

ELECTRONIC EXPANSION VALVES: High Efficiency Products

STANDARD	Valve Type1	Key words	Drive type	Performance							Fittings				Leakage rate			Refrigerants7	
				Capacity2	KV	MWP3	MOPD4	Refrigerant Temperature	Environment Temperature	Material	Ø	Connection	Mechanical Strainer	Internal5	Internal5	External6	PED Group 2	PED Group 1	
														Direct Flow	Reverse Flow				[cm3/min]
[kW] [Tons]	[m3/h] [GPM]	[barg] [PSIg]	[bar] [PSI]	[°C] [°F]	[°C] [°F]														
STANDARD	E2V - F	OEM design Hermetic SS Body	Unipolar or Bipolar	0.08÷66 0.02÷19	0.004÷0.37 0.005÷0.43	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷70 -40÷158	-30÷70	-22÷158	Copper	8mm IDM 3/8" - 1/2" 10mm IDM 12mm 16mm	Brazing	Optional	< 50	< 50	< 2	R22 R134a R404A R407C R410A R417A R507A R744 R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R1234yf R290 R600 R600a R32 R452B R454A R454B R454C R455A R1270
	E2V - Z	Demountable Modular install IP69K stator OneBodySize Filter included	Unipolar or Bipolar	0.16÷80 0.05÷23	0.012÷0.44 0.014÷0.51	45 (UL) - 80 (PED) 650 (UL) - 870 (PED)	35 508	-40÷70 -40÷158	-30÷70	-22÷158	Copper	12mm 16mm 5/8" 1/2"	Brazing	AlSi 304 150µm	< 50	< 50	< 2	R22 R134a R404A R407C R410A R744 R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	R1234yf R32 R290 R600 R600a R452B R454A R454B R454C R455A
	E3V - B	All application Hermetic SS Body	Unipolar or Bipolar	6÷192 1.7÷55	0.31÷1.27 0.36÷1.46	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	40 580	-40÷70 -40÷158	-30÷70	-22÷158	Copper	16mm 5/8" 22mm 7/8"	Brazing	Optional	< 100	< 100	< 2	R22 R134a R404A R407C R410A R417A R507A R744 R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R1234yf R290 R600 R600a R32 R452B R454A R454B R454C R455A R1270
	E3V - S	Demountable Modular install Filter included	Unipolar or Bipolar	9÷225 2.6÷64	0.53÷1.33 0.61÷1.53	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷70 -40÷158	-30÷70	-22÷158	Copper	18-22mm 7/8"-1/8" 22-28mm 3/4"-7/8"	Brazing	AlSi 304 150µm	< 100	< 100	< 2	R22 R134a R404A R407CR410A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R744	R1234yf R32 R452B R454A R454B R454C R455A
	E4V - B	Demountable Modular install	Bipolar	32÷459 9.1÷131	1.77÷2.55 2.05÷2.95	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷70 -40÷158	-30÷70	-22÷158	Copper	28-35mm 1.1/8" 1.3/8"	Brazing	n.a	< 50	< 80	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R744	R1234yf
	E4V - F	OEM design Hermetic	Bipolar	20÷410 5.7÷117	1.68÷2.28 1.94÷2.64	48 (UL) - 48 (PED) 696 (UL) - 696 (PED)	40 580	-40÷70 -40÷158	-30÷70	-22÷158	Copper	28-35mm 1.1/8" 1.3/8"	Brazing	n.a	< 50	< 80	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R290 R600 R600a R1234yf R32 R452B R454B R454A R454C R455A R1270
	E5V	Modular install SightGlass Big capacities	Bipolar	76÷1100 22÷313	4.2÷6.1 4.8÷7.1	45 (UL) - 45 (PED) 650 (UL) - 650 (PED)	35 508	-40÷70 -40÷158	-30÷70	-22÷158	Copper	28mm 35mm	Brazing	n.a	< 100	< 200	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	(ONLY E5VxxASsX) R1234yf R32 R452B R454A R454B R454C R455A
	E6V		Bipolar	170÷2103 48÷598	9.5÷11.7 11.0÷13.5	45 (UL) - 45 (PED) 650 (UL) - 650 (PED)	28 406	-40÷70 -40÷158	-30÷70	-22÷158	Copper	35-42mm 1.5/8"	Brazing	n.a	< 100	< 200	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	n.a.
	E7V		Bipolar	281÷3400 80÷067	15.6÷18.9 18.0÷21.9	42 (UL) - 45 (PED) 609 (UL) - 650 (PED)	28 406	-40÷70 -40÷158	-30÷70	-22÷158	Copper	54mm 1.5/8"	Brazing	n.a	< 100	< 200	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	n.a.
E7V TWIN	Bipolar		561÷7084 160÷2014	15.6÷37.8 18.0÷43.8	25 (UL) - 25 (PED) 360 (UL) - 360 (PED)	28 406	-40÷70 -40÷158	-30÷70	-22÷158	Copper	3" ODF	Brazing	n.a	< 100	< 200	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	n.a.	
CO ₂	E2V - C	Hermetic All SS HighPressures TwoFittingsTypes	Unipolar or Bipolar	0.08÷27 0.02÷7.7	0.004÷0.15 0.005÷0.29	140 (UL) - 140 (PED) 2030 (UL) - 2030 (PED)	120 1740	-40÷70 -40÷158	-30÷70	-22÷158	AlSi 316	10mm 12mm 13.1mm IDF 3/8"	TIG Swagelok Brazing	Optional	< 50	< 50	< 2	R22 R134a R404A R407CR410A R744 R507A R417A R407H R407A R407E R407F	n.a
	E2V-ZC	Demountable Filter included High Pressures All S	Unipolar or Bipolar	0.2÷34.7 0.057÷9.87	0.01÷0.22 0.01÷0.25	140 (PED) 2030 (PED)	120 1740	-40÷70 -40÷158	-30÷70	-22÷158	AlSi 304	10-12mm	TIG Brazing	AlSi 304 150µm	< 50	< 50	< 2	R744	n.a
	E3V - C	Demountable Filter included HighPressures All SS	Bipolar	7÷196 2÷56	0.37÷1.10 0.43÷1.26	120 (UL) - 140 (PED) 1740 (UL) - 2030 (PED)	90 1305	-40÷65 -40÷149	-30÷50	-22÷122	AlSi 304	5/8" 7/8"	TIG	AlSi 304 200µm	< 150	n.a	< 2	R744	n.a
	E5V-C	Demountable Filter included HighPressures All SS	Bipolar	29÷760 8÷216	1.60÷4.20 1.85÷4.89	120 (UL) - 140 (PED) 1740 (UL) - 2030 (PED)	90 1305	-40÷70 -40÷158	-30÷70 -22÷158	-22÷158	AlSi 304 Copper	7/8" 1.1/8"	TIG Brazing	AlSi 304 200µm	< 150	n.a	< 2	R744	n.a
HIGH TEMPERATURE	E2V - K	OEM design Hermetic SS Body	Unipolar or Bipolar	0.8÷66 0.4÷19	0.04÷0.37 0.05÷0.43	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷100 -40÷212	-30÷70	-22÷158	Copper	8mm IDM 3/8" - 1/2" 10mm IDM 12mm 16mm	Brazing	Optional	< 200	< 200	< 2	R22 R134a R404A R407C R410A R417A R507A R744 R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R1234yf R290 R600 R600a R32 R452B R454A R454B R454C R455A R1270
	E3V - K	All application Hermetic SS Body	Unipolar or Bipolar	6÷192 1.7÷55	0.31÷1.27 0.36÷1.46	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	40 580	-40÷100 -40÷212	-30÷70	-22÷158	Copper	16mm 5/8" 22mm 7/8"	Brazing	Optional	< 100	< 100	< 2	R22 R134a R404A R407C R410A R417A R507A R744 R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R1234yf R290 R600 R600a R32 R452B R454A R454B R454C R455A R1270
	E2V - H	HighTemp. Demountable Modular install Filter included	Unipolar or Bipolar	0.16÷85 0.05÷24	0.05÷0.47 0.058÷0.54	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷100 -40÷215	-30÷70	-22÷158	Copper	18-22mm 22-28mm 3/4"-7/8" 7/8"-1/8"	Brazing	AlSi 304 150µm	n.a	n.a	< 2	R22 R134a R404A R407C R410A R744 R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	R1234yf R32 R452B R454A R454B R454C R455A
	E3V - H	HighTemp. Demountable Modular install Filter included	Unipolar or Bipolar	8.5÷225 2.4÷64	0.53÷1.33 0.61÷1.54	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷100 -40÷215	-30÷70	-22÷158	Copper	12mm 16mm 5/8"	Brazing	AlSi 304 150µm	n.a	n.a	< 2	R22 R134a R404A R407CR410A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F	R1234yf R32 R452B R454A R454B R454C R455A
	E4V - H	HighTemp. Demountable Modular install	Bipolar	28÷450 8÷128	1.88÷2.55 2.16÷2.93	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	35 508	-40÷100 -40÷215	-30÷70	-22÷158	Copper	28-35mm 1.1/8"-1.3/8"	Brazing	n.a	n.a	n.a	< 2	R22 R134a R407C R410A R404A R507A R417A R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R744	R1234yf
AMMONIA	E2V - BS	Hermetic All SS	Bipolar	0.08÷66 0.002÷19	0.004÷0.37 0.005÷0.43	45 (UL) - 60 (PED) 650 (UL) - 870 (PED)	26 377	-40÷70 -40÷158	-30÷70	-22÷158	AlSi 316	10mm 13.1mm IDF	TIG	Optional	< 50	< 50	< 2	R22 R134a R404A R407C R410A R417A R507A R744 R1234ze R448A R449A R450A R513A R407H R427A R452A R407A R407E R407F R1233zd	R1234yf R717 R290 R600 R600a R32 R452B R454A R454B R454C R455A R1270

- Notes:
 1. H : Hermetic ; D : Demountable
 2. Capacity refers to: R410A tev = 7°C (45°F) tcond = 45°C (113°F) SC = 5 K (9°R)
 3. MWP may decrease for some Group 1 Refrigerants or for some specific models
 4. MOPD may decrease with bigger orifices for the same valve or certification or motor

5. Internal leakage rate of N2 @ DP 30 bar
 6. External leakage rate of R134a @ P = 45 barg
 7. Refrigerants list may vary

Valve proposition		Valve proposition	
F	Hermetically sealed designed for OEMs	H/K	Designed for high temperature applications
S/Z	Modular installation with filter included	E4V, E5V, E6V, E7V	Demountable for high capacity applications
C/C/S	For high pressure installations		

Referring to R410A tev: 7°C, Tcond: 45°C, SK: 5K					Referring to R134A tev: -10°C, Tcond: 45°C, SK: 5K					Correction Factors kW = kWREF / CF (kWREF relative to Capacity column)
R32	R1234yf	R1234ze	R407C	R417A	R404A	R717	R290	R448A	R449A	
0,67	2,05	1,87	1,16	1,50	1,14	0,15	0,75	0,81	0,82	

Digit: 1 2 3 4 5 6 7 8 9 10



Type
E*V
2
3
4
5
6
7

Size
**

E2V	E3V	E4V	E5V	E6V	E7V
01	30	65	A2	A8	B4
03	35	85	A5	B2	C1
05	45	95			
09	55				
11	65				
14			E5V-C		
18			85		
24			95		
30			A0		
35			A2		

Family
*

B, F: Hermetic
S, Z: Demountable
C: High pressure
H, K: High temperature
R: RPRV (only E5V)

Type of connection
*

S: To be welded, metric
W: To be welded, imperial
C: Stainless steel for HP applications

Size of connection
*

Option
*

Package
*

0: Single
1: Multiple

Type of connection	Inlet/Outlet	E2V-F/-K	E2V-Z/-H	E2V-C	E3V-H/-S	E3V-C	E3V-B/K	E4V-B/-H	E4V-F	E5V	E5V-C	E6V	E7V
S (mm)	8x8 (5/16")	A											
	10x10	B	O										
	12x12	F	F	F									
	13x13			1									
	16x16 (5/8")	M	M				M						
	18x22				R								
	22x22						R						
	22x28				S								
	28x28								S	S			
	28x35								T				
	35x35 (1.3/8")								T				
	35x35									T		T	
	42x42											V	
	54x54												Z
W (inches)	3/8x3/8	A	A										
	1/2x1/2	F	F										
	3/8x1/2	B											
	3/4x7/8				R								
	7/8x1/8				S								
	7/8x7/8					R	R				R		
	5/8x5/8					M							
	1.1/8x1.1/8 (Copper)								S		S		
	1.1/8x1.1/8 (Stainless Steel)										T		
	1.1/8x1.3/8							T					
1.1/8x1.5/8											V	V	
C (mm)	10x12		B										

Type	E2V					E3V			E4V	E5V/E6V/E7V	E5V
Family	Z	ZC	C	F/K	H	S/H	C	B/K	-	-	C
Option (*)	0	Bip, W SG		Bip		Bip, W SG	Bip		W SG	W SG	Bip
	1	Bip, W/O SG			Bip, W/O SG	Bip, W/O SG		Bip	W/O SG	W/O SG	
	2					Uni, W SG CL 1m					
	3					Uni, W/O SG, CL 1m		Uni, W/O SG, CL 1m			
	4					Uni, W SG, CL 2m				W SG, W gas. HNBR	
	5					Uni, W/O SG, CL 2m		Uni, W/O SG, CL 2m			
	6	Uni, W SG, CL 0,3m				Uni, W SG, CL 0,3m					
	7	Uni, W/O SG, CL 0,3m				Uni, W/O SG, CL 0,3m		Uni, W/O SG, CL 0,3m			
	A	W/O S, W SG				W/O S, W SG			W/O S, W SG		
	B	W/O S, W/O SG							W/O S, W/O SG		
	C		W/O S, W/O SG	W/O S	W/O S	W/O S	W/O S, W/O SG		W/O S		

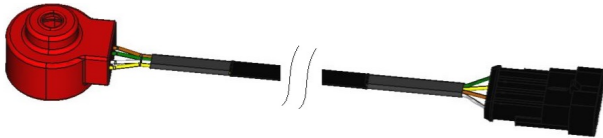
Note: - W/O = without; W = with; S= stator; SG = sight glass; Uni. = unipolar; Bip. = bipolar; CL = cable length; gas. = gasket
- not all the combinations are available
- for E4V/E5V/E6V/E7V only the bipolar stator is available

Images herein attached are exemplifying and do not represent the whole Carel's portfolio

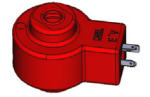
E2VSTA031* - E2VSTA032* - E2VSTA037*



E2VSTAS23*



E2VSTA020*



E2VSTAX3*

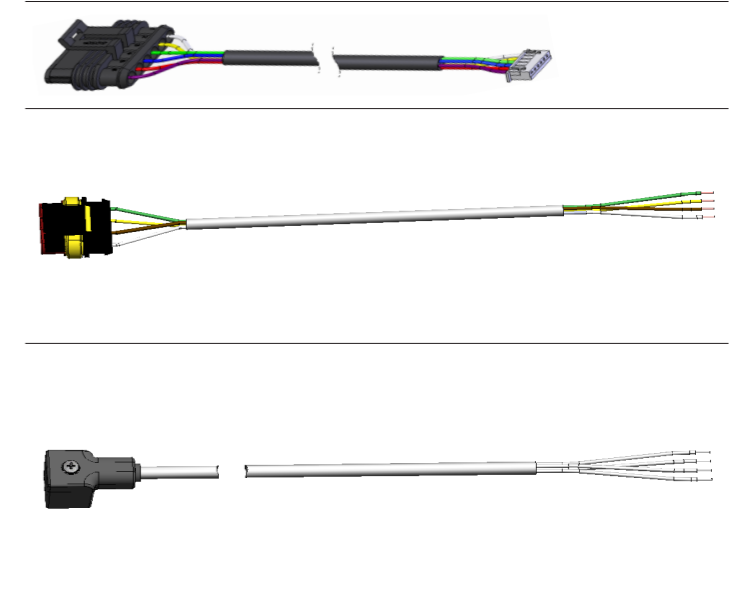


STATOR								
ExV Family	Code	Unipolar	Bipolar	Stator IP	Cable	Length [m]	Terminal	
E2V	E2VSTA037*	✓		67	YES	0.7	JST	
	E2VSTA031*	✓		67	YES	1	JST	
	E2VSTA032*	✓		67	YES	2	JST	
	E2VSTAS31*	✓		69K	YES	1	JST	
	E2VSTAS32*	✓		69K	YES	2	JST	
	E2VSTAS22*			✓	69K	YES	2	Free
	E2VSTAX31*	✓	Ex		67	YES	1	JST
	E2VSTAX32*	✓	Ex		67	YES	2	JST
	E2VSTAX3T*	✓	Ex		67	YES	3	JST
	E2VSTAX21*			✓	67	YES	1	Free
	E2VSTAX2T*			✓	67	YES	3	Free
	E2VSTA033*	✓			67	YES	0.3	Superseal
	E2VSTAS33*	✓			69K	YES	0.3	Superseal
	E2VSTAS23*			✓	69K	YES	0.3	Superseal
	E2VSTA020*			✓	67	NO	-	-
	E3V	E3VSTA031*	✓		67	YES	1	JST
		E3VSTA032*	✓		67	YES	2	JST
		E3VSTA033*	✓		67	YES	0.3	Superseal
		E3VSTA035*	✓		67	YES	0.5	Superseal
		E3VSTA020*			✓	67	NO	-
E4V&E7V	E4VE7VSTA*		✓	67	NO	-	-	
E5V&E6V	E5VE6VSTA*		✓	67	NO	-	-	

Note: Last digit = 0 : single pack; Last digit = 1 : multiple pack;
E2VSTAX: ATEX stator

CABLES						
Code	Unipolar	Bipolar	Shield	Length [m]	Stator	Driver
E2VCABS3U0	✓		YES	3	Superseal	JST
E2VCABS6U0	✓		YES	6	Superseal	JST
E2VCABS9U0	✓		YES	9	Superseal	JST
E2VCAB03I0		✓	NO	3	Superseal	Free
E2VCAB06I0		✓	NO	6	Superseal	Free
E2VCAB09I0		✓	NO	9	Superseal	Free
E2VCABS3I0		✓	YES	3	Superseal	Free
E2VCABS6I0		✓	YES	6	Superseal	Free
E2VCABS9I0		✓	YES	9	Superseal	Free
E2VCAB0300		✓	NO	3	Direct	Free
E2VCAB0600		✓	NO	6	Direct	Free
E2VCAB0900		✓	NO	9	Direct	Free
E2VCABS300		✓	YES	3	Direct	Free
E2VCABS600		✓	YES	6	Direct	Free
E2VCABS900		✓	YES	9	Direct	Free
E2VCABSA50		✓	YES	15	Direct	Free

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For further details see products technical leaflets available on our website or contact us at carel@carel.com

ExV - VALVES COMPONENTS DESCRIPTION

Accessory	Description
E2VFIL0000	AISI 304 wired mesh 500 um filter 3/8" (10 pcs)
E2VFIL0100	AISI 304 wired mesh 500 um filter 12 mm (10 pcs)
E2VFIL0200	AISI 304 wired mesh 500 um filter 16 mm (10 pcs)
E2VFIL0300	AISI 304 wired mesh 500 um filter 3/8" (10 pcs)
E2VFIL0400	AISI 304 wired mesh 150 um filter (10 pcs)
E3VFIL0000	AISI 304 wired mesh 500 um filter for E3V (10 pcs)
E3VFIL0100	AISI 304 wired mesh 200 um filter for E3V-C (1 pc)
E3VFIL0200	AISI 304 wired mesh 200 um filter 22 mm or 7/8" for E3V-B (10 pcs)
E5VFIL0100SP	AISI 304 wired mesh 200 um for E5V-C (1 pc)
E2VORI0100	O-Ring 8.73X1.78 mm (neoprene), O-Ring 11.1X1.78 mm (neoprene) and teflon gasket (10 pcs)

Accessory	Description
E2VORI0300SP	O-Ring 23.52X1.78 (EPDM) and O-Ring 8.50X1.78 (EPDM) (10pcs)
E3VORI0300	O-Ring 2.62X20.29 mm (EPDM) (1 pc)
E3VORI0600	O-Ring 11.1X1.78 mm (neoprene) and teflon gasket (1 pc)
E4VORI0000	O-Ring 1.78X20.35 mm (neoprene) and O-Ring 28.25X2.62 mm (neoprene) (10 pcs)
E5VORI0100	O-Ring 1.78X20.35 mm (neoprene) and O-Ring 2X20 mm (neoprene) (1 pc)
E5VORI0500SP	O-Ring 26.70x1.78 mm (EPDM) and O-Ring 40.95x2.62 mm (EPDM) (1 pc)
E7VORI0000	O-Ring 1.78X20.35 mm (neoprene) and O-Ring 34.59X2.62 mm (neoprene) (10 pcs)
E2VSGH0000	Sightglass for E2V and E3V
E4VSGH0000	Sightglass for E4V E5V E6V and E7V

Accessory	Description
E4VSGH0010	Sightglass for E4V E5V E6V and E7V with hum. indicator
E2VATT**C*	E2V-ZC spare actuator (**: valve size)
E2VATT**H0	E2V-H spare actuator (**: valve size)
E3VATT**H0	E3V-H spare actuator (**: valve size)
E3VATT**C0	E3V-C spare actuator (**: valve size)
E3VATT**S0	E3V-S spare actuator (**: valve size)
E2VATT**Z*	E2V-Z spare actuator (**: valve size, last digit: 0 = 1 pc; 1 = 10 pcs)
E4VATT**B0	E4V-B spare actuator (**: valve size)
E4VATT**H0	E4V-H spare actuator (**: valve size)
E5VATT***0	E5V spare actuator (***: valve size)
E5VATT**C*	E5V-C spare actuator (**: valve size)

Accessory	Description
E6VATT****	E6V spare actuator (***: valve size, last digit: 0 = 1 pc; 1 = 5 pcs)
E7VATT****	E7V spare actuator (***: valve size, last digit: 0=1 pc; 1=5 pcs)
E2VNUT0200	Fastening nut for E2V, E3V, E4V-F and E5V-C (20 pcs)
E2VNUT0300	Fastening nut for E2V, E3V, E4V-F and E5V-C (100 pcs)
E4VNUT0000	Fastening nut for E4V, E5V, E6V and E7V (20 pcs)
E4VNUT0100	Fastening nut for E4V, E5V, E6V and E7V (100 pcs)
E2VMAG0000	Manual actuator for E2V
E3VMAG0000	Manual actuator for E3V, E5V and E6V
E4VMAG0000	Manual actuator for E4V and E7V
E5VMAG0000	Manual actuators for E2V, E3V, E4V, E5V, E6V and E7V

Legend: Filter (orange), O-Ring (yellow), Sight glass (including O-Ring) (red), Actuator (Includes filter (only for E2V and E3V) and O-Ring) (green), Nut (blue), Magnet (grey)

