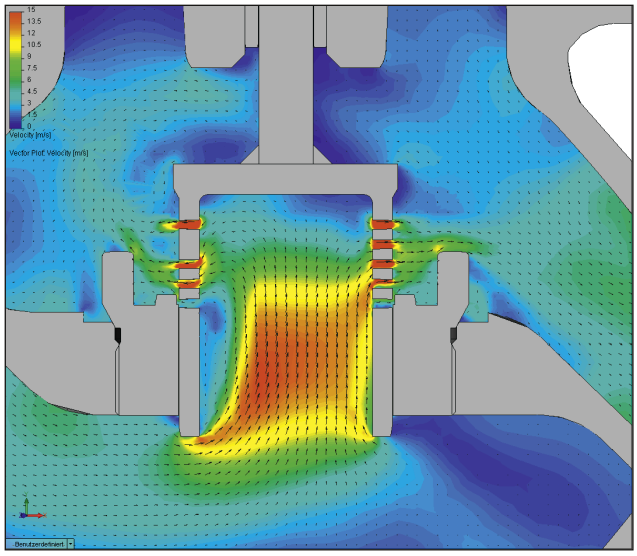

Fig. 3: *Type 3251 Globe Valve, flow-to-open*

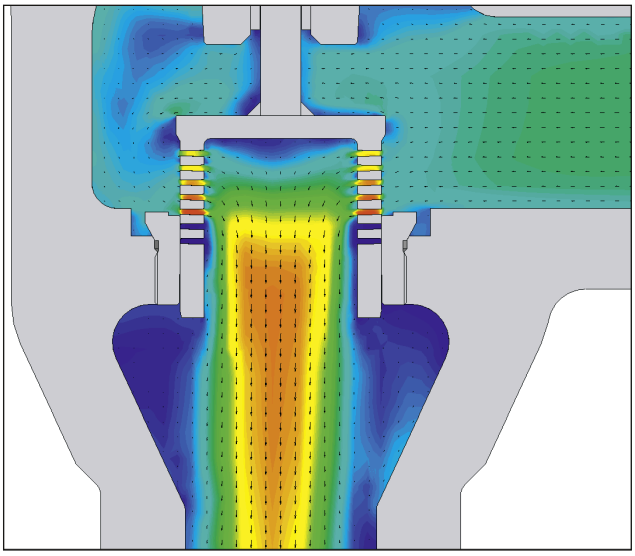

Fig. 4: *Type 3256 Angle Valve, flow-to-close*

Table 1: *Technical data*

Perforated plug		**DIN**	**ANSI**
Nominal size (depending on valve type)		DN 25 to 500	NPS 1 to 20
Pressure rating (depending on valve type)		PN 16 to 400	Class 125 to 2500
Medium temperature range (depending on the valve bonnet)	Type 3241 (▶ T 8015/▶ T 8012)	-196 to +450 °C	-325 to +842 °F
	Type 3248 (▶ T 8093/▶ T 8093-1)	-273 to +220 °C	-459 to +428 °F
	Type 3251/54 (▶ T 8051/▶ T 8052, ▶ T 8060/▶ T 8061)	-196 to +550 °C	-325 to +1022 °F
	Type 251GR/251AR (▶ T 8003-GR/▶ T 8004-GR, ▶ T 8003-AR/▶ T 8004-AR)	-50 to +550 °C	-58 to 1022 °F
	Type 3256 (▶ T 8065/▶ T 8066)	-196 to +550 °C	-325 to +102 °F
Max. permissible differential pressure		Same as standard V-port plug, ▶ T 8000-4	
Flow direction[1)]	Type 3241/3248	Standard FTO	
	Type 3251/3254	Standard FTO	
	Type 251GR/251AR	Standard FTO	
	Type 3256	Standard FTC	
Leakage class with metal seal		Class IV according to DIN EN 60534-4 and DIN EN 1349	Class IV according to ANSI FCI 70-2
Characteristic		Equal percentage · Linear	
Rangeability		50:1	
Pressure balancing		See Table 2 to Table 19	
Valve bonnet		Standard · Insulating section · Bellows seal	
Materials			
Seat and plug		Selection depending on application	

1) **FTO:** Flow-to-open (flow under the plug)
FTC: Flow-to-close (flow over the plug)

Type 3241 Globe Valve and Type 3248 Cryogenic Valve · Direction of flow FTO

Table 2: *K_{VS} and C_V coefficients for Type 3241 and Type 3248 Globe Valves (up to DN 150/NPS 6) · Equal percentage characteristic*

Series 240 · Equal percentage characteristic with direction of flow FTO																				
K_{VS}		4	6.3	10	16	25	36	40	54	63	80	100	120	160	160	250	360	420	630	1000
C_V		5	7.5	12	20	30	42	47	62	75	95	120	140	190	190	290	420	485	735	1150
K_V-1		3.6	5.7	9	14.5	22	32	36	47	57	72	90	100	144	144	225	320	375	560	900
C_V-1		4.2	7	10.5	17	26	37	42	55	67	85	105	120	170	170	265	375	435	650	1040
K_V-2		–	–	8	13	20	29	–	43	50	63	80	95	125	125	200	290	340	500	800
C_V-2				9.5	15	23	34		50	60	75	95	110	145	145	235	335	390	580	950
K_V-3		–	4.8	7.5	12	20	–	–	40	47	60	75	–	–	120	190	270	315	480	–
C_V-3			5.6	9	14	23			47	55	70	90			140	220	315	365	560	
Seat Ø	mm	24		31	38	48	63	80	63	80		100	110	130	125	150	200		250	300
Travel	mm	15							30						60				120	
	in	0.59							1.18						2.36				4.72	
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																		
DN	NPS																			
25	1	•	•																	
32	–	•	•	•																
40	1½	•	•	•	•															
50	2	•	•	•	•	•														
65	2½		•	•	•	•	•													
80	3		•	•	•	•	•	•												
100	4								•	•	•	•								
125	–								•	•	•	•	•							
150	6								•	•	•	•		•						
200	8								•	•	•	•			•	•	•	•		
250	10								•	•	•	•			•	•	•	•	•	
300	12											•			•	•	•	•	•	•
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																		
DN	NPS																			
25	1																			
32	–	•	•	•																
40	1½	•	•	•	•															
50	2	•	•	•	•	•														
65	2½		•	•	•	•	•													
80	3		•	•	•	•	•	•												
100	4								•	•	•	•								
125	–								•	•	•	•	•							
150	6								•	•	•	•		•						
200	8								•	•	•	•			•	•	•	•		
250	10								•	•	•	•			•	•	•	•	•	
300	12											•			•	•	•	•	•	•

NOTICE

Specifications do not apply to Type 3248

Table 3: *K_{VS} and C_V coefficients for Type 3241 and Type 3248 Globe Valves (up to DN 150/NPS 6) · Equal percentage characteristic*

Series 240 · Equal percentage characteristic with direction of flow FTO																				
K_{VS}		4	6.3	10	16	25	36	40	54	63	80	100	120	160	160	250	360	420	630	1000
C_V		5	7.5	12	20	30	42	47	62	75	95	120	140	190	190	290	420	485	735	1150
K_V-1		3.6	5.7	9	14.5	22	32	36	47	57	72	90	100	144	144	225	320	375	560	900
C_V-1		4.2	7	10.5	17	26	37	42	55	67	85	105	120	170	170	265	375	435	650	1040
K_V-2		–	–	8	13	20	29	–	43	50	63	80	95	125	125	200	290	340	500	800
C_V-2				9.5	15	23	34		50	60	75	95	110	145	145	235	335	390	580	950
K_V-3		–	4.8	7.5	12	20	–	–	40	47	60	75	–	–	120	190	270	315	480	–
C_V-3			5.6	9	14	23			47	55	70	90			140	220	315	365	560	
Seat Ø	mm	24		31	38	48	63	80	63	80		100	110	130	125	150	200		250	300
Travel	mm	15							30						60				120	
	in	0.59							1.18						2.36				4.72	
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																		
DN	NPS																			
25	1																			
32	–			•																
40	1½			•	•															
50	2			•	•															
65	2½			•	•	•	•													
80	3			•	•	•	•													
100	4								•	•	•	•								
125	–								•	•	•	•	•							
150	6								•	•	•	•		•						
200	8								•	•	•	•			•	•	•	•		
250	10								•	•	•	•			•	•	•	•	•	
300	12											•			•	•	•	•	•	•
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																		
DN	NPS																			
25	1																			
32	–		•																	
40	1½		•																	
50	2		•																	
65	2½		•	•	•	•														
80	3		•	•	•	•														
100	4								•											
125	–								•	•	•									
150	6								•	•	•	•								
200	8								•	•	•	•			•	•				
250	10								•	•	•	•			•	•	•	•		
300	12											•			•	•	•	•	•	

NOTICE

Specifications do not apply to Type 3248

NOTICE

Specifications do not apply to Type 3248

Table 4: *K_{VS} and C_V coefficients for Type 3241 and Type 3248 Globe Valves (up to DN 150/NPS 6) · Linear characteristic*

Series 240 · Linear characteristic with direction of flow FTO																				
K_{VS}		4	6.3	10	16	25	36	47	60	63	100	130	160	210	250	320	500	900	1300
C_V		5	7.5	12	20	30	42	55	70	75	120	150	190	245	290	375	580	1040	1500
K_V-1		3.6	5.7	9	14.5	22	32	43	54	57	90	115	144	190	225	280	450	800	1150
C_V-1		4.2	7	10.5	17	26	37	50	62	67	105	135	170	220	265	325	520	950	1350
K_V-2		–	–	8	13	20	29	38	–	50	80	105	125	170	200	255	400	720	1040
C_V-2				9.5	15	23	34	45		60	95	120	145	200	235	295	465	835	1200
K_V-3		–	4.8	7.5	12	20	27	–	–	47	75	80	–	–	190	230	375	675	–
C_V-3			5.6	9	14	23	31			55	90	100			220	270	435	780	
Seat Ø	mm	24		31		38	48	63	80	63	80	100	110	130	125	150	200	250	300
Travel	mm	15								30					60			120	
	in	0.59								1.18					2.36			4.72	
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																	
DN	NPS																		
25	1	•	•																
32	–	•	•	•	•														
40	1½	•	•	•	•	•													
50	2	•	•	•	•	•	•												
65	2½		•	•	•	•	•	•											
80	3		•	•	•	•	•	•	•										
100	4									•	•	•							
125	–									•	•	•	•						
150	6									•	•	•		•					
200	8									•	•	•			•	•	•		
250	10									•	•	•			•	•	•	•	
300	12											•			•	•	•	•	•
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																	
DN	NPS																		
25	1																		
32	–	•	•	•	•														
40	1½	•	•	•	•	•													
50	2	•	•	•	•	•	•												
65	2½		•	•	•	•	•	•											
80	3		•	•	•	•	•	•	•										
100	4									•	•	•							
125	–									•	•	•	•						
150	6									•	•	•		•					
200	8									•	•	•			•	•	•		
250	10									•	•	•			•	•	•	•	
300	12											•			•	•	•	•	•

NOTICE

Specifications do not apply to Type 3248

Table 5: *K_{VS} and C_V coefficients for Type 3241 and Type 3248 Globe Valves (up to DN 150/NPS 6) · Linear characteristic*

Series 240 · Linear characteristic with direction of flow FTO																			
K_{VS}		4	6.3	10	16	25	36	47	60	63	100	130	160	210	250	320	500	900	1300
C_V		5	7.5	12	20	30	42	55	70	75	120	150	190	245	290	375	580	1040	1500
K_V-1		3.6	5.7	9	14.5	22	32	43	54	57	90	115	144	190	225	280	450	800	1150
C_V-1		4.2	7	10.5	17	26	37	50	62	67	105	135	170	220	265	325	520	950	1350
K_V-2		–	–	8	13	20	29	38	–	50	80	105	125	170	200	255	400	720	1040
C_V-2				9.5	15	23	34	45		60	95	120	145	200	235	295	465	835	1200
K_V-3		–	4.8	7.5	12	20	27	–	–	47	75	80	–	–	190	230	375	675	–
C_V-3			5.6	9	14	23	31			55	90	100			220	270	435	780	
Seat Ø	mm	24		31		38	48	63	80	63	80	100	110	130	125	150	200	250	300
Travel	mm	15								30					60			120	
	in	0.59								1.18					2.36			4.72	
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																	
DN	NPS																		
25	1																		
32	–			•	•														
40	1½			•	•	•													
50	2			•	•	•	•												
65	2½			•	•	•	•	•											
80	3			•	•	•	•	•											
100	4									•	•	•							
125	–									•	•	•	•						
150	6									•	•	•		•					
200	8									•	•	•			•	•	•		
250	10									•	•	•			•	•	•	•	
300	12											•			•	•	•	•	•
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions of Type 3241 also available with pressure balancing																	
DN	NPS																		
25	1																		
32	–		•																
40	1½		•																
50	2		•																
65	2½		•	•	•	•	•												
80	3		•	•	•	•	•												
100	4									•									
125	–									•	•								
150	6									•	•	•							
200	8									•	•	•			•	•			
250	10									•	•	•			•	•	•		
300	12											•			•	•	•	•	

NOTICE

Specifications do not apply to Type 3248

Type 3248 Cryogenic Angle Valve · Direction of flow FTC

Table 6: *K_{VS} and C_V coefficients for Type 3248 Angle Valve · Equal percentage characteristic*

Type 3248 · Equal percentage characteristic with direction of flow FTC														
K_{VS}		4	6.3	10	13	20	32	36	47	54	70	85	105	144
C_V		5	7.5	12	15	23	37	42	55	62	80	100	121	170
Seat Ø	mm	24		31	38	48	63	80	63	80	80	100	110	130
Travel	mm	15							30					
	in	0.59							1.18					
Nominal size		Version **without** flow divider												
DN	NPS													
25	1	•	•											
32	–	•	•	•										
40	1½	•	•	•	•									
50	2	•	•	•	•	•								
65	2½		•	•	•	•	•							
80	3		•	•	•	•	•	•						
100	4								•	•	•	•		
125	–								•	•	•	•	•	
150	6								•	•	•	•		•

Table 7: *K_{VS} and C_V coefficients for Type 3248 Angle Valve · Linear characteristic*

Type 3248 · Linear characteristic with direction of flow FTC														
K_{VS}		4	6.3	10	13	20	32	40	50	54	85	115	144	190
C_V		5	7.5	12	15	23	37	47	60	62	100	135	170	220
Seat Ø	mm	24		31		38	48	63	80	63	80	100	110	130
Travel	mm	15								30				
	in	0.59								1.18				
Nominal size		Version **without** flow divider												
DN	NPS													
25	1	•	•											
32	–	•	•	•	•									
40	1½	•	•	•	•	•								
50	2	•	•	•	•	•	•							
65	2½		•	•	•	•	•	•						
80	3		•	•	•	•	•	•	•					
100	4									•	•	•		
125	–									•	•	•	•	
150	6									•	•	•		•

Type 3251 Globe Valve and Type 3256 Angle Valve · Direction of flow FTO

Table 8: *K_{VS} and C_V coefficients for Type 3251 and Type 3256 (up to DN 300/NPS 12) · Equal percentage characteristic*

Series 250 · Equal percentage characteristic with direction of flow FTO																				
K_{VS}		4	6.3	10	16	25	36	54	63	80	100	160	250	360	420	630	1000	1350	1650	2500
C_V		5	7.5	12	20	30	42	62	75	95	120	190	290	420	485	735	1150	1560	1900	2900
K_V-1		3.6	5.7	9	14.5	22	32	47	57	72	90	144	225	320	375	560	900	1200	1500	2250
C_V-1		4.2	7	10.5	17	26	37	55	67	85	105	170	265	375	435	650	1040	1400	1730	2600
K_V-2		3.2	5	8	13	20	29	43	50	63	80	125	200	290	340	500	800	1080	1320	–
C_V-2		3.7	6	9.5	15	23	34	50	60	75	95	145	235	335	390	580	950	1250	1530	
K_V-3		3	4.8	7.5	12	20	27	40	47	60	75	120	190	270	315	480	750	1000	1250	–
C_V-3		3.5	5.6	9	14	23	31	47	55	70	90	140	220	315	365	560	880	1150	1450	
Seat Ø	mm	24		31	38	50		63	80		100	125	150	200		250	300	350	400	500
Travel	mm	15					30					60				120				
	in	0.59					1.18					2.36				4.72				
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions also available with pressure balancing																		
DN	NPS																			
25	1	•	•																	
40	1½	•	•	•	•															
50	2	•	•	•	•	•	•													
80	3	•	•	•	•	•	•	•	•	•										
100	4				•	•	•	•	•	•	•									
150	6							•	•	•	•	•	•							
200	8								•	•	•	•	•	•	•					
250	10								•	•	•	•	•	•	•	•				
300	12										•	•	•	•	•	•	•			
–	14												•	•	•	•	•	•		
400	16												•	•	•	•	•	•	•	
500	20															•	•	•	•	•
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions also available with pressure balancing																		
DN	NPS																			
25	1	•	•																	
40	1½	•	•	•	•															
50	2	•	•	•	•	•	•													
80	3	•	•	•	•	•	•	•	•	•										
100	4				•	•	•	•	•	•	•									
150	6							•	•	•	•	•	•							
200	8								•	•	•	•	•	•	•					
250	10								•	•	•	•	•	•	•	•				
300	12										•	•	•	•	•	•	•			
–	14												•	•	•	•	•	•		
400	16												•	•	•	•	•	•	•	
500	20															•	•	•	•	•

Table 9: *K_{VS} and C_V coefficients for Type 3251 and Type 3256 (up to DN 300/NPS 12) · Equal percentage characteristic*

Series 250 · Equal percentage characteristic with direction of flow FTO																				
K_{VS}		4	6.3	10	16	25	36	54	63	80	100	160	250	360	420	630	1000	1350	1650	2500
C_V		5	7.5	12	20	30	42	62	75	95	120	190	290	420	485	735	1150	1560	1900	2900
K_V-1		3.6	5.7	9	14.5	22	32	47	57	72	90	144	225	320	375	560	900	1200	1500	2250
C_V-1		4.2	7	10.5	17	26	37	55	67	85	105	170	265	375	435	650	1040	1400	1730	2600
K_V-2		3.2	5	8	13	20	29	43	50	63	80	125	200	290	340	500	800	1080	1320	–
C_V-2		3.7	6	9.5	15	23	34	50	60	75	95	145	235	335	390	580	950	1250	1530	
K_V-3		3	4.8	7.5	12	20	27	40	47	60	75	120	190	270	315	480	750	1000	1250	–
C_V-3		3.5	5.6	9	14	23	31	47	55	70	90	140	220	315	365	560	880	1150	1450	
Seat Ø	mm	24		31	38	50		63	80		100	125	150	200		250	300	350	400	500
Travel	mm	15					30					60				120				
	in	0.59					1.18					2.36				4.72				
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions also available with pressure balancing																		
DN	NPS																			
25	1																			
40	1½																			
50	2	•	•	•	•	•	•													
80	3	•	•	•	•	•	•	•	•	•[1]										
100	4				•	•	•	•	•	•	•[1]									
150	6							•	•	•	•	•	•[1]							
200	8								•	•	•	•	•	•[1]	•[1]					
250	10								•	•	•	•	•	•	•	•[1]				
300	12										•	•	•	•	•	•	•[1]			
–	14												•	•	•	•	•	•		
400	16												•	•	•	•	•	•	•[1]	
500	20															•	•	•	•	
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions also available with pressure balancing																		
DN	NPS																			
25	1																			
40	1½																			
50	2	•	•																	
80	3	•	•	•	•	•	•													
100	4				•	•	•	•												
150	6							•	•	•	•	•								
200	8								•	•	•	•	•							
250	10								•	•	•	•	•	•	•					
300	12										•	•	•	•	•	•				
–	14												•	•	•	•	•	•		
400	16												•	•	•	•	•	•		
500	20															•	•	•	•	

[1] Pressure balancing only up to PN 160/Class 900

Table 10: *K_{VS} and C_V coefficients for Type 3251 and Type 3256 (up to DN 300/NPS 12) · Linear characteristic*

Series 250 · Linear characteristic with direction of flow FTO																		
K_{VS}		4	6.3	10	16	25	40	63	100	130	250	320	500	900	1300	1700	2100	3200
C_V		5	7.5	12	20	30	47	75	120	150	290	375	580	1040	1500	2000	2450	3700
K_V-1		3.6	5.7	9	14.5	22	36	57	90	115	225	280	450	800	1150	1530	1900	2900
C_V-1		4.2	7	10.5	17	26	42	67	105	135	265	325	520	950	1350	1800	2200	3300
K_V-2		3.2	5	8	13	20	32	50	80	105	200	255	400	720	1030	1350	1680	–
C_V-2		3.7	6	9.5	15	23	37	60	95	120	235	295	465	835	1200	1560	1940	
K_V-3		3	4.8	7.5	12	20	30	47	75	100	190	230	375	675	950	1275	1600	–
C_V-3		3.5	5.6	9	14	23	35	55	90	120	220	270	435	780	1100	1475	1860	
Seat Ø	mm	24		31		38	50	63	80	100	125	150	200	250	300	350	400	500
Travel	mm	15					30				60			120				
	in	0.59					1.18				2.36			4.72				
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions also available with pressure balancing																
DN	NPS																	
25	1	•*)	•															
40	1½	•	•	•	•	•*)												
50	2	•	•	•	•	•	•*)											
80	3	•	•	•	•	•	•	•	•*)									
100	4					•	•	•	•	•								
150	6							•	•	•	•	•						
200	8								•	•	•	•	•					
250	10								•	•	•	•	•	•				
300	12									•	•	•	•	•	•			
–	14											•	•	•	•			
400	16											•	•	•	•	•	•	
500	20													•	•	•	•	•
*) Reduced K_{VS}/C_V coefficients with Class 900 to 2500:		4.2	–	–	–	22	36	–	90	–								
		3.6	–	–	–	26	42	–	105									
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions also available with pressure balancing																
DN	NPS																	
25	1	•	•															
40	1½	•	•	•	•	•												
50	2	•	•	•	•	•	•											
80	3	•	•	•	•	•	•	•	•									
100	4					•	•	•	•	•								
150	6							•	•	•	•	•						
200	8								•	•	•	•	•					
250	10								•	•	•	•	•	•				
300	12									•	•	•	•	•	•			
–	14											•	•	•	•			
400	16											•	•	•	•	•	•	
500	20													•	•	•	•	•

Table 11: *K_{VS} and C_V coefficients for Type 3251 and Type 3256 (up to DN 300/NPS 12) · Linear characteristic*

Series 250 · Linear characteristic with direction of flow FTO																		
K_{VS}		4	6.3	10	16	25	40	63	100	130	250	320	500	900	1300	1700	2100	3200
C_V		5	7.5	12	20	30	47	75	120	150	290	375	580	1040	1500	2000	2450	3700
K_V-1		3.6	5.7	9	14.5	22	36	57	90	115	225	280	450	800	1150	1530	1900	2900
C_V-1		4.2	7	10.5	17	26	42	67	105	135	265	325	520	950	1350	1800	2200	3300
K_V-2		3.2	5	8	13	20	32	50	80	105	200	255	400	720	1030	1350	1680	–
C_V-2		3.7	6	9.5	15	23	37	60	95	120	235	295	465	835	1200	1560	1940	
K_V-3		3	4.8	7.5	12	20	30	47	75	100	190	230	375	675	950	1275	1600	–
C_V-3		3.5	5.6	9	14	23	35	55	90	120	220	270	435	780	1100	1475	1860	
Seat Ø	mm	24		31		38	50	63	80	100	125	150	200	250	300	350	400	500
Travel	mm	15					30				60			120				
	in	0.59					1.18				2.36			4.72				
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions also available with pressure balancing																
DN	NPS																	
25	1																	
40	1½																	
50	2	•	•	•	•	•	•											
80	3	•	•	•	•	•	•	•	•[1]									
100	4					•	•	•	•	•[1]								
150	6							•	•	•	•	•[1]						
200	8								•	•	•	•	•[1]					
250	10								•	•	•	•	•	•[1]				
300	12									•	•	•	•	•	•[1]			
–	14											•	•	•	•			
400	16											•	•	•	•	•	•[1]	
500	20													•	•	•	•	
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions also available with pressure balancing																
DN	NPS																	
25	1																	
40	1½																	
50	2	•	•															
80	3	•	•	•	•	•	•											
100	4					•	•	•										
150	6							•	•	•	•							
200	8								•	•	•	•						
250	10								•	•	•	•	•					
300	12									•	•	•	•	•				
–	14											•	•	•	•			
400	16											•	•	•	•	•		
500	20													•	•	•	•	

[1] Pressure balancing only up to PN 160/Class 900

Type 251GR Globe Valve and Type 251AR Angle Valve · Direction of flow FTO

Table 12: *K_{VS} and C_V coefficients for Type 251GR and Type 251AR · Equal percentage characteristic*

Series SMS with screwed-in seat · Equal percentage characteristic with direction of flow FTO														
K_{VS}		4.3	6.2	7.8	13	21	32	42	74	90	140	210	320	580
C_V		5	7.2	9	15	24	37	49	85	105	162	243	370	670
K_V-1		3.9	5.6	6.9	12	19	29	38	66	82	126	190	290	520
C_V-1		4.5	6.5	8	14	22	34	44	76	95	146	220	335	600
Seat Ø	mm	24	27	27	33	42	55	55	70	85	110	130	170	228
Travel	mm	15	15	15	19	19	30	30	38	38	60	60	60	90
Nominal size		Version **without** flow divider												
NPS	DN													
½	15													
1	25	•	•	•										
1½	40	•	•	•	•	•								
2	50			•	•	•	•	•						
3	80					•	•	•	•	•				
4	100						•	•	•	•	•			
6	150									•	•	•	•	
8	200										•	•	•	•
Nominal size		Version **with** flow divider **ST 1**												
NPS	DN													
½	15													
1	25	•	•	•										
1½	40	•	•	•	•	•								
2	50			•	•	•	•	•						
3	80					•	•	•	•	•				
4	100						•	•	•	•	•			
6	150									•	•	•	•	
8	200										•	•	•	•

Table 13: *K_{VS} and C_V coefficients for Type 251GR and Type 251AR · Equal percentage characteristic*

Series SMS with clamped-in seat · Equal percentage characteristic with direction of flow FTO																								
K_{VS}		4.3	6.2	6.9	7.8	13	19	21	32	38	42	74	82	90	126	140	210	290	320	520	580	700	1100
C_V		5	7.2	8	9	15	22	24	37	44	49	85	95	105	146	162	243	335	370	600	670	810	1270
Seat Ø	mm	24	27	27	27	33	42	42	55	55	55	70	85	85	110	110	130	170	170	228	228	280	330
Travel	mm	15	15	15	15	19	19	19	30	30	30	38	38	38	60	60	60	60	60	90	90	120	120
Nominal size		Version **without** flow divider																						
NPS	DN																							
½	15																							
1	25	•	•	•																				
1½	40	•	•		•	•	•																	
2	50				•	•		•	•	•														
3	80							•	•		•	•	•											
4	100								•		•	•		•	•									
6	150													•		•	•	•						
8	200															•	•		•	•				
10	250																		•		•	•		
12	300																				•	•	•	

Table 14: *K_{VS} and C_V coefficients for Type 251GR and Type 251AR · Linear characteristic*

Series SMS with screwed-in seat · Linear characteristic with direction of flow FTO														
K_{VS}		4.3	6.9	9.4	13	19	26	47	74	100	152	273	363	630
C_V		5	8	11	15	22	30	54	85	116	177	315	420	730
K_V-1		3.9	6.2	8.5	12	17	23	42	66	90	137	245	327	570
C_V-1		4.5	7.2	10	14	20	27	49	76	105	159	284	378	660
Seat Ø	mm	24	27	27	33	33	42	55	70	85	110	130	170	228
Travel	mm	15	15	15	19	19	19	30	38	38	60	60	60	90
Nominal size		Version **without** flow divider												
NPS	DN													
½	15													
1	25	•	•	•										
1½	40	•	•	•	•	•	•							
2	50			•	•	•	•	•						
3	80						•	•	•	•				
4	100							•	•	•	•			
6	150									•	•	•	•	
8	200										•	•	•	•
Nominal size		Version **with** flow divider **ST 1**												
NPS	DN													
½	15													
1	25	•	•	•										
1½	40	•	•	•	•	•	•							
2	50			•	•	•	•	•						
3	80						•	•	•	•				
4	100							•	•	•	•			
6	150									•	•	•	•	
8	200										•	•	•	•

Table 15: *K_{VS} and C_V coefficients for Type 251GR and Type 251AR · Linear characteristic*

Series SMS with clamped-in seat · Linear characteristic with direction of flow FTO																								
K_{VS}		4.3	6.9	8.5	9.4	13	19	23	26	42	47	74	90	100	137	152	273	327	363	570	630	990	1400
C_V		5	8	10	11	15	22	27	30	49	54	85	105	116	159	177	315	378	420	660	730	1145	1620
Seat Ø	mm	24	27	27	27	33	33	42	42	55	55	70	85	85	110	110	130	170	170	228	228	280	330
Travel	mm	15	15	15	15	19	19	19	19	30	30	38	38	38	60	60	60	60	60	90	90	120	120
Nominal size		Version **without** flow divider																						
NPS	DN																							
½	15																							
1	25	•	•	•																				
1½	40	•	•		•	•	•	•																
2	50				•	•	•		•	•														
3	80								•		•	•	•											
4	100										•	•		•	•									
6	150													•		•	•	•						
8	200															•	•		•	•				
10	250																		•		•	•		
12	300																				•	•	•	

Type 3254 Globe Valve · Direction of flow FTO

Table 16: *K_{VS} and C_V coefficients for Type 3254 · Equal percentage characteristic*

Series 250 · Equal percentage characteristic with direction of flow FTO														
K_{VS}		54	63	80	100	160	250	360	420	630	1000	1350	1650	2500
C_V		62	75	95	120	190	290	420	485	735	1150	1560	1900	2900
K_V-1		47	57	72	90	144	225	320	375	560	900	1200	1500	2250
C_V-1		55	67	85	105	170	265	375	435	650	1040	1400	1730	2600
K_V-2		43	50	63	80	125	200	290	340	500	800	1080	1320	–
C_V-2		50	60	75	95	145	235	335	390	580	950	1250	1530	
K_V-3		40	47	60	75	120	190	270	315	480	750	1000	1250	–
C_V-3		47	55	70	90	140	220	315	365	560	880	1150	1450	
Seat Ø	mm	63	80		100	125	150	200		250	300	350	400	500
Travel	mm	30				60				120				
	in	1.18				2.36				4.72				
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions also available with pressure balancing												
DN	NPS													
80	3	•	•	•										
100	4	•	•	•	•									
150	6	•	•	•	•	•	•							
200	8		•	•	•	•	•	•	•					
250	10		•	•	•	•	•	•	•	•				
300	12				•	•	•	•	•	•	•			
400	16						•	•	•	•	•	•	•	
500	20									•	•	•	•	•
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions also available with pressure balancing												
DN	NPS													
80	3	•	•	•										
100	4	•	•	•	•									
150	6	•	•	•	•	•	•							
200	8		•	•	•	•	•	•	•					
250	10		•	•	•	•	•	•	•	•				
300	12				•	•	•	•	•	•	•			
400	16						•	•	•	•	•	•	•	
500	20									•	•	•	•	•

Table 17: *K_{VS} and C_V coefficients for Type 3254 · Equal percentage characteristic*

Series 250 · Equal percentage characteristic with direction of flow FTO														
K_{VS}		54	63	80	100	160	250	360	420	630	1000	1350	1650	2500
C_V		62	75	95	120	190	290	420	485	735	1150	1560	1900	2900
K_V-1		47	57	72	90	144	225	320	375	560	900	1200	1500	2250
C_V-1		55	67	85	105	170	265	375	435	650	1040	1400	1730	2600
K_V-2		43	50	63	80	125	200	290	340	500	800	1080	1320	–
C_V-2		50	60	75	95	145	235	335	390	580	950	1250	1530	
K_V-3		40	47	60	75	120	190	270	315	480	750	1000	1250	–
C_V-3		47	55	70	90	140	220	315	365	560	880	1150	1450	
Seat Ø	mm	63	80		100	125	150	200		250	300	350	400	500
Travel	mm	30				60				120				
	in	1.18				2.36				4.72				
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions also available with pressure balancing												
DN	NPS													
80	3	•	•[1]	•[1]										
100	4	•	•	•	•[1]									
150	6	•	•	•	•	•	•[1]							
200	8		•	•	•	•	•	•[1]	•[1]					
250	10		•	•	•	•	•	•	•	•[1]				
300	12				•	•	•	•	•	•	•[1]			
400	16						•	•	•	•	•	•	•[1]	
500	20									•	•	•	•	
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions also available with pressure balancing												
DN	NPS													
80	3													
100	4	•												
150	6	•	•	•	•	•								
200	8		•	•	•	•	•							
250	10		•	•	•	•	•	•	•					
300	12				•	•	•	•	•	•				
400	16						•	•	•	•	•	•		
500	20									•	•	•	•	

[1] Pressure balancing only up to PN 160/Class 900

Table 18: *K_{VS} and C_V coefficients for Type 3254 · Linear characteristic*

Series 250 · Linear characteristic with direction of flow FTO												
K_{VS}		63	100	130	250	320	500	900	1300	1700	2100	3200
C_V		75	120	150	290	375	580	1040	1500	2000	2450	3700
K_V-1		57	90	115	225	280	450	800	1150	1530	1900	2900
C_V-1		67	105	135	265	325	520	950	1350	1800	2200	3300
K_V-2		50	80	105	200	255	400	720	1030	1350	1680	–
C_V-2		60	95	120	235	295	465	835	1200	1560	1940	
K_V-3		47	75	100	190	230	375	675	950	1275	1600	–
C_V-3		55	90	120	220	270	435	780	1100	1475	1860	
Seat Ø	mm	63	80	100	125	150	200	250	300	350	400	500
Travel	mm	30			60			120				
	in	1.18			2.36			4.72				
Nominal size		Version **without** flow divider · Areas highlighted in gray indicate versions also available with pressure balancing										
DN	NPS											
80	3	•	•[*)]									
100	4	•	•	•								
150	6	•	•	•	•	•						
200	8		•	•	•	•	•					
250	10		•	•	•	•	•	•				
300	12			•	•	•	•	•	•			
400	16					•	•	•	•	•	•	
500	20							•	•	•	•	•
[*)] Reduced K_{VS}/C_V coefficients with Class 900 to 2500: K_{VS} = 90; C_V = 105												
Nominal size		Version **with** flow divider **ST 1** · Areas highlighted in gray indicate versions also available with pressure balancing										
DN	NPS											
80	3	•	•									
100	4	•	•	•								
150	6	•	•	•	•	•						
200	8		•	•	•	•	•					
250	10		•	•	•	•	•					
300	12			•	•	•	•	•	•			
400	16					•	•	•	•	•	•	
500	20							•	•	•	•	•

Table 19: *K_{VS} and C_V coefficients for Type 3254 · Linear characteristic*

Series 250 · Linear characteristic with direction of flow FTO												
K_{VS}		63	100	130	250	320	500	900	1300	1700	2100	3200
C_V		75	120	150	290	375	580	1040	1500	2000	2450	3700
K_V-1		57	90	115	225	280	450	800	1150	1530	1900	2900
C_V-1		67	105	135	265	325	520	950	1350	1800	2200	3300
K_V-2		50	80	105	200	255	400	720	1030	1350	1680	–
C_V-2		60	95	120	235	295	465	835	1200	1560	1940	
K_V-3		47	75	100	190	230	375	675	950	1275	1600	–
C_V-3		55	90	120	220	270	435	780	1100	1475	1860	
Seat Ø	mm	63	80	100	125	150	200	250	300	350	400	500
Travel	mm	30			60			120				
	in	1.18			2.36			4.72				
Nominal size		Version **with** flow divider **ST 2** · Areas highlighted in gray indicate versions also available with pressure balancing										
DN	NPS											
80	3	•	•[1]									
100	4	•	•	•[1]								
150	6	•	•	•	•	•[1]						
200	8		•	•	•	•	•[1]					
250	10		•	•	•	•	•	•[1]				
300	12			•	•	•	•	•	•[1]			
400	16					•	•	•	•	•	•[1]	
500	20							•	•	•	•	
Nominal size		Version **with** flow divider **ST 3** · Areas highlighted in gray indicate versions also available with pressure balancing										
DN	NPS											
80	3											
100	4	•										
150	6	•	•	•	•							
200	8		•	•	•	•						
250	10		•	•	•	•	•					
300	12			•	•	•	•	•				
400	16					•	•	•	•	•		
500	20							•	•	•	•	

[1] Pressure balancing only up to PN 160/Class 900

Type 3256 Angle Valve · Direction of flow FTC

Table 20: *K_{VS} and C_V coefficients for Type 3256 · Equal percentage characteristic*

Type 3256 · Equal percentage characteristic with direction of flow FTC																	
K_{VS}		4	6.3	10	13	20	30	47	54	70	85	144	220	320	400	600	950
C_V		5	7.5	12	15	23	35	55	62	80	100	170	255	375	465	700	1100
Seat Ø	mm	24		31	38	50		63	80		100	125	150	200		250	300
Travel	mm	15					30					60				120	
	in	0.59					1.18					2.36				4.72	
Nominal size		Version **without** flow divider · Pressure balancing on request															
DN	NPS																
25	1	•	•														
40	1½	•	•	•	•												
50	2	•	•	•	•	•	•										
80	3	•	•	•	•	•	•	•	•	•							
100	4				•	•	•	•	•	•	•						
150	6							•	•	•	•	•	•				
200	8								•	•	•	•	•	•	•		
250	10								•	•	•	•	•	•	•	•	
300	12										•	•	•	•	•	•	•

Table 21: *K_{VS} and C_V coefficients for Type 3256 · Linear characteristic*

Type 3256 · Linear characteristic with direction of flow FTC															
K_{VS}		4	6.3	10	13	20	35	54	85	115	220	280	480	860	1240
C_V		5	7.5	12	15	23	40	62	100	135	255	325	560	1000	1440
Seat Ø	mm	24		31		38	50	63	80	100	125	150	200	250	300
Travel	mm	15					30				60			120	
	in	0.59					1.18				2.36			4.72	
Nominal size		Version **without** flow divider · Pressure balancing on request													
DN	NPS														
25	1	•	•												
40	1½	•	•	•	•	•[1]									
50	2	•	•	•	•	•	•[1]								
80	3	•	•	•	•	•	•	•	•[1]						
100	4				•	•	•	•	•	•					
150	6							•	•	•	•	•			
200	8								•	•	•	•	•		
250	10								•	•	•	•	•	•	
300	12									•	•	•	•	•	•

[1] Reduced K_{VS}/C_V coefficients with Class 900 to 2500 on request

Ordering text

The following specifications are required on ordering:

Perforated plug for valve	Type ...
Body material	See associated Data Sheet
Type of end connections	See associated Data Sheet
Nominal size	DN .../NPS ...
Pressure rating	PN .../Class ...
Flow coefficients	K_{VS} .../C_V ...
Direction of flow	FTO: Flow-to-open (flow under the plug) FTC: Flow-to-close (flow over the plug)

Additionally required details for a retrofit:

Seat diameter	... mm
Travel	... mm