

*Liquids to Value*



Order Code for

## **VESTA**<sup>®</sup> Mixed Matched Sterile Valves

Type HCA

Made by GEA Tuchenhagen

# Register



## VESTA® Mixed Matched Sterile Valve, Type HCA

The VESTA® type HCA mixed matched sterile valve is a further development of the VESTA® type C basic variant. The mixed matched type HCA is used wherever different types of connections are required in the through-flow line and the branch line. It is designed to be used as an extraction valve for pipework systems, or for distribution of media.



Shut-off takes place in the immediate vicinity of the through-flow line. This makes reliable cleaning possible. VESTA® type HCA step-down sterile valves allow the integration of large nominal pipework diameters with the extraction of small quantities in a trouble-free and cost-effective manner. Moreover the improved flow paths, as well as the integration of additional sterilisation connections, reduce the dead pockets. The significantly reduced pipework volume on the extraction side and the improved evacuation procedure are further advantages compared with conventional solutions.

### Design features

- Aseptic bellows sealing system
- Pressure and vacuum resistant
- One-piece PTFE bellows for universal applications
- Defined pretension of the seal
- Self-locking groove nut connection
- Pocket-free design

### Benefits

- Valve body drains completely in straight pipes
- Reliable CIP/SIP cleaning thanks to optimised flow characteristics
- Long service life for the PTFE bellows
- Minimum space requirement, low process volume
- Easy and safe maintenance
- Wide range of body variants
- Sizes up to DN 65 available, larger sizes on request

### Operating media

- Operating temperature -10 °C to max. 135 °C
- Sterilisation temperature max. 150 °C for 1h
- Operating pressure 0 to 6 bar (plastic actuator ISO 60.3, max. 5 bar)

### Control air

- Control air temperature min. 0 °C, max. 70 °C
  - NO function
- Control air pressure min. 5 bar, max. 6 bar
  - NC function
- Control air pressure min. 5 bar, max. 8 bar
- Valve port cross-section 100 %

### Materials, product contact parts

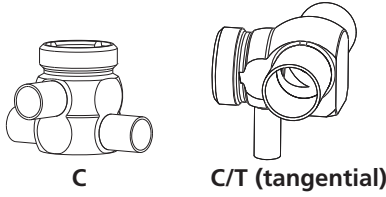
- Housing 1.4435 (AISI 316L)
- Housing socket 1.4435 (AISI 316L)
- Delta ferrite content optional
- Bellows material TFM1705 (PTFE), FDA-conformity

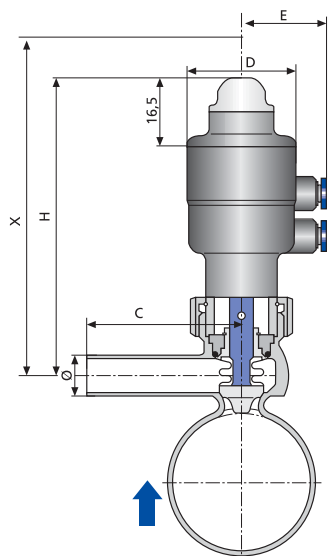
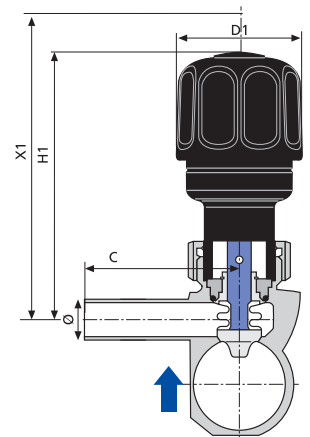
### Materials, non-product contact parts


- Stainless steel actuator 1.4301 (AISI 304)
- Synthetic actuator polyphenylene sulphide (PPS)

# VESTA® Mixed Matched Sterile Valve, Type HCA

Example for a order code

Code	Code	H	C	A	P	NW bottom	NW top	P	Z	TV1	P	1	P	D	1	52	0	20																																																																																																																																																																																																																														
Code	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	-																																																																																																																																																																																																																														
<b>H</b>	<b>1. Valve type VESTA® Sterile Valve</b>																																																																																																																																																																																																																																															
	<b>2. Valve body combination, mixed matched</b>																																																																																																																																																																																																																																															
	 <p style="text-align: center;"><b>C</b>                      <b>C/T (tangential)</b></p>																																																																																																																																																																																																																																															
<b>A</b>	<b>3. Aseptic bellows seal</b>																																																																																																																																																																																																																																															
<b>P</b>	<b>4. PTFE bellows seal</b>																																																																																																																																																																																																																																															
	Bellows material TFM1705 (PTFE), conforms to: FDA, 21CFR 177.150, USP class VI For documentation see Item 16																																																																																																																																																																																																																																															
	<b>5. Nominal width, bottom connection</b>																																																																																																																																																																																																																																															
	DIN 10 / 15 / 20 / 25 / 40 / 50 / 65 / 80 / 100																																																																																																																																																																																																																																															
	ISO 13.5 / 17.2 / 21.3 / 26.9 / 33.7 / 42.4 / 48.3 / 60.3 / 76.1 / 88.9 / 114.3																																																																																																																																																																																																																																															
	OD 0.5" / 0.75" / 1" / 1.5" / 2" / 2.5" / 3" / 4"																																																																																																																																																																																																																																															
	<b>6. Nominal width, top connection</b>																																																																																																																																																																																																																																															
	<table border="1"> <thead> <tr> <th colspan="2">DIN</th> <th colspan="10">Outside diameter acc. to DIN 11850, series II, DIN 11866, series A</th> </tr> <tr> <th>Nominal width</th> <th>Ø</th> <th>C</th> <th>E</th> <th>D</th> <th>D1</th> <th>H</th> <th>H1</th> <th>X</th> <th>X1</th> <th>Stroke</th> </tr> </thead> <tbody> <tr><td>DN 10</td><td>13x1.5</td><td>50</td><td>40</td><td>50</td><td>59</td><td>131</td><td>114</td><td>177</td><td>160</td><td>2.1</td></tr> <tr><td>DN 15</td><td>19x1.5</td><td>50</td><td>40</td><td>50</td><td>59</td><td>134</td><td>118</td><td>187</td><td>171</td><td>4</td></tr> <tr><td>DN 20</td><td>23x1.5</td><td>55</td><td>47</td><td>65</td><td>59</td><td>144</td><td>118</td><td>204</td><td>178</td><td>4.8</td></tr> <tr><td>DN 25</td><td>29x1.5</td><td>60</td><td>53</td><td>77</td><td>59</td><td>161</td><td>125</td><td>230</td><td>194</td><td>5</td></tr> <tr><td>DN 32</td><td>35x1.5</td><td>60</td><td>53</td><td>77</td><td>59</td><td>165</td><td>130</td><td>240</td><td>204</td><td>6.8</td></tr> <tr><td>DN 40</td><td>41x1.5</td><td>90</td><td>71</td><td>104</td><td>140</td><td>254</td><td>141</td><td>290</td><td>210</td><td>11.5</td></tr> <tr><td>DN 50</td><td>53x1.5</td><td>90</td><td>71</td><td>104</td><td>140</td><td>260</td><td>147</td><td>300</td><td>225</td><td>14</td></tr> <tr><td>DN 65</td><td>70x2</td><td>125</td><td>104</td><td>169.5</td><td>180</td><td>280</td><td>191</td><td>330</td><td>295</td><td>18</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">ISO</th> <th colspan="10">Outside diameter acc. to DIN EN ISO 1127, series II, DIN 11866, series B</th> </tr> <tr> <th>Nominal width</th> <th>Ø</th> <th>C</th> <th>E</th> <th>D</th> <th>D1</th> <th>H</th> <th>H1</th> <th>X</th> <th>X1</th> <th>Stroke</th> </tr> </thead> <tbody> <tr><td>ISO 13.5</td><td>13.5x1.6</td><td>50</td><td>40</td><td>50</td><td>59</td><td>131</td><td>114</td><td>177</td><td>160</td><td>2.1</td></tr> <tr><td>ISO 17.2</td><td>17.2x1.6</td><td>50</td><td>40</td><td>50</td><td>59</td><td>133</td><td>116</td><td>187</td><td>170</td><td>2.9</td></tr> <tr><td>ISO 21.3</td><td>21.3x1.6</td><td>55</td><td>47</td><td>65</td><td>59</td><td>143</td><td>118</td><td>203</td><td>178</td><td>3.2</td></tr> <tr><td>ISO 26.9</td><td>26.9x1.6</td><td>55</td><td>47.5</td><td>62</td><td>59</td><td>146</td><td>122</td><td>210</td><td>186</td><td>5</td></tr> <tr><td>ISO 33.7</td><td>33.7x2</td><td>60</td><td>53</td><td>75</td><td>59</td><td>163</td><td>126</td><td>239</td><td>202</td><td>6.8</td></tr> <tr><td>ISO 42.4</td><td>42.4x2</td><td>90</td><td>71</td><td>104</td><td>140</td><td>254</td><td>141</td><td>290</td><td>210</td><td>11.5</td></tr> <tr><td>ISO 48.3</td><td>48.3x2</td><td>90</td><td>71</td><td>104</td><td>140</td><td>257</td><td>144</td><td>300</td><td>220</td><td>9.5</td></tr> <tr><td>ISO 60.3</td><td>60.3x2</td><td>90</td><td>83.5</td><td>129</td><td>140</td><td>263</td><td>150</td><td>305</td><td>230</td><td>14</td></tr> </tbody> </table>	DIN		Outside diameter acc. to DIN 11850, series II, DIN 11866, series A										Nominal width	Ø	C	E	D	D1	H	H1	X	X1	Stroke	DN 10	13x1.5	50	40	50	59	131	114	177	160	2.1	DN 15	19x1.5	50	40	50	59	134	118	187	171	4	DN 20	23x1.5	55	47	65	59	144	118	204	178	4.8	DN 25	29x1.5	60	53	77	59	161	125	230	194	5	DN 32	35x1.5	60	53	77	59	165	130	240	204	6.8	DN 40	41x1.5	90	71	104	140	254	141	290	210	11.5	DN 50	53x1.5	90	71	104	140	260	147	300	225	14	DN 65	70x2	125	104	169.5	180	280	191	330	295	18	ISO		Outside diameter acc. to DIN EN ISO 1127, series II, DIN 11866, series B										Nominal width	Ø	C	E	D	D1	H	H1	X	X1	Stroke	ISO 13.5	13.5x1.6	50	40	50	59	131	114	177	160	2.1	ISO 17.2	17.2x1.6	50	40	50	59	133	116	187	170	2.9	ISO 21.3	21.3x1.6	55	47	65	59	143	118	203	178	3.2	ISO 26.9	26.9x1.6	55	47.5	62	59	146	122	210	186	5	ISO 33.7	33.7x2	60	53	75	59	163	126	239	202	6.8	ISO 42.4	42.4x2	90	71	104	140	254	141	290	210	11.5	ISO 48.3	48.3x2	90	71	104	140	257	144	300	220	9.5	ISO 60.3	60.3x2	90	83.5	129	140	263	150	305	230	14																	
DIN		Outside diameter acc. to DIN 11850, series II, DIN 11866, series A																																																																																																																																																																																																																																														
Nominal width	Ø	C	E	D	D1	H	H1	X	X1	Stroke																																																																																																																																																																																																																																						
DN 10	13x1.5	50	40	50	59	131	114	177	160	2.1																																																																																																																																																																																																																																						
DN 15	19x1.5	50	40	50	59	134	118	187	171	4																																																																																																																																																																																																																																						
DN 20	23x1.5	55	47	65	59	144	118	204	178	4.8																																																																																																																																																																																																																																						
DN 25	29x1.5	60	53	77	59	161	125	230	194	5																																																																																																																																																																																																																																						
DN 32	35x1.5	60	53	77	59	165	130	240	204	6.8																																																																																																																																																																																																																																						
DN 40	41x1.5	90	71	104	140	254	141	290	210	11.5																																																																																																																																																																																																																																						
DN 50	53x1.5	90	71	104	140	260	147	300	225	14																																																																																																																																																																																																																																						
DN 65	70x2	125	104	169.5	180	280	191	330	295	18																																																																																																																																																																																																																																						
ISO		Outside diameter acc. to DIN EN ISO 1127, series II, DIN 11866, series B																																																																																																																																																																																																																																														
Nominal width	Ø	C	E	D	D1	H	H1	X	X1	Stroke																																																																																																																																																																																																																																						
ISO 13.5	13.5x1.6	50	40	50	59	131	114	177	160	2.1																																																																																																																																																																																																																																						
ISO 17.2	17.2x1.6	50	40	50	59	133	116	187	170	2.9																																																																																																																																																																																																																																						
ISO 21.3	21.3x1.6	55	47	65	59	143	118	203	178	3.2																																																																																																																																																																																																																																						
ISO 26.9	26.9x1.6	55	47.5	62	59	146	122	210	186	5																																																																																																																																																																																																																																						
ISO 33.7	33.7x2	60	53	75	59	163	126	239	202	6.8																																																																																																																																																																																																																																						
ISO 42.4	42.4x2	90	71	104	140	254	141	290	210	11.5																																																																																																																																																																																																																																						
ISO 48.3	48.3x2	90	71	104	140	257	144	300	220	9.5																																																																																																																																																																																																																																						
ISO 60.3	60.3x2	90	83.5	129	140	263	150	305	230	14																																																																																																																																																																																																																																						
	X (included the clearance required for maintenance)																																																																																																																																																																																																																																															



 Recommended flow direction

# VESTA® Mixed Matched Sterile Valve, Type HCA

Example for a order code

Code	Code	H	C	A	P	NW bottom	NW top	P	Z	TV1	P	1	P	D	1	52	0	20
Code	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	-

## 6. Nominal width, top connection

**Inch OD** Outside diameter acc. to ASME-BPE 1997, DIN 11866, series C

Nominal width Ø	C	E	D	D1	H	H1	X	X1	Stroke	
0.5" OD	12.7x1.65	50	40	50	59	131	114	177	160	2.1
0.75" OD	19.05x1.65	50	40	50	59	134	118	187	171	4
1" OD	25.4x1.65	55	47	65	59	145	118	203	181	4.5
1.5" OD	38.1x1.65	90	71	104	140	253	139	290	210	8.5
2" OD	50.8x1.65	90	71	104	140	259	146	300	225	11
2.5" OD	63.5x1.65	125	104	169.5	180	277	188	330	290	12

## 7. Type of actuator

**P** = synthetic material (PPS), air/spring, up to DN 50, 2" OD, ISO 60.3

**M** = stainless steel (1.4301/316), air/spring

**H** = manual actuator (PPS)

## 8. Non-actuated position

**Z** = air-to-open/spring-to-close // and manual actuator

**A** = air-to-close/spring-to-open

**J** = air-to-open/air-to-close

Control air volume [dm<sup>3</sup>N]

Function	DN 10, 0.5" OD ISO 13.5	DN 15 0.75" OD	ISO 17.2	DN 20 1" OD	ISO 21.3	ISO 26.9	DN 25/32 ISO 33.7
Z (NC)	0.011	0.013	0.014	0.020	0.019	0.020	0.038
A (NO)	0.026	0.026	0.028	0.044	0.044	0.044	0.068

Function	DN 40, 1.5" OD ISO 42.4 / 48.3	DN 50 2" OD	ISO 60.3	DN 65 2.5" OD
Z (NC)	0.23	0.23	0.36	0.52
A (NO)	0.23	0.23	0.36	0.52

## 9. Type/location of feedback element

**TV1** = position indicator / control module type T.VIS® V-1 (for nominal size up to DN 32, 1" OD, ISO 33.7)

**TV2** = position controller type T.VIS® V-20 (for nominal size from DN 40, 1.5" OD, ISO 42.4)

**TM1** = control module T.VIS® M-1 (for nominal size from DN 40, 1.5" OD, ISO 42.4)

**TP1** = position controller T.VIS® P-1 (for nominal size up to DN 32, 1" OD, ISO 33.7)

**TP2** = position controller T.VIS® P-20 (for nominal size from DN 40, 1.5" OD, ISO 42.4)

**Ex** = SEE / ATEX (only stainless steel actuator)

**INA** = proximity switch holder

**ooo** = visual indication (standard), (manual/pneumatic actuator)

# VESTA® Mixed Matched Sterile Valve, Type HCA

Example for a order code

Code	Code	H	C	A	P	NW bottom	NW top	P	Z	TV1	P	1	P	D	1	52	0	20
Code	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	-
	<p><b>10. Control module type / solenoid valve</b></p> <p>N = without solenoid valve (TV1, TV2o)            P = one solenoid valve (TV1, TM1, SEE)            I = two solenoid valves (TV1, TM1, TP1, TP2o)            o = without solenoid valve (INA, ooo)</p>																	
	<p><b>11. Number of feedback signals</b></p> <p>o = without (ooo)            1 = one feedback signal (INA)            2 = two feedback signals (TV1, TV2o, TP1, TP2o, TM1, INA)</p>																	
	<p><b>12. Type of sensor connection</b></p> <p>A = AS Interface (TV1, TV2o, TM1)            B = 24 V DC, 3-wire, PNP (TV1, TV2o, TM1, INA)            N = 24 V DC, 3-wire, NPN (TM1, INA)            D = DeviceNet (TV1, TV2o, TM1)            E = EEX / ATEX (SEE, INA)            P = 24 V DC, programmable (TP1, TP2o)            X = proximity switch acc. to customer's specification</p>																	
	<p><b>13. Electrical connection (cable gland) / air connection</b></p> <p>o = without            D = 5-pin connector M 12 / Ø 6/4 mm (TV1, TP1, TM1, TV2o, TP2o)            K = 5-pin connector M 12 / Ø 6.35/4.35 mm, 0.25" OD - (TV1, TP1, TM1, TV2o, TP2o)            M = connection for air hose Ø 6/4 mm, proximity switch with terminal box and cable terminals (INA, ooo, manual actuator)            Z = connection for air hose 0.25" OD (6.35/4.35 mm), proximity switch with terminal box and cable terminals (INA, ooo)</p>																	
	<p><b>14. Surface finish</b></p> <p>1 = inside surfaces <math>R_a \leq 0.8 \mu\text{m}</math>, socket welds unpolished, body electrochemically cleaned            2 = inside surfaces <math>R_a \leq 0.4 \mu\text{m}</math>, socket welds polished, body electropolished</p>																	
	<p><b>15. Valve tag</b></p> <p>52 = adhesive plate</p>																	

# VESTA® Mixed Matched Sterile Valve, Type HCA

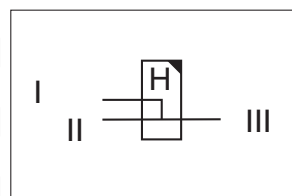
Example for a order code

Code	Code	H	C	A	P	NW bottom	NW top	P	Z	TV1	P	1	P	D	1	52	0	20
	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	-
	<b>16. Certificates</b>																	
	o = without Z = certificate acc. to EN10204-3.1 W = factory test certificate EN10204-2.2 F = ferrite content certificate O = surface test certificate K = certificate of FDA conformity U = certificate of USP class VI conformity X = acceptance acc. to customer's specification																	
	<b>17. Accessories</b>																	
	20 = stroke limiter open 21 = seal adjuster close 22 = 5 pin connector/junction box 29 = quick release handle (for nominal size up to DN 32, 1" OD, ISO 33.7) 43 = VESTAMID®* - UV resistant material; for oil and fat containing control air																	
	*) VESTAMID® is registered as a trademark of the Degussa AG																	

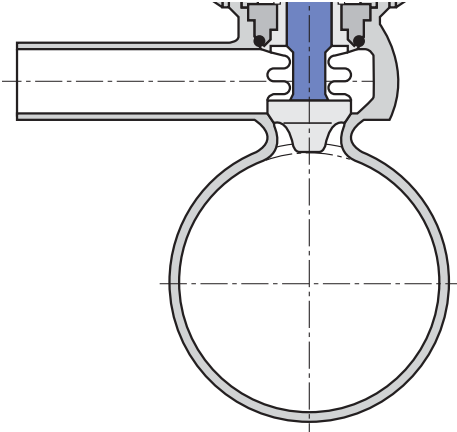
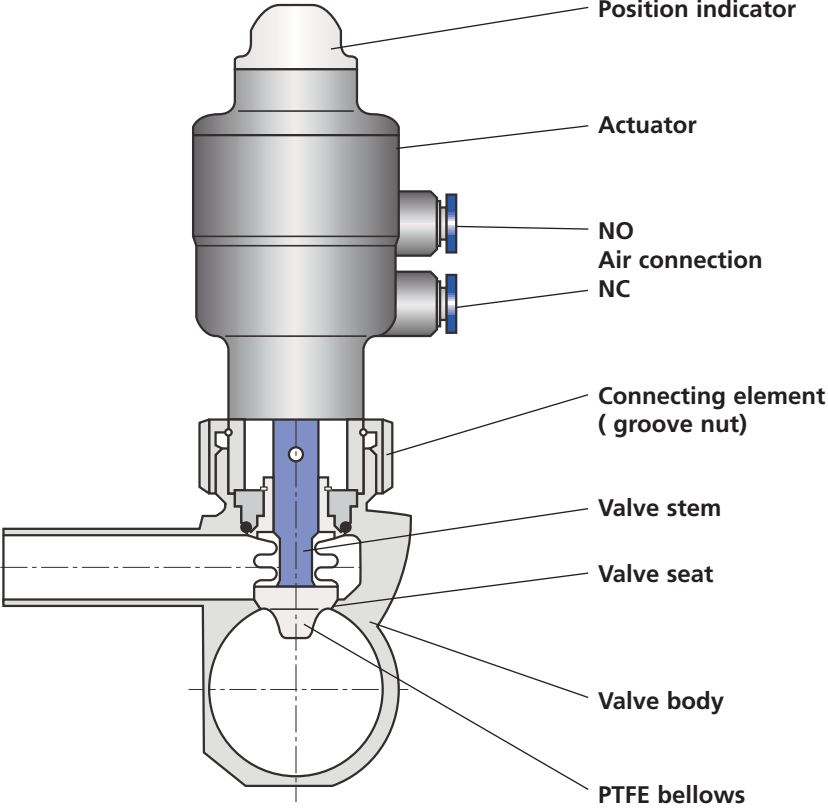
## Key figures

	Ø	Stroke [mm]	Kv value [m³/h]			Weight acc. to actuator [kg]		
			I-II	I-III	III-I	Synthetic Stainless Steel	Manual	
<b>DIN</b> Outside socket diameter, acc. to DIN11866, series A / DIN11850, series II								
DN 10	13x1.5	2.1	2	2.3	2.1	0.48	1.04	0.56
DN 15	19x1.5	4	6.4	6.5	5.9	0.64	1.10	0.62
DN 20	23x1.5	4.8	10.4	11.8	11.8	1.03	1.82	0.93
DN 25	29x1.5	5	15.2	16.7	16.9	1.59	2.63	1.36
DN 40	41x1.5	11.5	45.96	44.05	43.37	5.2	6.6	3.3
DN 50	53x1.5	13.5	61.53	67.66	70.00	5.5	6.9	3.5
DN 65	70x2	18	120.22	120.28	133.22	-	15.6	9.3
<b>Inch OD</b> Outside socket diameter, acc. to ASME-BPE, DIN11866, series C								
0.5" OD	12.7x1.65	2.1	2.1	2.2	2.2	0.48	1.04	0.56
0.75" OD	19.05x1.65	4	6.5	6.9	6.0	0.64	1.1	0.62
1" OD	25.4x1.65	4.5	12.4	12.9	12.7	1.08	1.87	0.98
1.5" OD	38.1x1.6	8.5	42.58	37.42	37.25	5.2	6.6	3.3
2" OD	50.8x1.6	11	66.89	63.59	65.26	5.5	6.9	3.5
2.5" OD	63.5x1.6	12	106.88	99.49	93.70	-	15.6	9.3
<b>ISO</b> Outside socket diameter, acc. to DIN EN ISO1127, DIN11866, series B								
ISO 13.5	13.5x1.6	2.1	2.4	2.8	2.5	0.48	1.04	0.56
ISO 17.2	17.2x1.6	2.9	4.1	5.2	4.5	0.63	1.09	0.61
ISO 21.3	21.3x1.6	3.2	8.2	9.1	8.8	1.02	1.81	0.92
ISO 26.9	26.9x1.6	5	13.7	14.3	13.7	1.1	1.88	0.99
ISO 33.7	33.7x2.0	6.8	20.2	22.3	21.8	1.85	2.7	1.45
ISO 42.4	42.2x2	11.5	48.12	46.35	43.84	5.2	6.6	3.3
ISO 48.3	48.3x2	9.5	53.15	60.56	57.24	5.5	6.9	3.5
ISO 60.3	60.3x2	14	92.37	84.60	88.19	5.6	8.6	3.7

Kv- flow direction



# VESTA® Mixed Matched Sterile Valve, Type HCA





GEA Mechanical Equipment

**GEA Tuchenhagen GmbH**

Am Industriepark 2-10, 21514 Büchen, Germany

Phone +49 4155 49-0, Fax +49 4155 49-2423

sales.geatuchenhagen@geagroup.com, [www.tuchenhagen.com](http://www.tuchenhagen.com)