

## HazEx™ Selection Guide



## HazEx™ Solenoid Valves for Hazardous Locations

- Valves designed exclusively for demanding Class 1, Division 1 or Zone 1 environments
- 2 -, 3 -, and 4-Way Operation
- Fully Encapsulated Coils
- Fused Protection
- 1/2" NPT Conduit or European Cable Connections
- Burkert's Exclusive Isolated Diaphragm System
- Readily Available Manifolds
-  EEx (ATEX)
- Rapid Delivery / Local Stock

Burkert's worldwide certifications allow North American engineers to choose easily to employ either North American or European standards. With certifications for FM, CSA and EEx (ATEX) let Burkert build a valve for your toughest hazardous location application. Modularity allows us to stock what you need, where you need it. Burkert is also the world leader in I.S. intrinsically safe valve technology as well as control strategies for Profibus-PA and Foundation Fieldbus.

### Pivoted Armature is a Burkert Exclusive

For the ultimate in solenoid valve performance, take a close look at the Type 5282, Type 330 and Type 340 designs shown inside. Our main objective when designing these valves was to completely isolate the electromagnetic components and moving valve actuators from the fluid media. Corrosion and wear on these components is significantly reduced. To accomplish this we did more than rethink the up-and-down actuator traditionally used in solenoid valves... we eliminated it! In its place we designed

the Pivoted Armature: a back-and-forth, levered actuator that pivots just below the coil, minimizing movement and friction.

With the Pivoted Armature, fluid media is completely isolated from the coil and all moving parts by a one-piece, elastomeric diaphragm. In addition to keeping all electrical and moving parts separated from possibly corrosive fluid, the diaphragm encasing the pivoted armature acts as the orifice seal. Because of the unique armature, and a vibration-resistant, encapsulated coil, it is not uncommon for a HazEx valve with the Pivoted Armature to achieve over 25 million cycles.

### Manual Override

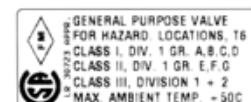
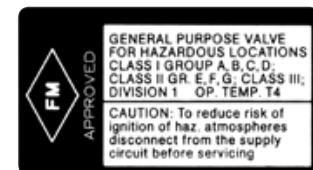
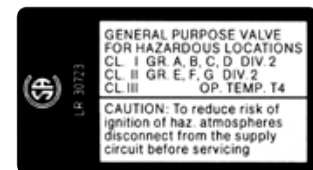
This feature, also standard on the Type 5282, 330 and 340, provides a quick and convenient method to override the normal position of the valve should power be lost to the coil. A simple push of your fingertip provides a momentary override for testing or start-up; push and twist to lock in the override. Use this feature one time and you'll want it on all your valves! A tamper-proof version is also available.

Designed for the unique North American environment in:

- Petro-Chemicals
- Chemical
- Industrial Gases
- Power Generation
- Sour & Sweet Gas Handling

Stainless 3/2-way NPT and NAMUR Pilot Valves  
Manifold Versions

3/2 or 4/2-way Valve islands  
Standard with no yellow metals  
Low Temperature Operation



**HazEx™ Selection Guide**

**Please Note: Standard Versions Listed / Other Versions Available Incl. 24VAC Versions**

EEx (ATEX) Approved Standard Valves also included starting on page 10 - For Foreign Projects  
 AGA / CGA - Available On 255 / 330 / 331 / 407 / 6011 / 6013 / 6014 / 6021 / 6022 / 6023  
 To 6.5 - M95/ANS1 Z21.21 - 1995

**2/2-Way Solenoid Valves**

**HazEx 6013 Series, FM / CSA Approved:**

NC, 8 Watts, Viton, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4  
 NC, 7 Watts, Viton, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4  
 Manifold versions on page 8, Media Temperature -10 to 100°C / 14 to 212°F,  
 Ambient -10 to 40°C/ 14 to 104°F, T4 = 135°C / 275°F Max. Surface Temperature

Port size	Orifice	C <sub>v</sub> value	DC PSI range	AC PSI range	Body material	Item no.		
						24VDC	120VAC	240VAC
1/8"	5/64"	0.14	0 – 172	0 – 362	Brass	462 272	462 273	–
1/8"	5/64"	0.14	0 – 172	0 – 362	Stainless Steel	462 280	462 281	–
1/4"	5/64"	0.14	0 – 172	0 – 362	Brass	462 274	462 275	–
1/4"	5/64"	0.14	0 – 172	0 – 362	Stainless Steel	462 282	462 283	–
1/4"	5/64"	0.14	0 – 87	–	Stainless Steel	<b>460 481</b>	–	–
1/8"	1/8"	0.27	0 – 87	0 – 145	Brass	462 276	462 277	–
1/8"	1/8"	0.27	0 – 87	0 – 145	Stainless Steel	462 284	462 285	–
1/4"	1/8"	0.27	0 – 87	0 – 145	Brass	462 278	462 279	–
1/4"	1/8"	0.27	0 – 87	0 – 145	Stainless Steel	462 286	462 287	–
1/4"	1/8"	0.27	0 – 36	–	Stainless Steel	<b>460 134</b>	–	–
1/4"	5/32"	0.37	–	0 – 50	Stainless Steel	–	<b>459 046</b>	<b>459 048</b>

\* Note: 7 watt version in bold type

**2/2-Way Solenoid Valves (continued...)**

**HazEx 5281 Series, FM / CSA Approved:**

2-way NC, 8 watts, NBR, Brass Body, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4  
 FM / CSA Approved, Media Temperature -10 to 90°C / 14 to 194°F,  
 T4 = 135°C / 275°F Maximum Surface Temperature

Port size	Orifice	C <sub>v</sub> value	PSI Range	Item no.	
				24VDC	120VAC
1/2"	1/2"	4.6	2.8 – 232	462 292	462 293
3/4"	3/4"	5.8	2.8 – 232	462 294	462 295
1"	1"	11.6	2.8 – 232	462 296	462 297
1-1/4"	1 1/4"	23.3	2.8 – 232	462 298	462 299
1-1/2"	1 1/2"	23.3	2.8 – 232	462 300	462 301
2"	2"	46.6	2.8 – 232	462 302	462 303

**More Innovative Process Products**



**2/2-Way Solenoid Valves (continued...)**

**HazEx 5282 Series, FM / CSA Approved:**

2-way NC, 8 watts, Class 1, 11, 111; Groups A,B,C,D,E,F and G; Div. 1, Temp. Code T4

AC coils 50/60 Hz, Manual Override STD, **CSA Approval for Div. 2 only.**

Media Temperature -10 to 90°C / 14 to 194°F, T4 = 135°C / 275°F Max. Surface Temperature

Port size	Orifice	Function	C <sub>v</sub> value	PSI range	Body material	Seal material	Item no.	
							24VDC	120VAC
1/2"	1/2"	NC	4.6	2.8 – 145	Brass	NBR	462 304	462 305
1/2"	3/4"	NC	5.8	2.8 – 145	Stainless Steel	FPM	462 316	462 317
3/4"	3/4"	NC	5.8	2.8 – 145	Brass	NBR	462 306	462 307
3/4"	3/4"	NC	5.8	2.8 – 145	Stainless Steel	FPM	462 318	462 319
1"	1"	NC	11.6	2.8 – 145	Brass	NBR	462 308	462 309
1"	1"	NC	11.6	2.8 – 145	Stainless Steel	FPM	462 320	460 644
1 1/4"	1 1/4"	NC	23.3	2.8 – 145	Brass	NBR	462 310	462 311
1 1/4"	1 1/4"	NC	23.3	2.8 – 145	Stainless Steel	FPM	462 321	460 645
1 1/2"	1 1/2"	NC	23.3	2.8 – 145	Brass	NBR	462 312	462 313
1 1/2"	1 1/2"	NC	23.3	2.8 – 145	Stainless Steel	FPM	459 323	460 646
2"	2"	NC	46.6	2.8 – 145	Brass	NBR	462 314	462 315
2"	2"	NC	46.6	2.8 – 145	Stainless Steel	FPM	462 322	462 323

**HazEx 6213 Series, FM / CSA Approved:**

2-way NC, 8 watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1,

Zero Differential, Media Temperature -10 to 90°C / 14 to 194°F,

T4 = 135°C / 275°F Maximum Surface Temperature

Port size	Orifice	Function	C <sub>v</sub> value	PSI range	Body material	Seal material	120VAC
1/2"	1/2"	NC	4.19	0 – 145	Stainless Steel	EPDM	460 333
3/4"	3/4"	NC	10.49	0 – 145	Brass	EPDM	459 228
1/4"	3/8"	NC	2.33	0 – 145	Brass	NBR	462 204
3/8"	3/8"	NC	2.33	0 – 145	Brass	NBR	462 205
1/2"	1/2"	NC	4.19	0 – 145	Brass	NBR	462 206
3/4"	3/4"	NC	10.49	0 – 145	Brass	NBR	462 207
1"	3/4"	NC	10.49	0 – 145	Brass	NBR	462 208

### 3/2-Way Solenoid Valves

**HazEx 6014 Series, FM / CSA Approved:**

3-way, 8 Watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4

Manifold versions on page 8: Media Temperature -10 to 90°C / 14 to 194°F, **-40°C/F-NBR**,

T4 = 135°C / 275°F Max. Surface Temperature, Universal Types will offer higher pressure ratings

when piped in NC or NO configurations. **Note:** Adaptors available for piping exhaust ports.

Function	Port size	Orifice	PSI range	Body material	Seal material	Item no.			
						12VDC	24VDC	120VAC	240VAC
NC	1/8"	1/16"	0 – 232	Brass	FPM	–	462 324	458 629	458 630
NC	1/4"	1/16"	0 – 232	Brass	FPM	–	462 325	458 632	458 633
NC	1/8"	1/16"	0 – 232	Stainless Steel	FPM	–	460 052	458 665	458 666
NC	1/4"	1/16"	0 – 232	Stainless Steel	FPM	–	462 326	458 668	458 669
NC	1/8"	5/64"	0 – 145	Brass	FPM	–	462 327	458 635	458 636
NC	1/4"	5/64"	0 – 145	Brass	FPM	–	462 328	458 638	458 639
NC	1/4"	5/64"	0 – 145	Stainless Steel	FPM	–	459 296	458 674	458 675
NC	1/4"	7/64"	0 – 87	Brass	FPM	–	462 329	458 641	458 642
NC	1/4"	1/8"	0 – 43	Stainless Steel	FPM	460 343	460 342	462 330	–
NC	1/4"	1/8"	0 – 43	Brass	FPM	–	462 331	462 332	–
NO	1/8"	1/16"	0 – 232	Stainless Steel	FPM	–	462 335	458 680	458 681
NO	1/8"	1/16"	0 – 232	Brass	FPM	–	462 333	458 644	458 645
NO	1/4"	1/16"	0 – 232	Stainless Steel	FPM	–	462 336	458 683	458 684
NO	1/4"	1/16"	0 – 232	Brass	FPM	–	462 334	458 647	458 648
NO	1/8"	5/64"	0 – 145	Brass	FPM	–	462 337	458 650	458 651
NO	1/4"	5/64"	0 – 145	Brass	FPM	–	462 338	458 653	458 654
NO	1/8"	5/64"	0 – 145	Stainless Steel	FPM	–	462 339	458 686	458 687
NO	1/4"	5/64"	0 – 145	Stainless Steel	FPM	–	462 340	458 689	458 690
UN	1/8"	1/16"	0 – 100	Brass	FPM	–	462 341	458 659	458 660
UN	1/4"	1/16"	0 – 100	Stainless Steel	NBR	–	459 237	459 235	459 236
UN	1/4"	1/16"	0 – 100	Brass	FPM	–	462 342	458 662	458 663
UN	1/4"	1/16"	0 – 100	Stainless Steel	FPM	–	462 343	458 698	458 699

**3/2-Way Solenoid Valves (continued...)**

**HazEx 330 Series, FM / CSA Approved:**

3-way, 8 Watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4

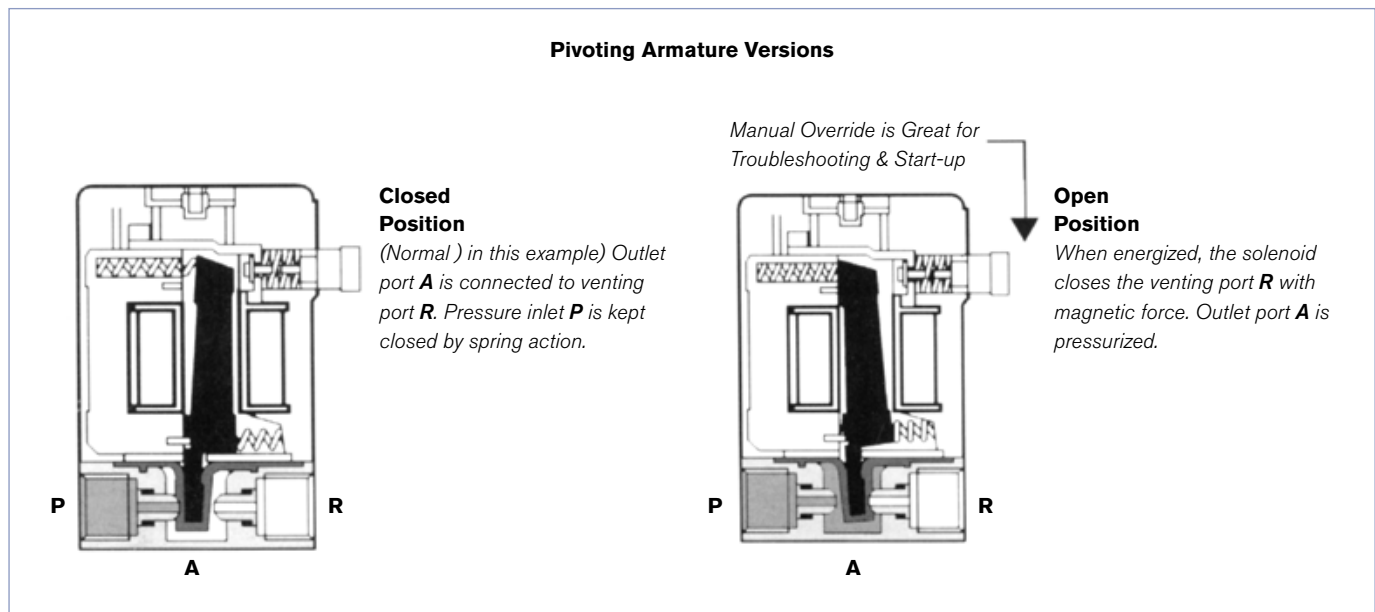
**CSA Approval on Division 2 only**, All AC coils 50/60 Hz except for \*60 Hz,

Manual Override STD., Media Temp. -10 to 90°C / 14 to 194°F, T4 = 135°C / 275°F Max. Surface Temp.

Function NC-3-way, NO-3-way, UN-3-way mixer/universal, A-2-way NC

Port size	Orifice	Function	C <sub>v</sub> value	PSI range	Body material	Seal material	Item no.		
							12VDC	24VDC	120VAC
1/4"	5/64"	NC	0.13	0 – 232	Stainless Steel	EPDM	–	455 553	–
1/4"	5/64"	NC	0.13	0 – 232	Stainless Steel	EPDM	–	–	*455 456
1/4"	5/64"	NC	0.13	0 – 174	Brass	FPM	456 767	457 387	455 111
1/4"	5/64"	NC	0.13	0 – 174	Stainless Steel	NBR	–	–	459 249
1/4"	5/64"	NO	0.13	0 – 232	Stainless Steel	EPDM	–	455 580	456 103
1/4"	5/64"	NO	0.13	0 – 145	Brass	FPM	–	455 306	455 254
1/4"	5/64"	NO	0.13	0 – 145	Stainless Steel	FPM	–	–	455 229
1/4"	5/64"	UN	0.13	0 – 145	Brass	NBR	–	458 249	458 250
1/4"	5/64"	UN	0.13	0 – 87	Brass	FPM	–	–	455 255
1/4"	1/8"	NC	0.27	0 – 145	Brass	EPDM	–	–	457 146
1/4"	1/8"	NC	0.27	0 – 145	Brass	FPM	–	455 302	455 303
1/4"	1/8"	NC	0.27	0 – 145	Stainless Steel	FPM	–	455 561	455 304
1/4"	1/8"	NO	0.27	0 – 145	Stainless Steel	FPM	457 286	–	455 229
1/4"	1/8"	NO	0.27	0 – 145	Brass	FPM	–	455 306	455 254
1/4"	1/8"	UN	0.27	0 – 145	Brass	NBR	–	–	458 253
1/4"	1/8"	UN	0.27	0 – 145	Stainless Steel	FPM	–	458 258	458 259
1/4"	5/32"	NC	0.33	0 – 72	Brass	FPM	457 264	455 305	457 263
1/4"	5/32"	NC	0.33	0 – 72	Stainless Steel	FPM	457 266	–	457 265

**Increase Reliability with this Innovative Design!**



### 3/2-Way Solenoid Valves (continued...)

**HazEx 340 Series, FM / CSA Approved:**

3-way, 8 Watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4

FM Approved, **CSA Approval for Division 2 only**, All AC coils 50/60 Hz except for \*60 Hz,

Manual Override STD., Media Temp. -10 to 90°C / 14 to 194°F, T4 = 135°C / 275°F Max. Surface Temp.

Port size (P, A/B)	Port size (R)	Orifice	Function	C <sub>v</sub> value	PSI Range	Body material	Seal material	Item no.	
								24VDC	120VAC
1/4"	3/8"	5/16"	NC	1.1	7 – 174	Brass	NBR	462 349	455 235
3/8"	3/4"	7/16"	NC	2.7	7 – 174	Brass	NBR	462 350	455 311
1/2"	3/4"	7/16"	NC	3	7 – 174	Brass	NBR	455 309	455 310
3/4"	1"	3/4"	NC	7.7	7 – 174	Brass	NBR	455 233	455 234
1"	1 1/4"	1"	NC	11.7	7 – 145	Brass	NBR	462 351	455 258
1 1/2"	2"	1 1/2"	NC	28	7 – 145	Brass	NBR	462 352	455 312
1/4"	3/8"	5/16"	NO	1.1	7 – 174	Brass	NBR	462 353	455 237
3/8"	3/4"	7/16"	NO	2.7	7 – 174	Brass	NBR	462 354	455 315
1/2"	3/4"	7/16"	NO	3	7 – 174	Brass	NBR	455 321	455 314
3/4"	1"	3/4"	NO	7.7	7 – 174	Brass	NBR	462 355	455 313
1"	1 1/4"	1"	NO	11.7	7 – 145	Brass	NBR	462 356	455 236
1 1/2"	2"	1 1/2"	NO	28	7 – 145	Brass	NBR	462 357	462 358

### 4/2- & 5/2-Way Solenoid Valves

**HazEx 6519 Series, FM / CSA Approved:**

4-way / 3-way, 2 Watts, NBR, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1,

\*Without Manual Override, FM / CSA Approved, Polyamide Body / Thermoplastic

Media Temperature -10 to 60°C / 14 to 140°F, T6 = 85°C / 185°F Max. Surface Temp.

**Note:** Adaptors available for piping exhaust ports.

Port size	Orifice	C <sub>v</sub> value	Pressure range	Item no.		
				24VDC	120VAC	240VAC
Sub-Base	1/4"	1.3	28 – 115	462 359	–	<b>459 234</b>
1/4"	5/16"	1.4	28 – 115	<b>459 232</b>	<b>459 233</b>	–
1/4"	5/16"	1.4	28 – 115	–	*458 482	–
NAMUR	1/4"	1.3	28 – 115	433 665	433 667	–
NAMUR	5/16"	1.4	28 – 115	–	–	–
NAMUR	1/4"	1.3	28 – 115	–	<b>438 570</b>	–

**Note:** Interchangeable removable plates for 3/4-way use on NAMUR type valves included. Valves with stainless steel threaded inserts are in bold print.

**Manifold Versions**

**HazEx 6013/6014 Manifold Versions:**

Normally Closed Versions Only, 7W

**Note:** Adaptors available for piping exhaust ports.

Type	Orifice	C <sub>v</sub> value	Pressure range	Body material	Seal material	Manual override	Item no.	
							24VDC	120VAC
6013	5/64"	0.14	0-87	Brass	FPM	NO	462 288	462 289
	1/8"	0.27	0-36	Brass	FPM	NO	462 290	462 291
	1/16"	0.09	0-145	Stainless Steel	FPM	NO	459 299	–
6014	1/16"	0.09	0-145	Brass	FPM	NO	462 344	462 345
	5/64"	0.13	0-87	Stainless Steel	NBR	NO	462 346	462 347

**Note:** Standard 8W version available for higher pressure ratings, please consult a technical representative.

**Manifolds for 7 Watt Versions of the 6013/6014 Series:**

All Ports 1/8" NPT

Stations	Item no.
1	613 827
2	006 104
3	613 828
4	006 106
5	613 829
6	613 598
8	613 831
Blank Kit	006 193



**Note:** Type 6014 7 watt version shown



**Manifold Versions (continued...)**

**HazEx 331 Manifold Series, FM / CSA Approved:**

3-way, 8 Watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temp. Code T4

**CSA Approval on Division 2 only**, All AC coils 50/60 Hz except for \*60 Hz,

Manual Override STD., Media Temp. -10 to 90°C / 14 to 194°F, T4 = 135°C / 275°F Max. Surface Temp.

Function: NC-3-way normally closed, NO-3-way normally open, UN-3-way mixer/universal

Orifice	Function	C <sub>v</sub> value	Pressure range	Body material	Seal material	Item no.			
						12VDC	24VDC	120VAC	240VAC
5/64"	NC	0.11	0 – 174	Stainless Steel	FPM	457 937	457 938	456 232	457 940
5/64"	NC	0.11	0 – 174	Brass	FPM	–	457 213	–	–
5/64"	NO	0.11	0 – 174	Stainless Steel	FPM	457 941	457 943	456 233	457 944
5/64"	UN	0.09	0 – 174	Stainless Steel	FPM	–	458 349	458 350	458 351
5/64"	UN	0.09	0 – 174	Brass	NBR	–	458 346	458 347	458 348
1/8"	NC	0.17	0 – 145	Brass	FPM	–	–	455 256	–
1/8"	NO	0.17	0 – 145	Brass	FPM	–	455 231	455 232	–
1/8"	UN	0.17	0 – 87	Brass	FPM	–	–	455 308	–

**Note:** For functions NC and NO, the C<sub>v</sub> value is reduced 20% on VDC versions.

**Manifolds For 331:**

All Ports 1/8" NPT

Stations	Item no.
1	613 983
2	006 110
3	613 706
4	006 111
5	613 704
6	613 703
Blank Pl.	006 222
Nipple	005 049



**Solenoid Control (Proportional) Valve**

**HazEx 6022 Series, FM / CSA Approved:**

2-way, 8 Watts, Class 1, 11, 111; Groups A, B, C, D, E, F and G; Div. 1, Temperature Code T4

Media Temperature -10 to 90°C / 14 to 194°F, Ambient +55°C / 131°F, T4 = 135°C / 275°F Max. Surface Temp.

Type	Orifice	Seal	Body	Port	Voltage	C <sub>v</sub> value range	Pressure range [PSI]	Wattage	Item no.
6022	5/64"	FPM	Stainless Steel	1/4"NPT	24VDC	0 – .12	0 – 115	8	459 269

Others on request (dependant on potential volume).

## EEx (ATEX) Approved Valves

Three Hazardous Location Labels will be applied: Notified Body who issued the EC Certification or the CE examination Certificate (ATEX), CE marking (including Notified Body#), EEx Marking as presented in this documentation for respective solenoid valve types. For more detailed information on Approvals please refer to our Approvals for Hazardous Locations Guide:

### European Protection Standards (Burkert Participation):

EN 50014 General Requirements  
EN 50018 Flameproof enclosure "d"  
EN 50019 Increased Safety "e"  
EN 50020 Intrinsic Safety "I"  
EN 50028 Encapsulation "m"

## 3/2-Way Solenoid Valves

**EEx - 6014 series**, 3-way / Body Ported Type, All Voltages Dual AC/DC, Terminal Box - "me", Viton, 9 W  
Media Temp. -10 to 100°C, Ambient + 55°C max., EEx m II T4 = E = Approval According to European Standard,  
Ex = use in potentially explosive atmosphere, m = Encapsulation used protection system,  
me = Encapsulation and Increased Safety used protection system on terminal box,  
II = Gas Group II, T4 = Max. surface Temperature of 135°C

### Zone 1

Function	Orifice [mm]	Bar	Body material	Port	Ex-Approval	Item no.		
						24/UC	110/UC	230/UC
NC	2	0 – 10	Brass	G1/8	EEx m II T4	136 076	136 077	136 078
NC	2	0 – 10	Brass	G1/4	EEx m II T4	136 079	136 080	136 081
NC	2.5	0 – 6	Brass	G1/8	EEx m II T4	136 082	136 083	136 084
NC	2.5	0 – 6	Brass	G1/4	EEx m II T4	136 085	136 086	136 087
NC	2	0 – 10	Brass	G1/8	EEx m II T4	<b>136 088</b>	<b>136 089</b>	<b>136 090</b>
NC	2	0 – 10	Brass	G1/4	EEx m II T4	<b>136 091</b>	<b>136 092</b>	<b>136 093</b>
NC	2.5	0 – 6	Brass	G1/8	EEx m II T4	<b>139 981</b>	<b>139 982</b>	<b>139 983</b>
NC	2.5	0 – 6	Brass	G1/4	EEx m II T4	<b>139 987</b>	<b>139 988</b>	<b>139 989</b>
NC	2	0 – 10	Stainless Steel	G1/8	EEx m II T4	136 112	136 113	136 114
NC	2	0 – 10	Stainless Steel	G1/4	EEx m II T4	136 115	136 116	136 117
Universal	1.5	0 – 7	Brass	G1/8	EEx m II T4	136 094	136 095	136 096
Universal	1.5	0 – 7	Brass	G1/4	EEx m II T4	136 097	136 098	136 099
Universal	1.5	0 – 7	Stainless Steel	G1/8	EEx m II T4	136 118	136 119	136 120
Universal	1.5	0 – 7	Stainless Steel	G1/4	EEx m II T4	136 121	136 122	136 123
NC	2	0 – 10	Brass	G1/8	EEx me IIT4	139 963	139 964	139 965
NC	2	0 – 10	Brass	G1/4	EEx me IIT4	139 966	139 967	139 968
NC	2.5	0 – 6	Brass	G1/8	EEx me IIT4	139 969	139 970	139 971
NC	2.5	0 – 6	Brass	G1/4	EEx me IIT4	139 972	139 973	139 974
NC	2	0 – 10	Brass	G1/8	EEx me IIT4	<b>139 975</b>	<b>139 976</b>	<b>139 977</b>
NC	2	0 – 10	Brass	G1/4	EEx me IIT4	<b>139 978</b>	<b>139 979</b>	<b>139 980</b>
NC	2.5	0 – 6	Brass	G1/8	EEx me IIT4	<b>139 984</b>	<b>139 985</b>	<b>139 986</b>
NC	2.5	0 – 6	Brass	G1/4	EEx me IIT4	<b>139 990</b>	<b>139 991</b>	<b>139 992</b>
NC	2	0 – 10	Stainless Steel	G1/8	EEx me IIT4	140 011	140 012	140 013
NC	2	0 – 10	Stainless Steel	G1/4	EEx me IIT4	140 014	140 015	140 016
Universal	1.5	0 – 7	Brass	G1/8	EEx me IIT4	139 993	139 994	139 995
Universal	1.5	0 – 7	Stainless Steel	G1/8	EEx me IIT4	140 017	140 018	140 019
Universal	1.5	0 – 7	Stainless Steel	G1/4	EEx me IIT4	140 020	140 021	140 022
NC	2.0	0 – 10	Stainless Steel	NPT 1/4"	EEx me IIT4	159 654	159 656	–

**Note:** Adapters available for piping exhaust ports. Versions with manual override in bold print.

**3/2-Way Solenoid Valves (continued...)**

**EEx - 6014 series**, 3-way / Manifold Type, All Voltages Dual AC/DC, Terminal Box - "me", Viton,  
Media Temperature -10 to 100°C, Ambient +55°C max., EEx m II T4 = E = Approval According to European Std.,  
Ex = use in potentially explosive atmosphere, m = Encapsulation used protection system,  
me = Encapsulation and Increased Safety used protection system on terminal box,  
II = Gas Group II, T4 = Maximum Surface Temperature of 135°C

**Zone 1**

Function	Orifice [mm]	Bar	Body material	Watts	Approval	Item no.		
						24/UC	110/UC	230/UC
NC	1.2	0 – 10	Polyamide	3	EEx m II T4	140 002	140 003	140 004
NC	1.5	0 – 10	Polyamide	7	EEx m II T4	136 100	136 101	136 102
NC	1.5	0 – 10	Brass	7	EEx m II T4	136 106	136 107	136 108
NC	2	0 – 6	Brass	7	EEx m II T4	136 109	136 110	136 111
NC	1.2	0 – 10	Polyamide	3	EEx m II T4	136 103	136 104	136 105
NC	1.2	0 – 10	Polyamide	1.8	EEx m II T4	136 552	136 553	136 554
NC	1.2	0 – 10	Polyamide	3	EEx me IIT4	139 999	140 000	140 001
NC	1.2	0 – 10	Polyamide	1.8	EEx me IIT4	140 005	140 006	140 007
NC	1.5	0 – 10	Polyamide	7	EEx me IIT4	139 996	139 997	139 998

**Manifolds for 6014:**

All Ports NPT 1/8"

Stations	Item no.
1	613 827
2	005 023
3	005 286
4	005 287
5	005 035
6	005 038
8	005 386
10	005 764
Blank	005 630



**3/2-Way Solenoid Valves – Pivoted Arm**

**EEx - 0780 Series**, 3-way / Ported/Manifold Type, All Voltages Dual AC/DC, M/O, Viton, Pivoted Armature Design, Isolating Diaphragm, 40W Inrush, 3W Hold, Media Temp. 0 to 70°C, Ambient +60°C maximum, EEx ed IIC T5 = E = Approval According to European Standard, Ex = use in potentially explosive atmosphere, e = Increased Safety, d = Flameproof Enclosure, IIC = Gas Group II, T5 = Max. surface Temperature of 100°C

**Zone 1**

Function	Orifice	C <sub>v</sub> value	Bar	Body	Ports	Approval	Item no.		
							24/UC	110/UC	230/UC
NC	2mm	.11	0 – 12	Brass	MANF.	EExedIIC T5	–	–	<b>142 705</b>
NC	2mm	.11	0 – 12	Stainless Steel	MANF.	EExedIIC T5	–	<b>137 604</b>	–
NC	2mm	.13	0 – 12	Stainless Steel	G1/4	EExedIIC T5	141 697	–	–
NC	2mm	.13	0 – 12	Stainless Steel	1/4" NPT	EExedIIC T5	<b>141 696</b>	139 807	–
NC	3mm	.17	0 – 10	Brass	MANF.	EExedIIC T5	<b>150 969</b>	–	150 262
NC	3mm	.17	0 – 10	Stainless Steel	MANF.	EExedIIC T5	145 703	145 477	145 478
NC	3mm	.27	0 – 10	Stainless Steel	G1/4	EExedIIC T5	137 073	<b>142 669</b>	<b>137 075</b>
NC	4mm	.34	0 – 5	Stainless Steel	1/4" NPT	EExedIIC T5	–	–	–
NC	4mm	.34	0 – 5	Stainless Steel	G1/4	EExedIIC T5	<b>141 987</b>	–	–
Universal	2mm	.11	0 – 10	Brass	MANF.	EExedIIC T5	138 252	138 253	138 254
Universal	2mm	.11	0 – 10	Stainless Steel	MANF.	EExedIIC T5	138 264	<b>138 267</b>	137 899
Universal	2mm	.12	0 – 10	Stainless Steel	G1/4	EExedIIC T5	139 390	–	139 392
Universal	2mm	.12	0 – 10	Brass	G1/4	EExedIIC T5	135 627	–	135 647
Universal	2mm	.12	0 – 10	Stainless Steel	1/4" NPT	EExedIIC T5	–	<b>140 397</b>	–
Universal	3mm	.27	0 – 6	Brass	G1/4	EExedIIC T5	–	–	<b>135 623</b>
Universal	3mm	.27	0 – 6	Brass	1/4" NPT	EExedIIC T5	–	<b>135 258</b>	<b>136 778</b>
Universal	3mm	.27	0 – 6	Stainless Steel	G1/4	EExedIIC T5	137 084	–	137 086
Universal	3mm	.27	0 – 6	Stainless Steel	1/4" NPT	EExedIIC T5	<b>135 256</b>	<b>137 299</b>	<b>138 730</b>
Universal	4mm	.34	0-3.5	Stainless Steel	G1/4	EExedIIC T5	122 233	–	137 902

**Note:** Version with terminal box in bold print.

**Manifolds for 780:**

All Ports NPT 1/4"

Stations	Item no.
1	613 983
2	006 110
3	613 706
4	006 111
5	613 704
6	613 703
Blank Pl.	006 222
Nipple	005 049



**5/2- & 3/2-Way Solenoid Valves – Line / Man.**

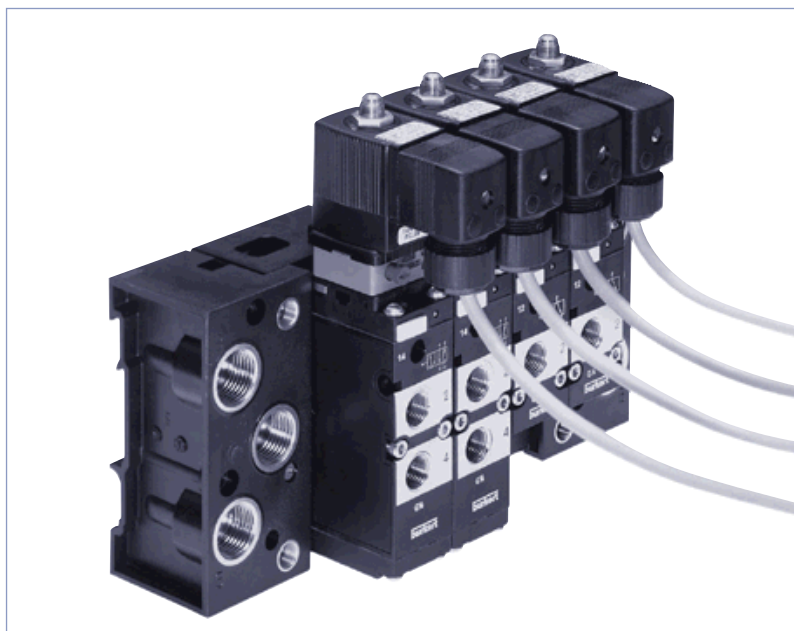
**EEx 6518 & 6519 Series, With or Without Terminal Box,**

C = 3-way NC, D = 3-way NO, H = 4-way, L = 4-way, Centre Blocked, N = 4-way, Center Exhaust, Polyamide Body, 5/3 ways Aluminium Anodized, NBR Seal Material, Media Temp. -40 to 50°C, Ambient Temp. -40 to 50°C, In-line or Manifold Assemblies, Manifold see data sheet, UC = AC/DC Wattage - T5 = 3W, T6 = 1.8W, Manifolds Assembled & Tested, EEx m II T4 = E = Approval According to European Standard, Ex = use in potentially explosive atmosphere, m = Encapsulation used protection system, me = Encapsulation & Increased Safety used protection system on terminal box, II = Gas Group II, T5 = Max. surface Temperature of 100°C, T6 = 85°C

**Zone 1**

Type	Function	Porting	Orifice	Cv	Bar	Ex approval	Item no.		
							24/UC	110/UC	230/UC
<b>Manifold types with 3m cable length:</b>									
6518	C	G1/4	8	1.4	2 – 8	EEx m II T5	134 716	134 717	134 718
	D	G1/4	8	1.4	2 – 8	EEx m II T5	134 719	134 720	134 721
<b>In-line valve with 3M cable length:</b>									
6518	C	G1/4	8	1.4	2 – 8	EEx m II T6	139 437	139 438	139 439
	D	G1/4	8	1.4	2 – 8	EEx m II T6	139 443	139 444	139 445
<b>In-line valve with terminal box:</b>									
6518	C	G1/4	8	1.4	2 – 8	EEx me IIT6	139 440	139 441	139 442
	D	G1/4	8	1.4	2 – 8	EEx me IIT6	139 446	139 447	139 448
<b>Manifold types with 3m cable length:</b>									
6519	H	G1/4	8	1.4	2 – 8	EEx m II T5	134 722	134 723	134 724
<b>In-line valve with 3M cable length:</b>									
6519	H	G1/4	8	1.4	2 – 8	EEx m II T6	139 458	139 459	139 460
<b>In-line valve with terminal box:</b>									
6519	H	G1/4	8	1.4	2 – 8	EEx me IIT5	137 397	139 461	139 462
	H	G1/4	8	1.4	2 – 8	EEx me IIT6	139 463	139 464	139 465
<b>In-line valve with terminal box:</b>									
6519	L	G1/4	9	1.4	2 – 10	EEx me IIT5	134 725	134 726	134 727
	N	G1/4	9	1.4	2 – 10	EEx me IIT5	134 728	134 729	134 730

**Note:** Consult about manifold systems.



**5/2- & 3/2-Way Solenoid Valves – Line / Man. (continued...)**

**EEx 6519 Namur Type** c/w Interchangeable Adapter Plates for 3/2 way & 5/2 way functionality:

C = 3/2 way, H = 5/2 way, NBR seal material, PA body, Media / Ambient Temp. -40 to 55°C,

Wattage: T5 = 3W, T6 = 1.8W, "me" = Terminal Box, "m" = 3 m moulded cable, EEx m II T4 =

E = Approval According to European Standard, Ex = use in potentially explosive atmosphere,

m = Encapsulation used protection system, me = Encapsulation & Increased Safety used protection system

on terminal box, II = Gas Group II, T5 = Max. surface Temperature of 100°C, T6 = 85°C

**Note:** Interchangeable removable plates for 3/4-way use on NAMUR type valves included.

**Zone 1**

Function	Sup./Exh.	Outlet	Port material	Orifice	C <sub>v</sub> value	Approval	Item no.		
							24/UC	110/UC	230/UC
<b>with 3M cable length:</b>									
H/C	G1/4	NAMUR	*Brass	6	1.3	EEx m II T5	131 627	131 628	131 629
H/C	G1/4	NAMUR	Stainless Steel	6	1.3	EEx m II T5	131 631	131 632	131 633
<b>with terminal box:</b>									
H/C	G1/4	NAMUR	*Brass	6	1.3	EEx me IIT5	427 978	139 065	139 066
H/C	G1/4	NAMUR	Stainless Steel	6	1.3	EEx me IIT5	139 067	139 068	139 069
<b>with 3M cable length:</b>									
H/C	G1/4	NAMUR	*Brass	6	1.3	EEx m II T6	425 725	426 026	426 027
H/C	G1/4	NAMUR	Stainless Steel	6	1.3	EEx m II T6	431 442	431 443	431 444
<b>with terminal box:</b>									
H/C	G1/4	NAMUR	*Brass	6	1.3	EEx me IIT6	431 436	431 437	431 438
H/C	G1/4	NAMUR	Stainless Steel	6	1.3	EEx me IIT6	431 439	431 440	431 441

\* Nickel Plated – Brass

**Intrinsically Safe Solenoid Valves**

Please consult Burkert: Many more types available including 2 / 3 / 4-way valves, manifold & body ported versions available.

**Note:** 6013 / 6014 SS versions listed.

**Zone 1**

Series	Orifice	Pressure [bar]	C <sub>v</sub> value	Connection	Seat	Approval	Wattage	Item no.
6013	1.2	0 – 4	0.057	G1/8	FPM	EEx ia IICT6	0.4	159 444
6014	0.9	0 – 10	N/A	G1/8	FPM	EEx ia IICT6	0.3	151 713
	0.9	0 – 10	N/A	G1/8	FPM	EEx ia IICT6	0.4	147 226
	0.9	0 – 10	N/A	Manf.	FPM	EEx ia IICT6	0.4	144 540
	0.9	0 – 10	N/A	Manf.	FPM	EEx ia IICT6	0.4	144 540
6518	6.0	2 – 8	1.2	1/4"	NBR	EEx ia IICT6	0.4	166 249
	6.0	2 – 8	1.2	1/4"	NBR	EEx ia IICT6	0.4	166 250
6519	6.0	2 – 8	1.2	1/4"	NBR	EEx ia IICT6	0.4	166 252
	6.0	2 – 8	1.2	1/4"	NBR	EEx ia IICT6	0.4	166 253
	8.0	2 – 8	1.32	1/4"	NBR	EEx ia IICT6	0.4	166 254
	8.0	2 – 8	1.32	1/4"	NBR	EEx ia IICT6	0.4	166 255

**HazEx™ Solenoid Valves**

**An Introduction to Hazardous Location Classifications**

- **Class 1, 11, and 111**
- **Division 1 and 2**
- **Group A, B, C and D**

An understanding of the classification of hazardous locations is necessary for anyone designing, specifying, installing or maintaining electrical components. This brief summary is meant only to provide an overview for the basics of area classifications.

Hazardous locations are classified according to the nature and degree of the particular hazardous or flammable material present in the location. There are three distinct classes:

**Class 1:** Flammable liquids, gases or vapors

**Class 11:** Combustible or electrically conductive dusts; and

**Class 111:** Easily ignitable fibers or flyings.

Each of these classes is subdivided into two divisions:

**Division 1:** The hazardous material is present during *normal* operating conditions; and

**Division 2:** The hazardous material is normally confined within closed containers or systems, thus diminishing the potential for explosion or fire. The concern in this division is that hazardous material could be released into the atmosphere under *abnormal* operation conditions, such as an accidental rupture of the closed system.

In Class 1, Division 1 hazardous locations, for which Burkert HazEx™ solenoid valves are designed, gases or vapors are either present in the atmosphere all of the time, or intermittent all of the time, or occur at any time due to the faulty operation of equipment such as pumps.

In these location, it is the *normal* operation of equipment or processes that release enough flammable gas or vapor into the surrounding atmosphere to make the fuel/air mixture ignitable. To be classified Division 1, there has to be a minimum of 100 hours/year, or 1% probability that an explosive material is present. In Europe, Division 1 is subdivided into Zone 0 and Zone 1. Zone 0 has the highest probability of an explosive concentration being present (greater than 10% probability). Zone classifications are not presently made in North America, but may be in the future. Typical materials in this type of area include gasoline, paint, paint thinners or similar highly flammable substances.

Group classification, the last and most specific element, defines the hazardous substances with which an electrical component is approved for use. Materials fall into four Groups as follow:

**Group A:** Atmospheres containing acetylene;

**Group B:** Atmospheres containing butadiene, ethylene oxide, hydrogen, or propylene oxide;

**Group C:** Atmospheres containing acetaldehyde, cyclopropane, diethyl ether, ethylene, or unsymmetrical dimethyl hydrazine (UDMH), or other gases or vapors of equivalent;

**Group D:** Atmospheres containing acetone, acrylonitrile, alcohol, ammonia, benzene, benzol, butane, ethylene dichloride, gasoline, hexane, isoprene, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, xylenes, or other gases or vapors of equivalent hazard.

**Temperature Classification**

This relates to the maximum temperature of a piece of apparatus and to the ignition temperature of a gas or vapor. The maximum temperature of the exposed surface of electrical apparatus must always be lower than the ignition temperature of the gas or vapor mixture that could be present. Solenoid valves, for example, meeting a higher temperature class (e.g. T6) can be used for applications requiring a lower temperature class (e.g. T4).

**Temperature Classification**

T Class	Max. Surface Temperature
T1	842°F
T2	572°F
T3	392°F
T4	275°F
T5	212°F
T6	185°F

**Types of Protection**

Safe application of electrical components in hazardous locations is accomplished through two basic means.

**Protection by Enclosure —**

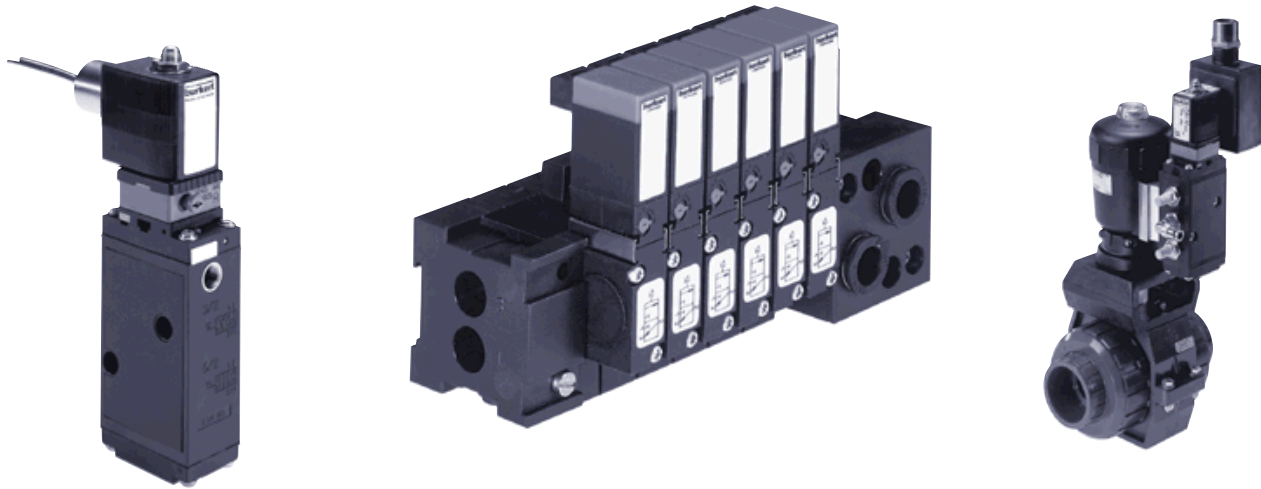
This type of electrical component utilizes an enclosure of some form to either completely isolate volatile atmospheres from electrical current, to contain or control any possible explosion that might occur as a result of volatile atmosphere ignition. Burkert HazEx™ valves fall into this category. Their actuating coils are completely isolated from the atmosphere by an extra thick layer of epoxy molding, an internal switch protects against overheating, and electrical connections are sealed within an explosion-proof conduit connector.

**Intrinsically Safe Protection —**

This type of electrical component is generally termed intrinsically-safe. Intrinsic-safety designates equipment and wiring which is *incapable* of releasing sufficient electrical or thermal energy to cause ignition of a specific hazardous atmosphere. Intrinsically-safe equipment is effective only when used as a part of overall system or plant design.

Information provided here is intended for reference only. Users must make the final determination of the applicability of Burkert HazEx™ valves within a specific hazardous location. Burkert Contromatic is not responsible for any misapplication or improper installation of their valves.





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