



SOURIAU

VGE1/FER1 Series

Railway Connectors



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VEGET/FEER1

Overview

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SOURIAU's railway connector range overview

For outdoor equipments

VGE1 / FER1



Up to 60 contacts
Signal, Quadrax and Fiber Optics layouts
Tested following EN 50 467 and NF F 61-030

838



Up to 61 contacts
Signal, Quadrax and Fiber Optics layouts
Compliant to NF F 61-030 and tested following EN 50 467

For indoor equipments

SMS Flame retardant



Up to 36 contacts #16
Up to 220V
Tested following EN 50 467 and NF F 61-030

SMS IP



Tested following EN 50 467 and NF F 61-030
Compliant up to 500V

UTS



Up to 23 contacts #16
Up to 120V



SOURIAU on the railway market

SOURIAU is a recognised worldwide market leader in the design and manufacture of connectors and interconnect systems for severe environments. SOURIAU has developed a dedicated range of ruggedised and reliable connectors for the railway market, fully compliant with railway standards, RoHS, as well as fire and smoke requirements.

For more than 50 years, SOURIAU has become a trusted name by major railway equipment manufacturers, their subcontractors, also signalling and infrastructure companies.

SOURIAU connectors are designed to integrate new functions such as Ethernet network, weight reduction, mixed signal-power in compliance with environmental protection. This offer is the best compromise between technology, safety, reliability and cost.

SOURIAU has been awarded IRIS certification since 2009.



✓ Standard contacts for 8 railway ranges

+

✓ Same crimping tools

+

✓ Simplified process

=

Best compromise between technology and cost



✓ Fiber optic

+

✓ Quadrax technology

=

High speed solutions for real-time information



✓ Eco-conception & process

+

✓ Safety international standards

+

✓ Lightweight material

=

Safe railway equipments



General technical

Mechanical

- Design:
Derivate from MIL-DTL-5015 & VG 95234
- Durability:
500 mating/unmating cycles
An audible "click" and a yellow point indicating end of coupling (VGE1 series only)
- Shock and vibration resistance:
According to EN 61 373 - Cat.2
- Drop:
Free fall of plug at a height of 0.75m: no mechanical damage
Following NF F 61-030

Environmental

- ROHS compliant
- Operating temperature:
From -40°C to +100°C
- Dry heat test:
100 ° for 96 hours
- Salt spray resistance:
500 hours
- Damp heat:
21 days, 40°C, 95% relative humidity
- Sealing level:
IP67, 1m deep for 30 minutes max, coupled with appropriate backshell and grommet or accessories
- Dynamic sealing:
IP67 guaranteed when cable is moving
- Fire and smoke:
Insert material: HL3/R22 and HL3/R23 following EN 45 545,
NFPA 130 compliant
- Resistance to fluids:
Gas oil, mineral oil, acid bath, basic bath, following NF F 61-030,
oxalic acid





characteristics



Material

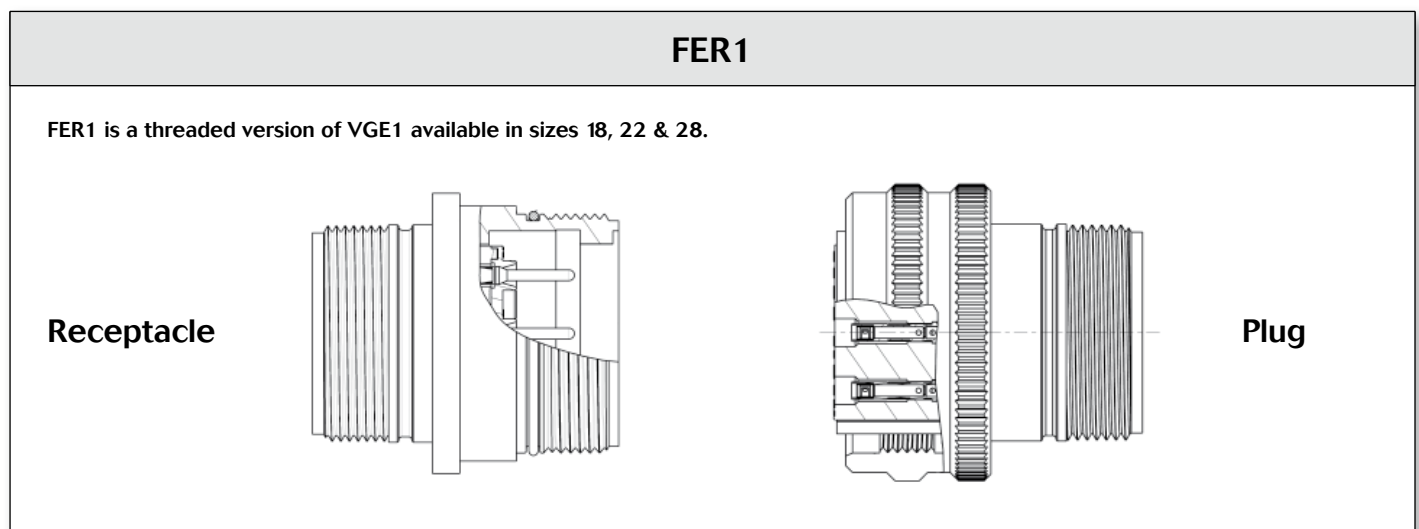
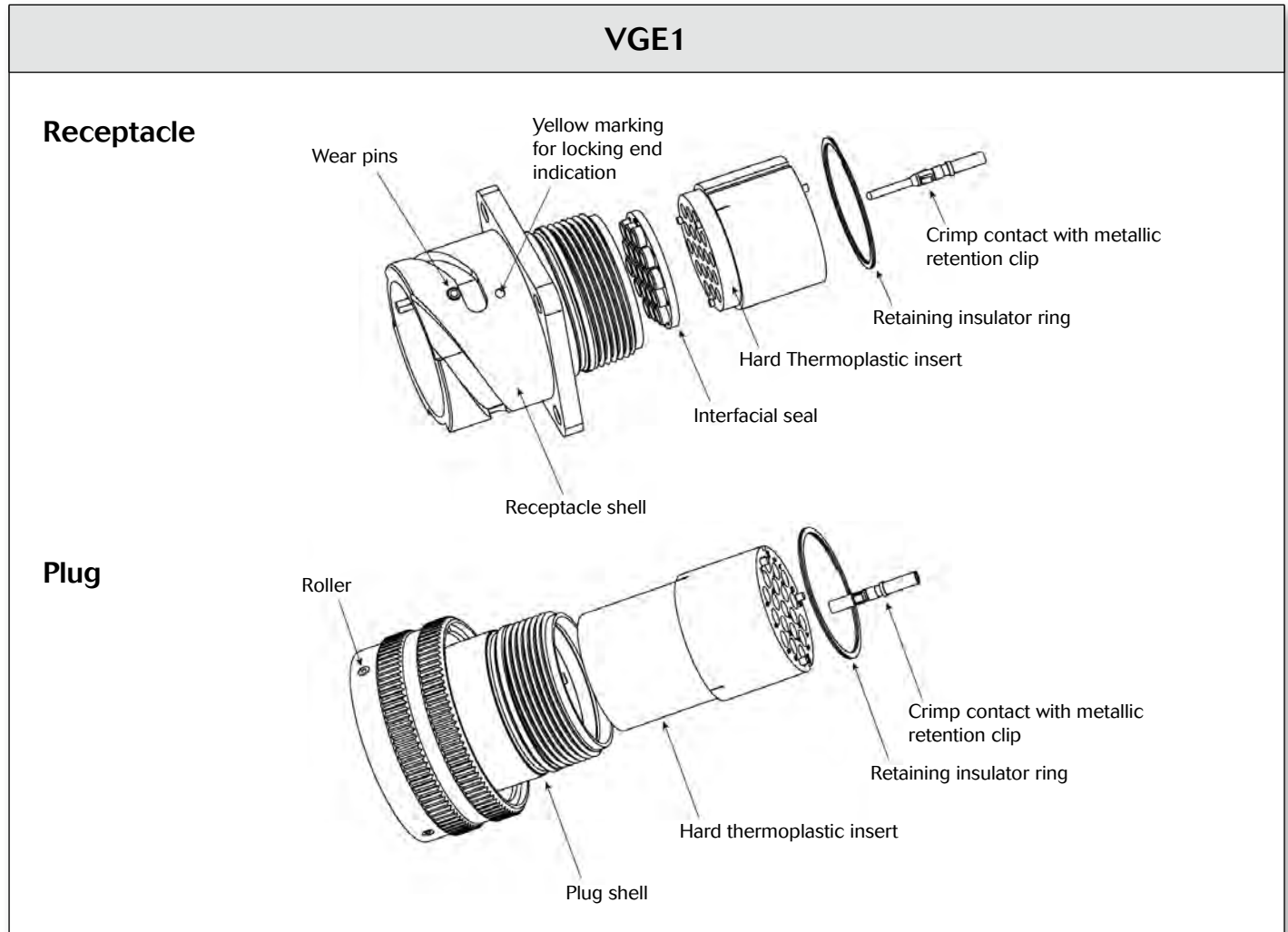
- Shell:
Aluminum alloy
Conductive plating - 500 hours salt spray resistant
- Insert:
Hard thermoplastic: HL3/R22 and HL3/R23 following EN 45 545, NFPA 130 compliant
- Contacts:
Machined crimp contacts / PCB contacts

Electrical

- Contacts resistance, following NF F 61-030:
Contact #20: 6 m Ω max, Contact #16: 2.5 m Ω max,
Contact #12: 1.3 m Ω max, Contact #8: 0.9 m Ω max
Quadrax Contacts #20: ≤ 6 m Ω , ≤ 2 m Ω (cell)
- Contact rating:
Contact #20: 7A, Contact #16: 15A, Contact #12: 20A,
Contact #8: 30A
- Dielectric resistance:
Contact #20: 1500 Veff, Contact #16: 2550 Veff,
Contact #12: 3250 Veff, Contact #8: 3250 Veff
Quadrax between contacts #20: $\geq 1000V$
Quadrax between cell / contacts #20 : $\geq 500V$
- Insulation resistance:
 $\geq 3\ 000$ M Ω (under 100 Vdc)
 $\geq 5\ 000$ M Ω (under 500 Vdc)
 $\geq 4\ 000$ M Ω (under 220 Vdc)
Quadrax: ≥ 3000 M Ω (contacts #20)
- Creepage and clearance:
6 mm creepage, 2 mm clearance for layout 14A6
2.1mm creepage, 0.8mm clearance for layout 14A10
9 mm mini for layouts 18-19, 22-14, 28-21, 40A60
12 mm mini for layouts using #12 and #8 contacts
- Operating voltage:
110 V following NF F 61-030 for layout 14A6
110V following EN 50-124 for layout 14A10
220 V following NF F 61-030 for layouts 18-19, 22-14,
28-21, 40A60
500 Vcc following NF F 61-030 for layouts #12 and #8
- Shell continuity:
20 m Ω max
- High Speed data Transmission performances, IEC11-801:
Standard contact: cat. 5, Quadrax contact: cat. 6



Description





Layouts overview

Size 14	Size 18			
<p>14A6 n</p> <p>6 Contacts Ø1.6 mm (#16) 110 V following NF F 61-030 for layout 14A6 110 V following EN50-124 for layout 14A10</p>	<p>14A10 n</p> <p>10 Contacts Ø1 mm (#20)</p>	<p>Quadrax 14R n</p> <p>4 Contacts Ø1 mm (#20)</p>	<p>18-19 n s</p> <p>10 Contacts Ø1.6 mm (#16) 220 V following NF F 61-030 for layout 18-19</p>	<p>Quadrax 18A1 n s</p> <p>4 Contacts Ø1 mm (#20)</p>
Size 20	Size 22	Size 24		
<p>20-15 n</p> <p>7 Contacts Ø2.4 mm (#12)</p> <p>Max. operating voltage: 500 Vcc following NF F 61-030</p>	<p>22-14 n s</p> <p>19 Contacts Ø1.6 mm (#16)</p> <p>Max. operating voltage: 220 V following NF F 61-030</p>	<p>24-10 n</p> <p>7 Contacts Ø3.6 mm (#8)</p> <p>Max. operating voltage: 500 Vcc following NF F 61-030</p>		
Size 28	Size 32	Size 36		
<p>28-21 n s</p> <p>37 Contacts Ø1.6 mm (#16)</p> <p>Max. operating voltage: 220 V following NF F 61-030</p>	<p>32A13 n</p> <p>13 Contacts Ø2.4 mm (#12)</p> <p>Max. operating voltage: 220 V following NF F 61-030</p>	<p>36A22 n</p> <p>22 Contacts Ø2.4 mm (#12)</p> <p>Max. operating voltage: 500 Vcc following NF F 61-030</p>		
Size 40				
<p>40A35 n</p> <p>35 Contacts Ø2.4 mm (#12)</p> <p>Max. operating voltage: 500 Vcc following NF F 61-030</p>	<p>40A60 n</p> <p>60 Contacts Ø1.6 mm (#16)</p> <p>Max. operating voltage: 220 V following NF F 61-030</p>			

n = VGE1 standard version

s = FER1 standard version



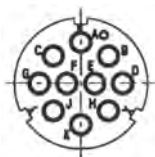
Heating curves

Test conditions:

- Current per contact
- All contacts loaded
- Max heating in C° allowed following NF F 61-030: 50°C

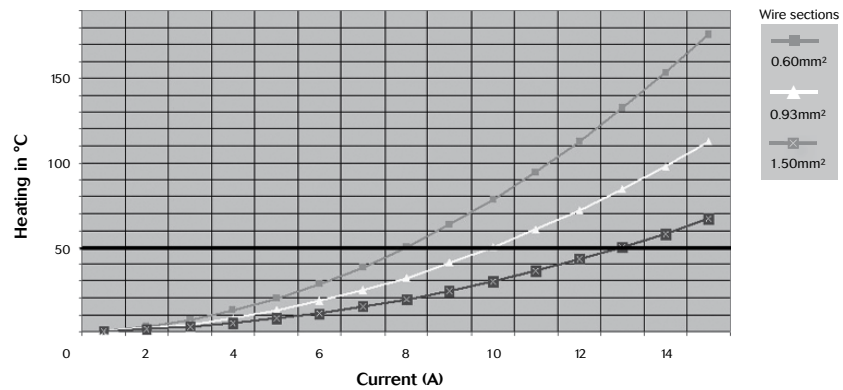
Size 18

18-19



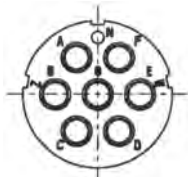
10 Contacts
Ø1.6 mm (#16)

18-19 only Max. operating voltage: 220 V following NF F 61-030



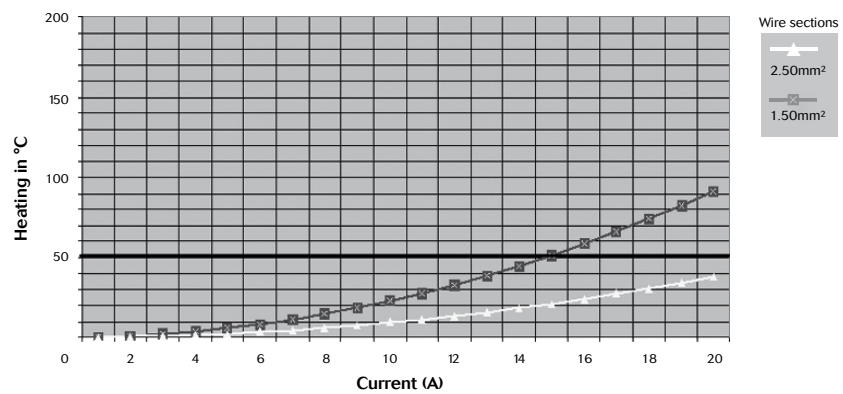
Size 20

20-15



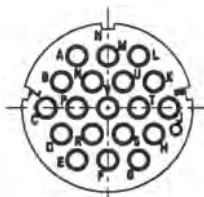
7 Contacts
Ø2.4 mm (#12)

Max. operating voltage: 500 Vcc following NF F 61-030



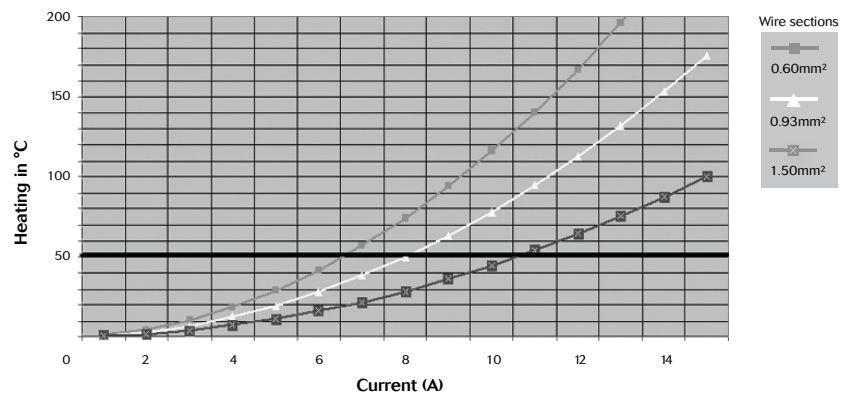
Size 22

22-14



19 Contacts
Ø1.6 mm (#16)

Max. operating voltage: 220 V following NF F 61-030

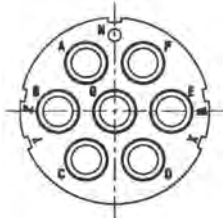


VGE1/FER1 Series



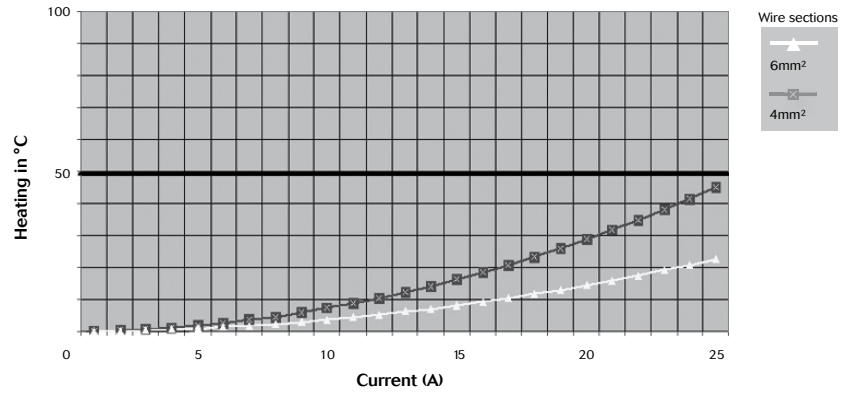
Size 24

24-10



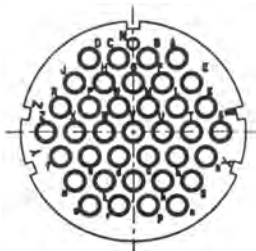
7 Contacts
Ø3.6 mm (#8)

Max. operating voltage: 500 Vcc
following NF F 61-030



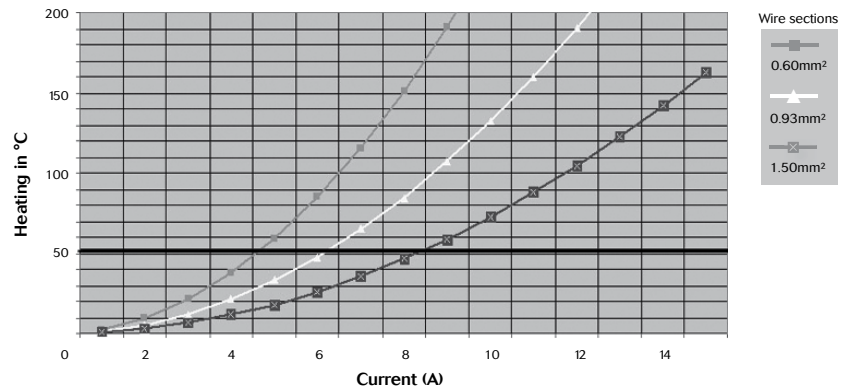
Size 28

28-21



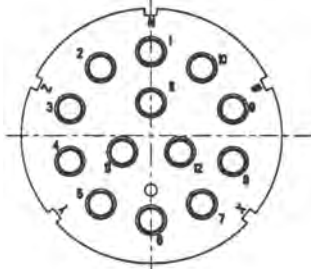
37 Contacts
Ø1.6 mm (#16)

Max. operating voltage: 220 V
following NF F 61-030



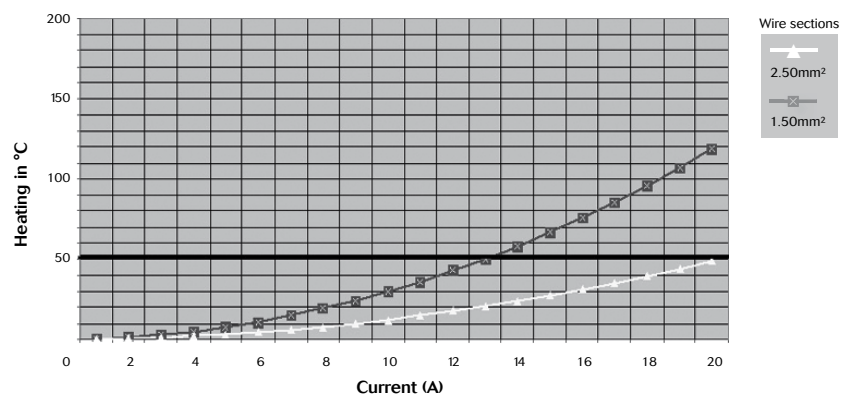
Size 32

32A13



13 Contacts
Ø2.4 mm (#12)

Max. operating voltage: 220 V
following NF F 61-030

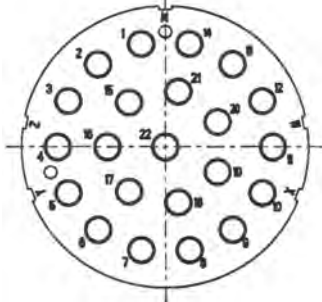


VGE1/FER1 Series



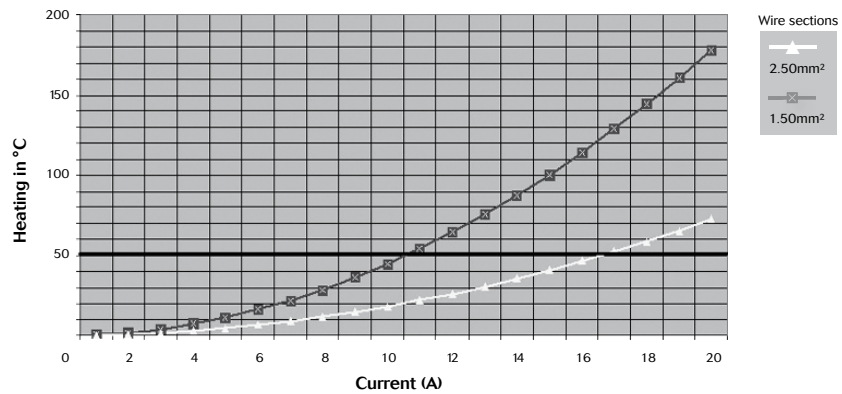
Size 36

36A22



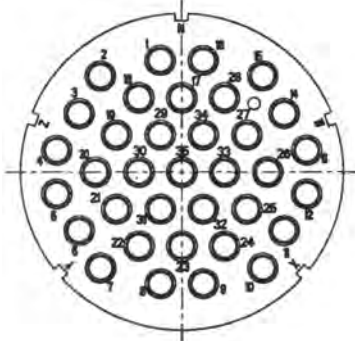
22 Contacts
Ø2.4 mm (#12)

Max. operating voltage: 500 Vcc
following NF F 61-030



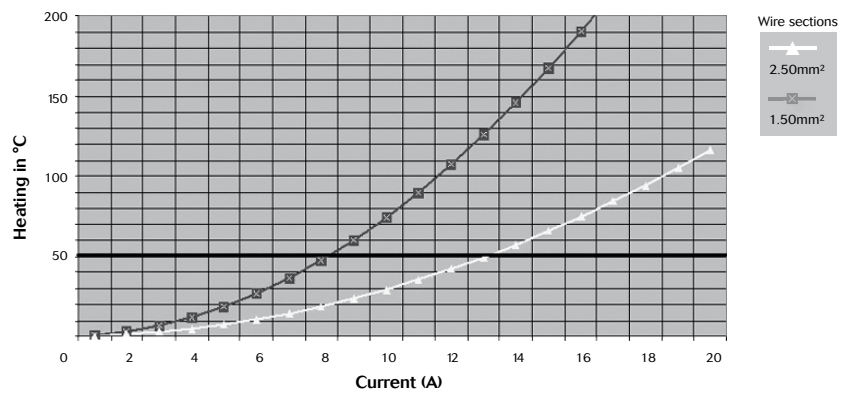
Size 40

40A35

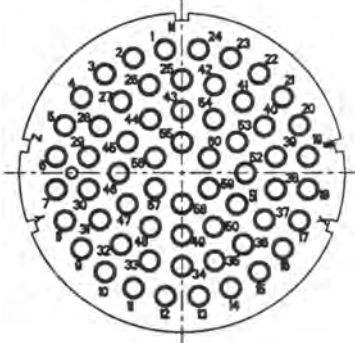


35 Contacts
Ø2.4 mm (#12)

Max. operating voltage: 500 Vcc
following NF F 61-030

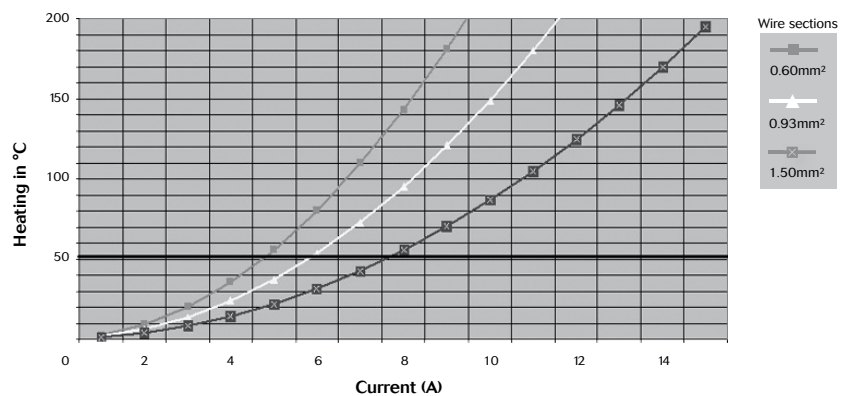


40A60



60 Contacts
Ø1.6 mm (#16)

Max. operating voltage: 220 V
following NF F 61-030





Data transmission performances

High speed data transmissions with layouts 18-19, 14R and 18A1

Tests following IEC 11-801

For cabling specifications please contact us.

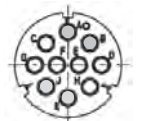
18-19

Cat. 5 level obtained with 4 contacts #16

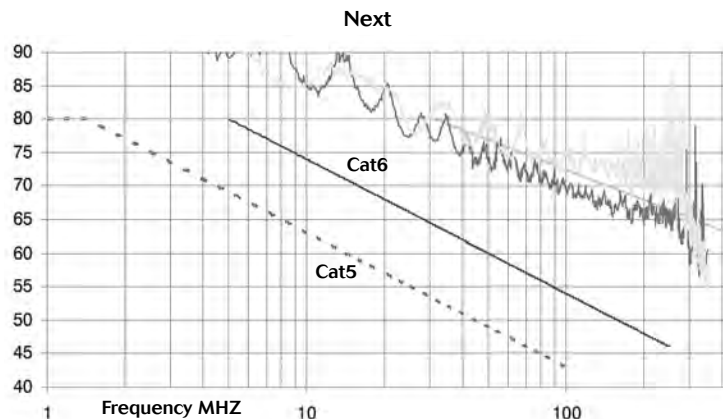
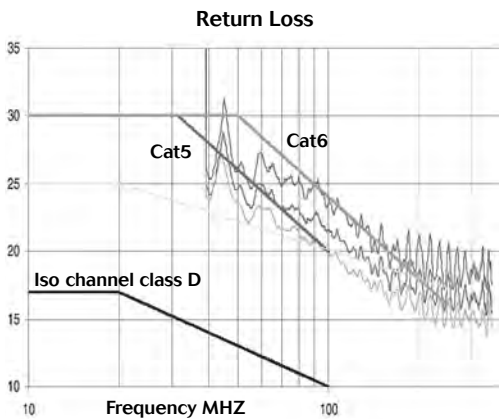
Exemple of performances with a 18-19 connector and a 2 pairs cable, for cabling specification, consult us:

Standard version with 4 contacts #16: Cat. 5 / IEC11-801

18-19



4 Contacts
Ø1.6 mm (#16)



Quadrax-14R & 18A1

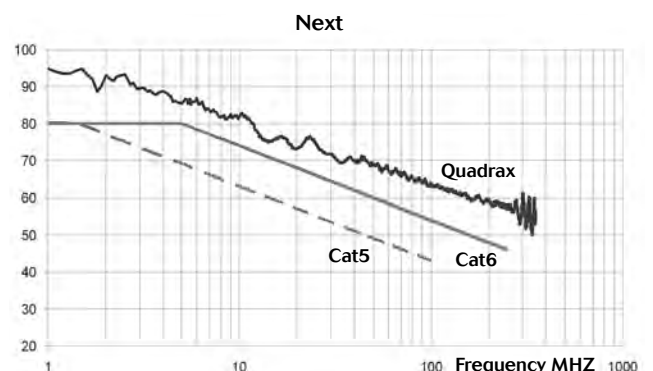
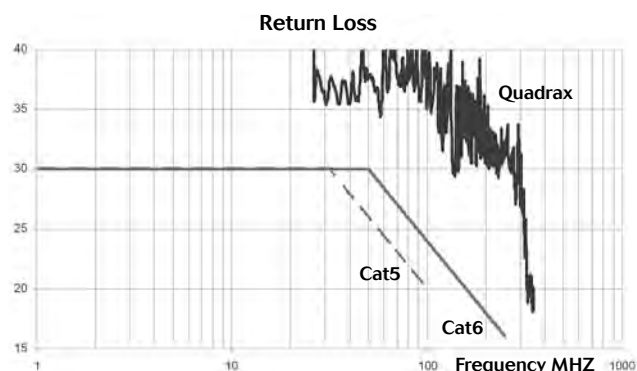
Cat. 6 level obtained with 1 contact Quadrax

Exemple of performances with a 18A1 connector and a quarte cable:

Quadrax version: Cat. 6 / IEC11-801

14R

18A1





Ordering information

Receptacle, plug, backshells, contacts and accessories have to be ordered separately.

VGE1 (page 20-29)

Basic Series	VGE1	B	22	14	P	N	--
Shell type:							
B: Rear mounting receptacle							
D: Plug							
C: Rear mounting receptacle for PC tails contact # 16							
H: Jam Nut Receptacle with shielding ring - only available for sizes 18 and 22							
Shell size:							
14; 18; 20; 22; 24; 28; 32; 36; 40							
Layouts: see page 11							
Contact type:							
P: Pin							
S: Socket							
Insert Orientation: see page 76							
N; W; X; Y; Z or Ø							
(Ø = insert not installed in the shell)							
Specification Code:							
Ø4: Receptacle delivered with non conductive panel gasket							
Ø5: Receptacle delivered with conductive panel gasket							
11: Receptacle and plug delivered with plastic cap							

Connector marking example: VGE1B2214PN

FER1 (page 30-31)

Basic Series	FER1	B	22	14	P	N	--
Shell type:							
B: Rear mounting receptacle							
D: Plug							
Shell size:							
18; 22; 28 (Other sizes: please consult us)							
Layouts: see page 11							
Contact type:							
P: Pin							
S: Socket							
Insert Orientation: see page 76							
N; W; X; Y; Z or Ø							
(Ø = insert not installed in the shell)							
Specification Code:							
Ø4: Receptacle delivered with non conductive panel gasket							
Ø5: Receptacle delivered with conductive panel gasket							
11: Receptacle and plug delivered with plastic cap							

Connector marking example: FER1D2821SN

VGE1/FER1 Series



Backshell (page 38-56)

Basic Series	VGE1	J	S	18	00	0	0	-
	VGE1	C	S	22	14	0	0	M
Backnut		R						
Strain relief		C						
Conduit adaptor		S						
Cable clamp with sealing gland		J						
Cable clamp with sealing gland (trumpet shape)		K						
Shielded backshell with sealing gland		T						
Sealing gland		V						
Adaptor with thread outlet (without accessory)		P						
S: Straight backshell E: Elbow backshell								
Shell size: 14; 18; 20; 22; 24; 28; 32; 36; 40								
Layout (if grommet needed) or 00 (without grommet)								
Adaptor type: 1: long 0: Short, or other specification code								
Specification: Number 0 to 9 ; please refer to each backshell type								
Grommet type (if grommet needed): M: Male L: Female								

Backshell marking example: VGE1JS40A3500M

VEGET/FEER1

Mechanics

■ VGE1 receptacle	20
■ VGE1 plug	22
■ VGE1 specific receptacle	24
■ VGE1 specific plug	28
■ FER1 receptacle & plug	30

VGE1/FER1 Series



VGE1 receptacle - Part numbers



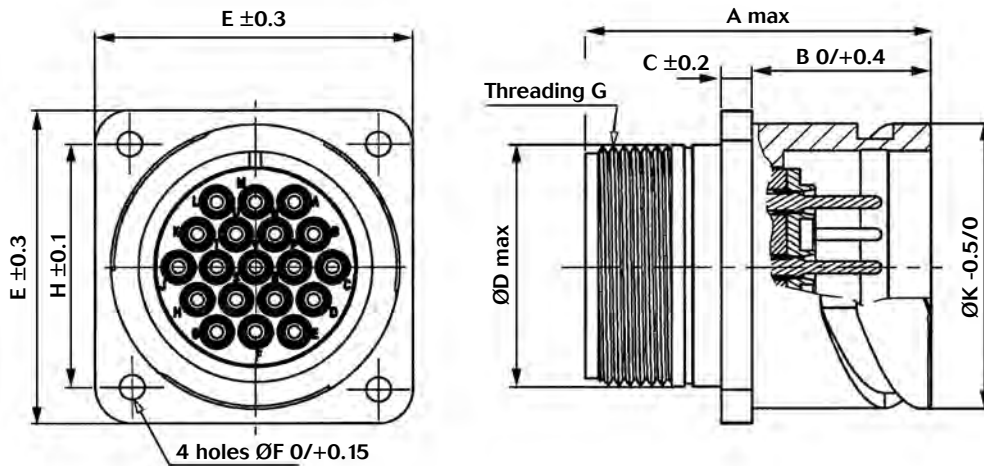
Shell size	Layout	Number of contact	Contact size	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
14	14A6	6	#16	Male	O, N, Y	VGE1 B 14A6 PN
				Female		VGE1 B 14A6 SN
	14A10	10	#20	Male	O, N, Y	VGE1 B 14A10 PN
				Female		VGE1 B 14A10 SN
	14R	1	Quadrax	Male	-	VGE1 B 14R
18	18-19	10	#16	Male	O, N, X, Y	VGE1 B 1819 PN
				Female		VGE1 B 1819 SN
	18A1	1	Quadrax	Male	N	VGE1 B 18A1 PN
				Female		VGE1 B 18A1 SN
20	20-15	7	#12	Male	O, N, W, Z	VGE1 B 2015 PN
				Female		VGE1 B 2015 SN
22	22-14	19	#16	Male	O, N, W, Z	VGE1 B 2214 PN
				Female		VGE1 B 2214 SN
24	24-10	7	#8	Male	O, N, W, X, Y, Z	VGE1 B 2410 PN
				Female		VGE1 B 2410 SN
28	28-21	37	#16	Male	O, N, W, X, Y, Z	VGE1 B 2821 PN
				Female		VGE1 B 2821 SN
32	32A13	13	#12	Male	O, N, W, X, Y, Z	VGE1 B 32A13 PN
				Female		VGE1 B 32A13 SN
36	36A22	22		Male	O, N, W, X, Y, Z	VGE1 B 36A22 PN
				Female		VGE1 B 36A22 SN
40	40A35	35		Male	O, N, W, X, Y, Z	VGE1 B 40A35 PN
				Female		VGE1 B 40A35 SN
	40A60	60		Male	O, N, W, X, Y, Z	VGE1 B 40A60 PN
				Female		VGE1 B 40A60 SN

1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation



VGE1 receptacle - Dimensions



Part numbers ⁽²⁾	A	B	C	ØD	E	ØF	Threading G Class 2A	H	ØK	Weight ⁽³⁾
VGE1 B 14A6 PN	40.5	18.4	3.2	19.2	30	3.25	3/4"x20 UNEF	23	24.6	24 g
VGE1 B 14A6 SN										25 g
VGE1 B 14A10 PN										23 g
VGE1 B 14A10 SN										25 g
VGE1 B 14R										21 g
VGE1 B 1819 PN	45.5	23.05	4	25.5	35	3.25	1"x20 UNEF	27	30.8	52 g
VGE1 B 1819 SN										47 g
VGE1 B 18A1 PN										47 g
VGE1 B 18A1 SN										40 g
VGE1 B 2015 PN	45.5	23.05	4	28.7	38	3.25	1 1/8"x18 UNEF	29.4	34.2	52 g
VGE1 B 2015 SN										60 g
VGE1 B 2214 PN	45.5	23.05	4	31.9	41	3.25	1 1/4"x18 UNEF	31.8	37.4	57 g
VGE1 B 2214 SN										66 g
VGE1 B 2410 PN	45.5	23.05	4	35.2	44.5	3.75	1 3/8"x18 UNEF	34.9	40.9	65 g
VGE1 B 2410 SN										77 g
VGE1 B 2821 PN	48	24.05	4	41.5	50.8	3.75	1 5/8"x18 UNEF	39.7	46.7	92 g
VGE1 B 2821 SN										105 g
VGE1 B 32A13 PN	48	24.05	4	47.9	57	4.35	1 7/8"x16 UNEF	44.5	53.4	122 g
VGE1 B 32A13 SN										151 g
VGE1 B 36A22 PN	48	24.05	4	52.5	63.5	4.35	2 1/16"x16 UNS	49.2	59.6	149 g
VGE1 B 36A22 SN										184 g
VGE1 B 40A35 PN	48	24.05	4	59	70	4.35	2 5/16"x16 UNEF	55.5	65.5	170 g
VGE1 B 40A35 SN										208 g
VGE1 B 40A60 PN										230 g
VGE1 B 40A60 SN										208 g

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation
 3: weight for indication - receptacle + insert without contact

Note: max dimensions in mm
 Dimensions are not contractual and may be subject to modifications



VGE1 plug - Part numbers



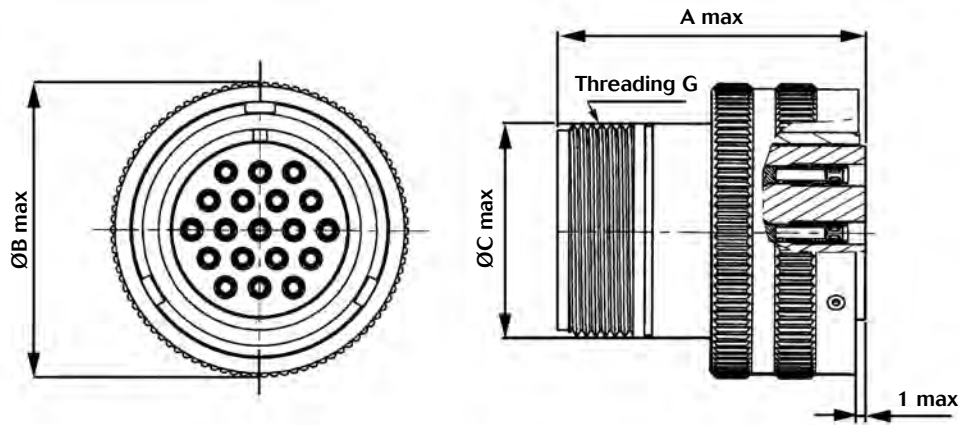
Shell size	Layout	Number of contact	Contact size	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
14	14A6	6	#16	Male	O, N, Y	VGE1 D 14A6 PN
				Female		VGE1 D 14A6 SN
	14A10	10	#20	Male	O, N, Y	VGE1 D 14A10 PN
				Female		VGE1 D 14A10 SN
	14R	1	Quadrax	Female	-	VGE1 D 14R
18	18-19	10	#16	Male	O, N, X, Y	VGE1 D 1819 PN
				Female		VGE1 D 1819 SN
	18A1	1	Quadrax	Male	N	VGE1 D 18A1 PN
				Female		VGE1 D 18A1 SN
20	20-15	7	#12	Male	O, N, W, Z	VGE1 D 2015 PN
				Female		VGE1 D 2015 SN
22	22-14	19	#16	Male	O, N, W, Z	VGE1 D 2214 PN
				Female		VGE1 D 2214 SN
24	24-10	7	#8	Male	O, N, W, X, Y, Z	VGE1 D 2410 PN
				Female		VGE1 D 2410 SN
28	28-21	37	#16	Male	O, N, W, X, Y, Z	VGE1 D 2821 PN
				Female		VGE1 D 2821 SN
32	32A13	13	#12	Male	O, N, W, X, Y, Z	VGE1 D 32A13 PN
				Female		VGE1 D 32A13 SN
36	36A22	22		Male	O, N, W, X, Y, Z	VGE1 D 36A22 PN
				Female		VGE1 D 36A22 SN
40	40A35	35		Male	O, N, W, X, Y, Z	VGE1 D 40A35 PN
				Female		VGE1 D 40A35 SN
	40A60	60		Male	O, N, W, X, Y, Z	VGE1 D 40A60 PN
				Female		VGE1 D 40A60 SN

1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation



VGE1 plug - Dimensions



Part numbers ⁽²⁾	A	ØB	ØC	Threading G Class 2A	Weight ⁽³⁾
VGE1 D 14A6 PN	41	31.7	19.2	3/4"x20 UNEF	27 g
VGE1 D 14A6 SN					28 g
VGE1 D 14A10 PN					26 g
VGE1 D 14A10 SN					28 g
VGE1 D 14R					24 g
VGE1 D 1819 PN	45.6	37.3	25.5	1"x20 UNEF	59 g
VGE1 D 1819 SN					53 g
VGE1 D 18A1 PN					39 g
VGE1 D 18A1 SN					46 g
VGE1 D 2015 PN	45.6	41.5	28.7	1 1/8"x18 UNEF	54 g
VGE1 D 2015 SN					61 g
VGE1 D 2214 PN	45.6	44	31.9	1 1/4"x18 UNEF	58 g
VGE1 D 2214 SN					67 g
VGE1 D 2410 PN	45.6	48.5	35.2	1 3/8"x18 UNEF	68 g
VGE1 D 2410 SN					79 g
VGE1 D 2821 PN	48.1	55.3	41.5	1 5/8"x18 UNEF	81 g
VGE1 D 2821 SN					95 g
VGE1 D 32A13 PN	48.1	62	47.9	1 7/8"x16 UNEF	125 g
VGE1 D 32A13 SN					154 g
VGE1 D 36A22 PN	48.1	66.8	52.5	2 1/6"x16 UNS	135 g
VGE1 D 36A22 SN					169 g
VGE1 D 40A35 PN	48.1	74.5	59	2 5/16"x16 UNEF	163 g
VGE1 D 40A35 SN					201 g
VGE1 D 40A60 PN					226 g
VGE1 D 40A60 SN					201 g

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation
 3: weight for indication - receptacle + insert without contact

Note: max dimensions in mm
 Dimensions are not contractual and may be subject to modifications



VGE1 specific receptacle - Part numbers

Receptacle with PC tails contacts



Shell size	Layout	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾			
					PCB plating		
					Gold Ø 1.2	Gold Ø 1	Tin* Ø 1
18	18-19	Male	O, N, X, Y	VGE1C 1819 PN...	-	01	14
22	22-14	Male	O, N, W, Z	VGE1C 2214 PN...	-	01	14
28	28-21	Male	O, N, W, X, y, Z	VGE1C 2821 PN...	-	01	14

Examples: VGE1C2214PN - with PCB Gold plated Ø 1.2 mm
 VGE1C2214PN14 - with PCB Tin plated Ø 1 mm
 VGE1C2214PNØ1 - with Gold plated Ø 1 mm

* Tin plating only on the tail of the contact

Jam nut receptacle with shielding ring



Shell size	Layout	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
18	18-19	Male	O, N, X, Y	VGE1 H 1819 PN
		Female		VGE1 H 1819 SN
22	22-14	Male	O, N, W, Z	VGE1 H 2214 PN
		Female		VGE1 H 2214 SN

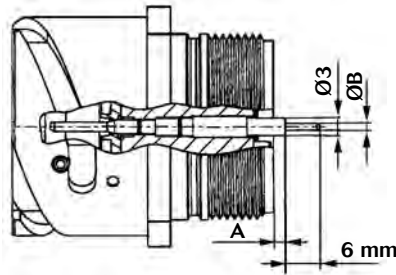
1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation



VGE1 specific receptacle - Dimensions

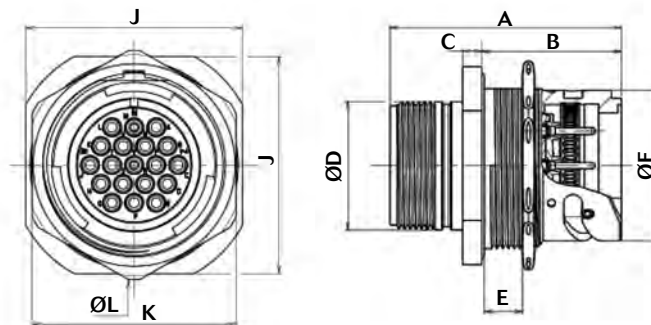
Receptacle with PC tails contacts



Part numbers ⁽²⁾	Shell size	A max	ØB max*		
VGE1 C 1819 PN...	18	2.00	Gold plating standard (-) Ø 1.2	Gold plating specific (01) Ø 1	Tin plating (14) Ø 1
VGE1 C 2214 PN...	22				
VGE1 C 2821 PN...	28	- 0.40			

*: example of Part numbers with Gold plating standard VGE1C1819PN, with Gold plating specific VGE1C1819PN01, with Tin plating VGE1C1819PN14

Jam nut receptacle with shielding ring



Part numbers ⁽²⁾	Shell size	A max	B	C	ØD max	E max	ØF	J	K	ØL	Weight ⁽³⁾
VGE1 H 1819 ...N	18	57.70	34.50	4.80	25.50	10.00	30.80	42.00	39.90	44.50	70 g
VGE1 H 2214 ...N	22	57.70	34.50	4.80	31.90	10.00	37.40	49.00	46.00	51.30	105 g

2: example of Part numbers with orientation "N", "N" can be replaced by other orientation - see column orientation
3: weight for indication - receptacle + insert without contact

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



VGE1 specific receptacle - Part numbers



Receptacle with serrations

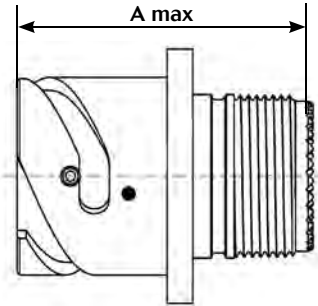
Shell size	Layout	Number of contact	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
18	18-19	10	Male	O, N, X, Y	VGE1 B 1819 PN09
			Female		VGE1 B 1819 SN09
22	22-14	19	Male	O, N, W, Z	VGE1 B 2214 PN09
			Female		VGE1 B 2214 SN09
28	28-21	37	Male	O, N, W, X, Y, Z	VGE1 B 2821 PN09
			Female		VGE1 B 2821 SN09

1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation



VGE1 specific receptacle - Dimensions



Receptacle with serrations

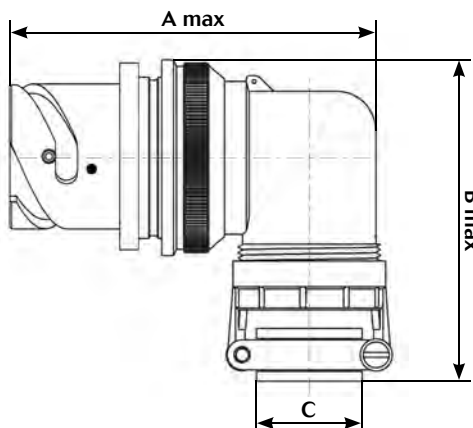
Part numbers ⁽²⁾	Shell size	A max	Nb. of teeth
VGE1 B 1819 ..N09	18	45.5	28
VGE1 B 2214 ..N09	22		
VGE1 B 2821 ..N09	28	48	36

Serrations on body connector allow the use of a shorter backshell, for a use in short area.

Specific backshell

Part numbers	Shell size	A max	B max.	C Capacity cable
VGE1 CE 18 003	18	80	76.2	Ø4 / Ø15.5
VGE1 CE 22 003	22	89.9	78.1	Ø9 / Ø15.5
VGE1 CE 28 003	28	77.9	82	Ø9.5 / Ø19.5

It is not possible to use a grommet with this backshell



²: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation *Note: max dimensions in mm Dimensions are not contractual and may be subject to modifications*



VGE1 specific plug - Part numbers



Plug with serrations

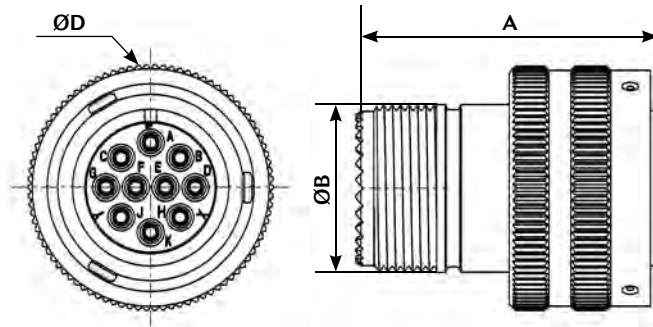
Shell size	Layout	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
18	18-19	Male	O, N, X, Y	VGE1 D 1819 PN09
		Female		VGE1 D 1819 SN09
22	22-14	Male	O, N, W, Z	VGE1 D 2214 PN09
		Female		VGE1 D 2214 SN09
28	28-21	Male	O, N, W, X, Y, Z	VGE1 D 2821 PN09
		Female		VGE1 D 2821 SN09

1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation



VGE1 specific plug - Dimensions



Plug with serrations

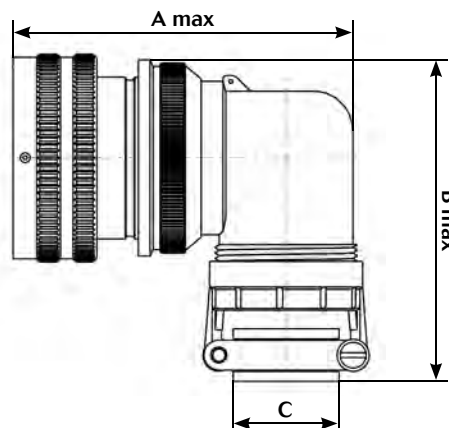
Part numbers ⁽²⁾	Shell size	A	ØB	ØD max	Nb. of teeth
VGE1 D 1819 ..NØ9	18	45	25.5	37.3	28
VGE1 D 2214 ..NØ9	22		31.9	44	
VGE1 D 2821 ..NØ9	28		41.5	55.3	

Serrations on body connector allow the use of a shorter backshell, for a use in short area .

Specific backshell

Part numbers	Shell size	A max	B max.	C Ø cable
VGE1 CE 18 003	18	79.5	77.8	Ø4 / Ø15.5
VGE1 CE 22 003	22	89.4	79.8	Ø9 / Ø15.5
VGE1 CE 28 003	28	91.9	84.6	Ø9.5 / Ø19.5

It is not possible to use a grommet with this backshell



2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation *Note: max dimensions in mm Dimensions are not contractual and may be subject to modifications*



FER1 receptacle & plug - Part numbers



Receptacle

Shell size	Layout	Number of contact	Contact size	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
18	18-19	10	#16	Male	O, N, X, Y	FER1 B 1819 PN
				Female		FER1 B 1819 SN
18	18A1	1	Quadrax	Male	N	FER1 B 18A1 PN
				Female		FER1 B 18A1 SN
22	22-14	19	#16	Male	O, N, W, Z	FER1 B 2214 PN
				Female		FER1 B 2214 SN
28	28-21	37	#16	Male	O, N, W, X, Y, Z	FER1 B 2821 PN
				Female		FER1 B 2821 SN

Plug

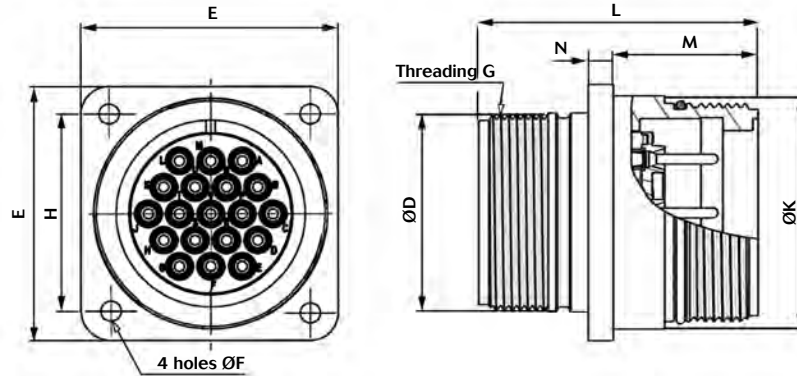
Shell size	Layout	Number of contact	Contact size	Contact type	Orientation ⁽¹⁾	Part numbers ⁽²⁾
18	18-19	10	#16	Male	O, N, X, Y	FER1 D 1819 PN
				Female		FER1 D 1819 SN
18	18A1	1	Quadrax	Male	N	FER1 D 18A1 PN
				Female		FER1 D 18A1 SN
22	22-14	19	#16	Male	O, N, W, Z	FER1 D 2214 PN
				Female		FER1 D 2214 SN
28	28-21	37	#16	Male	O, N, W, X, Y, Z	FER1 D 2821 PN
				Female		FER1 D 2821 SN

1: for orientation see p. 76

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation

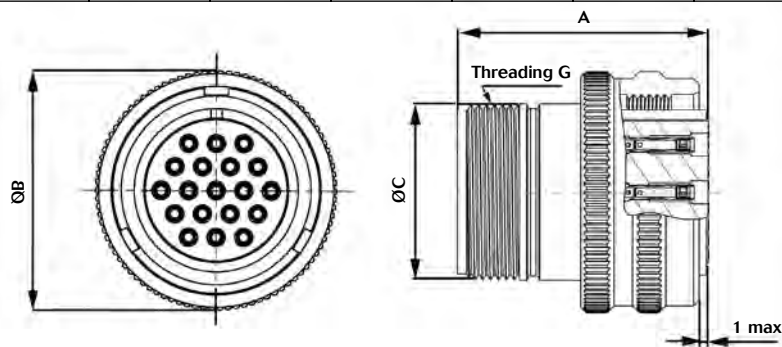


FER1 receptacle & plug - Dimensions



Receptacle

Part numbers ⁽²⁾	L max	M	N	ØD	E	ØF	H	ØK	Weight ⁽³⁾
FER1 B 1819 PN	45.5	23.25	4	25.5	35	3.25	27	30.8	37 g
FER1 B 1819 SN									42 g
FER1 B 18A1 PN									32 g
FER1 B 18A1 SN									37 g
FER1 B 2214 PN	45.5	23.25	4	31.9	41	3.25	31.8	37.4	51 g
FER1 B 2214 SN									60 g
FER1 B 2821 PN	48	24.25	4	41.5	50.8	3.75	39.7	46.7	81 g
FER1 B 2821 SN									94 g



Plug

Part numbers ⁽²⁾	A max	ØB max	ØC max	Threading G Class 2A	Weight ⁽³⁾
FER1 D 1819 PN	45.6	37.3	25.5	1"x20 UNEF	54 g
FER1 D 1819 SN					58 g
FER1 D 18A1 PN					44 g
FER1 D 18A1 SN					51 g
FER1 D 2214 PN	45.6	44	31.9	1 1/4"x18 UNEF	87 g
FER1 D 2214 SN					96 g
FER1 D 2821 PN	48.1	55.3	41.5	1 5/8"x18 UNEF	81 g
FER1 D 2821 SN					94 g

2: example of Part numbers with orientation "N". "N" can be replaced by other orientation - see column orientation
 3: weight for indication - receptacle + insert without contact

Note: max dimensions in mm
 Dimensions are not contractual and may be subject to modifications

VEGETA/FEER1

VGE1/FER1 Series

Contacts

■ Machined crimp contact	34
■ Quadrax.....	35





Machined crimp contact

Part numbers & dimensions



Contact size		Wire size		Plating	Part numbers		insulator Ø	
#	mm	AWG	mm ²		Male	Female	Without grommet	With grommet*
#20	1.0	20-18	0.50-1.00	Gold	RM18W3K	RC18W3K	2.10 maxi	1.15 mini 1.80 maxi
#16	1.6	22-20	0.32-0.50	Gold	RM20M12K	RC20M12K	3.50 maxi	1.20 mini 2.95 maxi
#16	1.6	20-16	0.5-1.5	Gold	RM16M23K	RC16M23K		
#16	1.6	16-14	1.5-2.5	Gold	RM14M30K	RC14M30K		
#12	2.4	20	0.5	Silver	82911459NA	82911458A	4.90 maxi	1.50 mini 3.60 maxi
				Gold	82911459NK	82911458K		
#12	2.4	18	0.75-1.0	Silver	82911461NA	82911460A		
				Gold	82911461NK	82911460K		
#12	2.4	16	1.5	Silver	82911463NA	82911462A		
				Gold	82911463NK	82911462K		
#12	2.4	14	2.5	Silver	82911465NA	82911464A		
				Gold	82911465NK	82911464K		
#8	3.6	16	1.5	Silver	82913601A	82913600A	6.50 max	4.20 mini 6.20 maxi
#8	3.6	14	2.5		82913603A	82913602A		
#8	3.6	12	4		82913605A	82913604A		
#8	3.6	10	6		82913607A	82913606A		

For other contact type consult us
* For more information see page 60

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



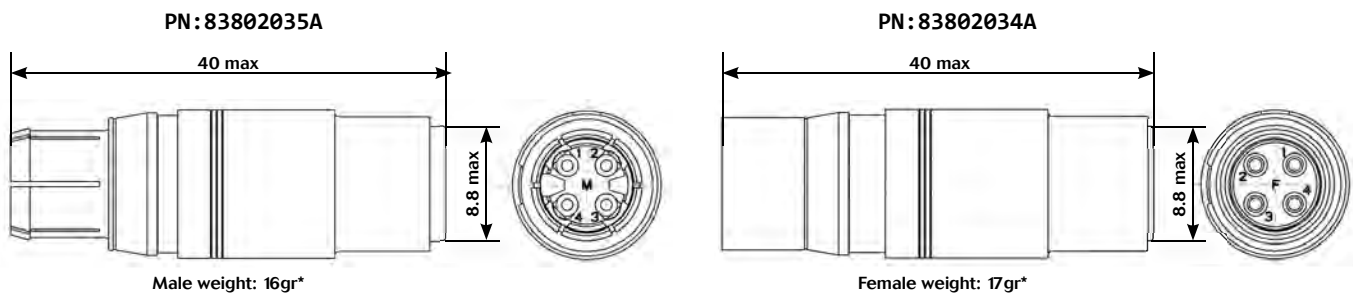
Quadrax

Part numbers

Line wire size		Cell plating	Part numbers		Max line wire insulator Ø
AWG	mm ²		Male	Female	
24-18	0.21-0.93	Silver	83802035A	83802034A	1.2-2.11 mm



Dimensions



*: weight for indication - receptacle + insert without contact

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

VEGETA/FEER1

Backshells

■ Backshell overview	38
■ Overview - Mating possibilities	39
■ VGE1 CS & CE	40
■ VGE1 SS & SE	42
■ VGE1 JS & JE	44
■ VGE1 KS & KE	46
■ VGE1 TS & TE	48
■ VGE1 VS & VE	50
■ VGE1 RS	52
■ VGE1 PS	54
■ Specific PS	56
■ VGE1 PE	57

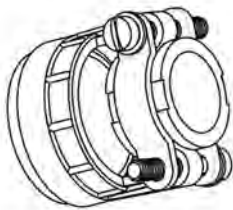


Backshells overview

Accessories have to be used with an adaptor

6 accessories available

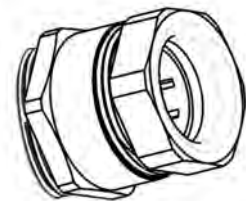
It is the responsibility of the customer to ensure that all cables and accessories are compatible with each other.



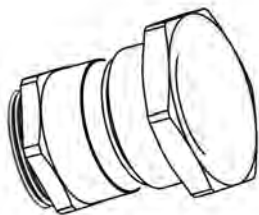
Strain relief
Straight version: CS...
Elbow 90° version: CE...
See page 40



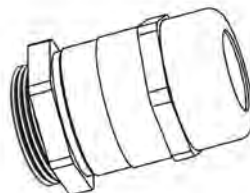
PMA Conduit adaptor
Straight version: SS...
Elbow 90° version: SE...
See page 42



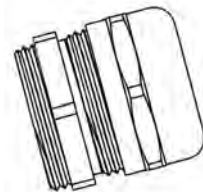
Cable clamp with sealing gland
Straight version: JS...
Elbow 90° version: JE...
See page 44



Cable clamp with sealing gland (trumpet shape)
Straight version: KS...
Elbow 90° version: KE...
See page 46



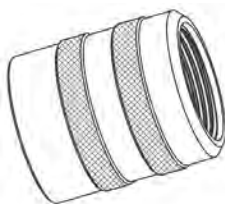
Shielded backshell with sealing gland
Straight version: TS...
Elbow 90° version: TE...
See page 48



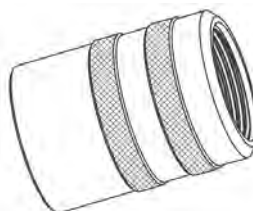
Sealing gland
Straight version: VS...
Elbow 90° version: VE...
See page 50

3 adaptors available

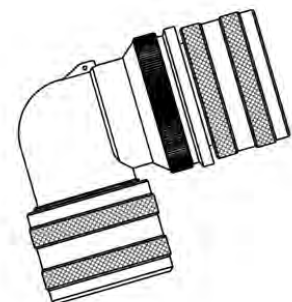
Adaptor are included in the backshell Part numbers or can be order separately.
The sealing performance of the complete assembly depends on the accessory fitted to the adapter.
If the adapter has been sourced from another supplier, the sealing performance of the whole assembly becomes the responsibility of the customer.



Straight short version*:
PS...0.



Straight long version:
PS...1.

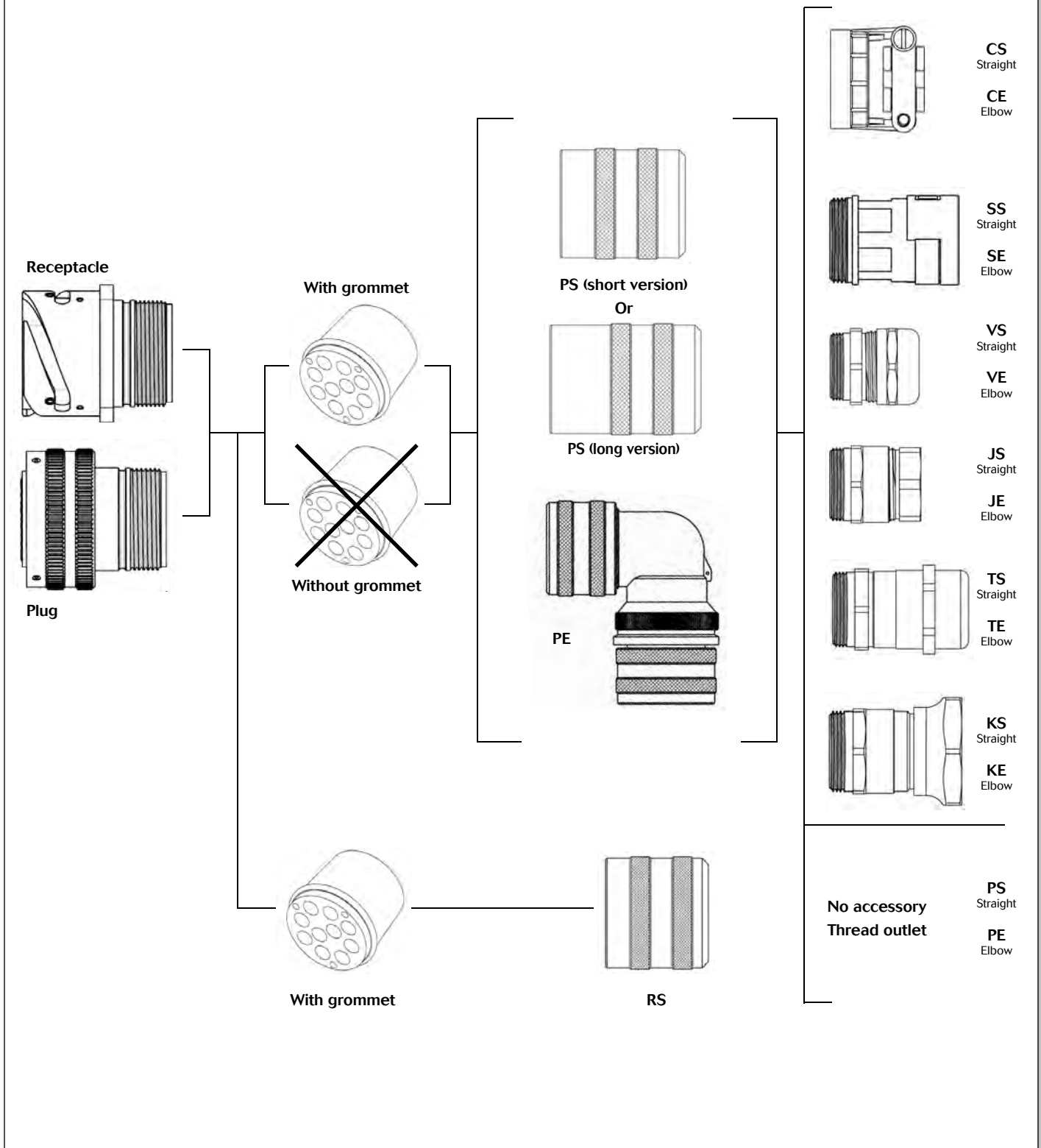


Elbow 90° version*:
PE...

* except for VGE1 size 14



Overview - Mating possibilities





VGE1CS & VGE1CE - Part numbers

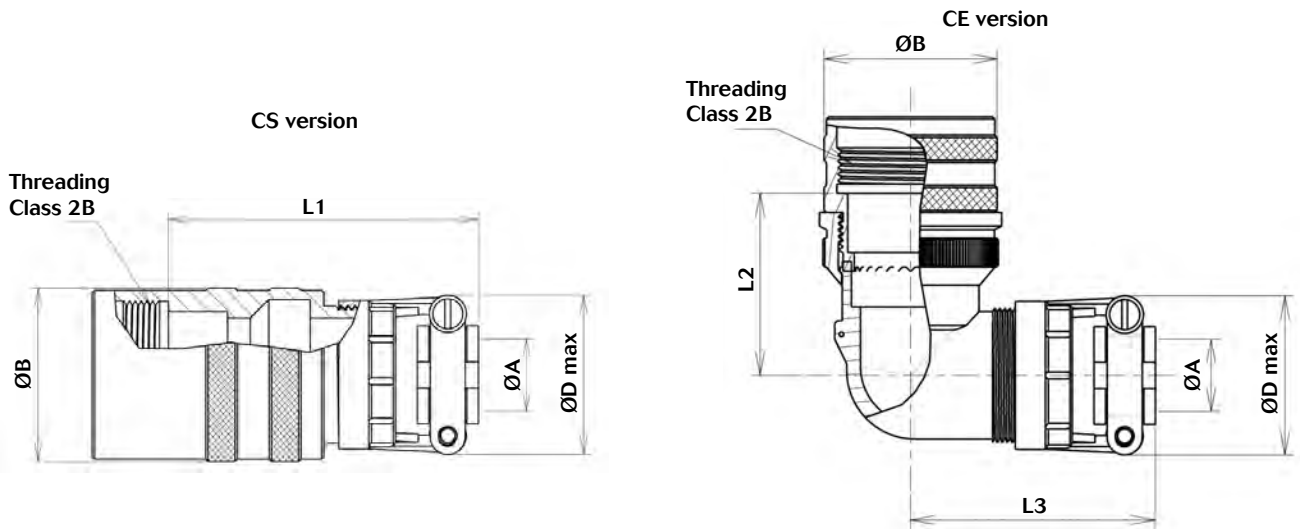


Layout	CS straight version		CE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*
14A6	VGE1CS140000	VGE1CS14A600M	-	-
		VGE1CS14A600L		
14A10	VGE1CS140000	VGE1CS14A1000M	-	-
		VGE1CS14A1000L		
14R	VGE1CS140000	-	-	-
18-19	VGE1CS180000	VGE1CS181900M	VGE1CE180000	VGE1CE181900M
		VGE1CS181900L		VGE1CE181900L
18A1	VGE1CS180000	-	VGE1CE180000	-
20-15	VGE1CS200000	VGE1CS201500M	VGE1CE200000	VGE1CE201500M
		VGE1CS201500L		VGE1CE201500L
22-14	VGE1CS220000	VGE1CS221400M	VGE1CE220000	VGE1CE221400M
		VGE1CS221400L		VGE1CE221400L
24-10	VGE1CS240000	VGE1CS241000M	VGE1CE240000	VGE1CE241000M
		VGE1CS241000L		VGE1CE241000L
28-21	VGE1CS280000	VGE1CS282100M	VGE1CE280000	VGE1CE282100M
		VGE1CS282100L		VGE1CE282100L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1CS & VGE1CE - Dimensions



Layout	ØA	ØB	ØD	L1	L2	L3
14A6 14A10 14R	7.9	23	24.5	58	-	-
18-19	12.7	30	29	72	44	59.2
18A1	12.7	30	29	72	44	59.2
20-15	15.87	33	34.8	72	43.5	60.4
22-14	15.87	38	34.8	69.4	43	57.8
24-10	19.05	38	39.5	69.4	45.5	62.8
28-21	20.32	46	41.8	69.4	41	57

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

VGE1/FER1 Series



VGE1SS & VGE1SE - Part numbers



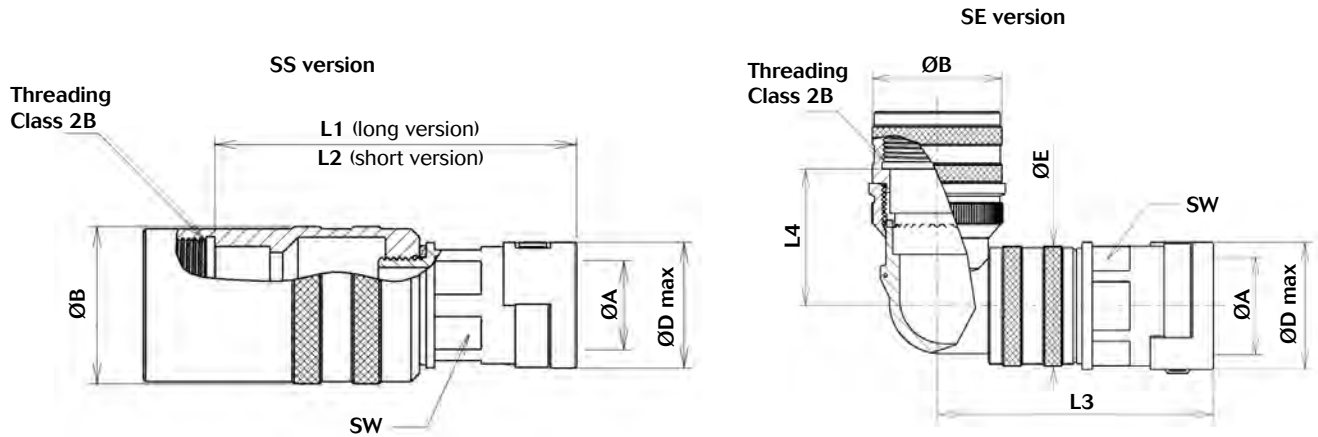
To be used with PMA conduit. For other conduits, please consult us.

Layout	SS straight short version		SS straight long version		SE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*	Without grommet	With grommet*
14A6	VGE1SS140000	VGE1SS14A600M	-	-	-	-
		VGE1SS14A600L				
14A10	VGE1SS140000	VGE1SS14A1000M	-	-	-	-
		VGE1SS14A1000L				
14R	VGE1SS140000	-	-	-	-	-
18-19	VGE1SS180000	VGE1SS181900M	VGE1SS180010	VGE1SS181910M	VGE1SE180000	VGE1SE181900M
		VGE1SS181900L		VGE1SS181910L		VGE1SE181900L
18A1	VGE1SS180000	-	VGE1SS180010	-	VGE1SE180000	-
20-15	VGE1SS200000	VGE1SS201500M	VGE1SS200010	VGE1SS201510M	VGE1SE200000	VGE1SE201500M
		VGE1SS201500L		VGE1SS201510L		VGE1SE201500L
22-14	VGE1SS220000	VGE1SS221400M	VGE1SS220010	VGE1SS221410M	VGE1SE220000	VGE1SE221400M
		VGE1SS221400L		VGE1SS221410L		VGE1SE221400L
24-10	VGE1SS240000	VGE1SS241000M	VGE1SS240010	VGE1SS241010M	VGE1SE240000	VGE1SE241000M
		VGE1SS241000L		VGE1SS241010L		VGE1SE241000L
28-21	VGE1SS280000	VGE1SS282100M	VGE1SS280010	VGE1SS282110M	VGE1SE280000	VGE1SE282100M
		VGE1SS282100L		VGE1SS282110L		VGE1SE282100L
32A13	VGE1SS320000	VGE1SS32A1300M	VGE1SS320010	VGE1SS32A1310M	VGE1SE320000	VGE1SE32A1300M
		VGE1SS32A1300L		VGE1SS32A1310L		VGE1SE32A1300L
36A22	VGE1SS360000	VGE1SS36A2200M	VGE1SS360010	VGE1SS36A2210M	VGE1SE360000	VGE1SE36A2200M
		VGE1SS36A2200L		VGE1SS36A2210L		VGE1SE36A2200L
40A35	VGE1SS400000	VGE1SS40A3500M	VGE1SS400010	VGE1SS40A3510M	VGE1SE400000	VGE1SE40A3500M
		VGE1SS40A3500L		VGE1SS40A3510L		VGE1SE40A3500L
40A60	VGE1SS400000	VGE1SS40A6000M	VGE1SS400010	VGE1SS40A6010M	VGE1SE400000	VGE1SE40A6000M
		VGE1SS40A6000L		VGE1SS40A6010L		VGE1SE40A6000L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1SS & VGE1SE - Dimensions



Layout	ØA (conduit type)	ØB	ØD	ØE	SW	L1	L2	L3	L4
14A6 14A10 14R	PMA NW12	23	23.5	-	20	-	59	-	-
18-19	PMA NW17	30	30	30	26	84.1	69.1	78.5	44
18A1	PMA NW17	30	30	30	26	84.1	69.1	78.5	44
20-15	PMA NW17	33	30	34	26	84.1	69.1	80	43.5
22-14	PMA NW23	37	37	35	32	87.1	72.1	83	43
24-10	PMA NW23	40	37	40	32	87.1	72.1	88	45.5
28-21	PMA NW29	46	44	44.5	38	95.9	70.9	85.5	41
32A13	PMA NW29	52	44	52	38	85.9	70.9	98.5	52
36A22	PMA NW36	57	53	57	50	99.4	84.4	115	65
40A35	PMA NW48	63	65	63	65	93.4	78.4	115	56
40A60	PMA NW48	63	65	63	65	93.4	78.4	115	56

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



VGE1JS & VGE1JE - Part numbers

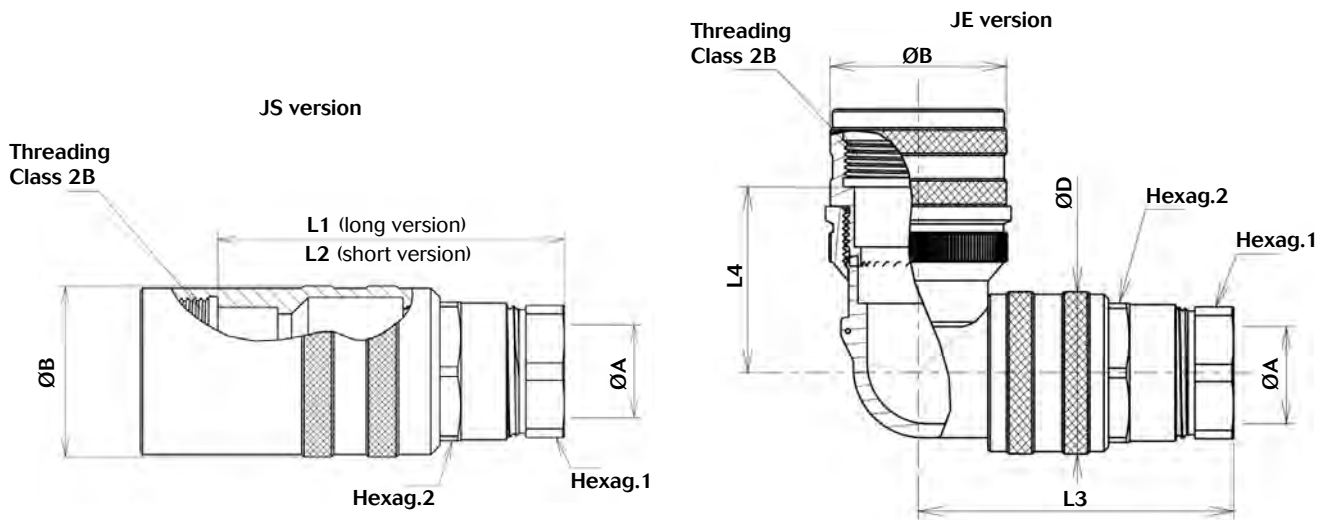


Layout	JS straight short version		JS straight long version		JE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*	Without grommet	With grommet*
18-19	VGE1JS180000	VGE1JS181900M	VGE1JS180010	VGE1JS181910M	VGE1JE180000	VGE1JE181900M
		VGE1JS181900L		VGE1JS181910L		VGE1JE181900L
18A1	VGE1JS180000	-	VGE1JS180010	-	VGE1JE180000	-
20-15	VGE1JS200000	VGE1JS201500M	VGE1JS200010	VGE1JS201510M	VGE1JE200000	VGE1JE201500M
		VGE1JS201500L		VGE1JS201510L		VGE1JE201500L
22-14	VGE1JS220000	VGE1JS221400M	VGE1JS220010	VGE1JS221410M	VGE1JE220000	VGE1JE221400M
		VGE1JS221400L		VGE1JS221410L		VGE1JE221400L
24-10	VGE1JS240000	VGE1JS241000M	VGE1JS240010	VGE1JS241010M	VGE1JE240000	VGE1JE241000M
		VGE1JS241000L		VGE1JS241010L		VGE1JE241000L
28-21	VGE1JS280000	VGE1JS282100M	VGE1JS280010	VGE1JS282110M	VGE1JE280000	VGE1JE282100M
		VGE1JS282100L		VGE1JS282110L		VGE1JE282100L
32A13	VGE1JS320000	VGE1JS32A1300M	VGE1JS320010	VGE1JS32A1310M	VGE1JE320000	VGE1JE32A1300M
		VGE1JS32A1300L		VGE1JS32A1310L		VGE1JE32A1300L
36A22	VGE1JS360000	VGE1JS36A2200M	VGE1JS360010	VGE1JS36A2210M	VGE1JE360000	VGE1JE36A2200M
		VGE1JS36A2200L		VGE1JS36A2210L		VGE1JE36A2200L
40A35	VGE1JS400000	VGE1JS40A3500M	VGE1JS400010	VGE1JS40A3510M	VGE1JE400000	VGE1JE40A3500M
		VGE1JS40A3500L		VGE1JS40A3510L		VGE1JE40A3500L
40A60	VGE1JS400000	VGE1JS40A6000M	VGE1JS400010	VGE1JS40A6010M	VGE1JE400000	VGE1JE40A6000M
		VGE1JS40A6000L		VGE1JS40A6010L		VGE1JE40A6000L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1JS & VGE1JE - Dimensions



Layout	ØA	ØB	ØD	Hexag.1	Hexag.2	L1	L2	L3	L4
18-19	7/12	30	30	20	22	71.6	56.6	65.2	44
18A1	7/12	30	30	20	22	71.6	56.6	65.2	44
20-15	9/14	33	34	22	24	71.6	56.6	66.4	43.5
22-14	10/18	37	35	28	30	79.6	64.6	74.4	43
24-10	10/18	40	40	28	30	79.6	64.6	79.4	45.5
28-21	14/24	46	44.5	38	40	88.9	63.9	76.9	41
32A13	14/24	52	52	38	40	78.9	63.9	89.9	52
36A22	22/30	57	57	48	50	84.9	69.9	96.9	63.3
40A35	25/35	63	63	55	58	92.4	77.4	106.7	55.3
40A60	25/35	63	63	55	58	92.4	77.4	106.7	55.3

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

VGE1/FER1 Series



VGE1KS & VGE1KE - Part numbers

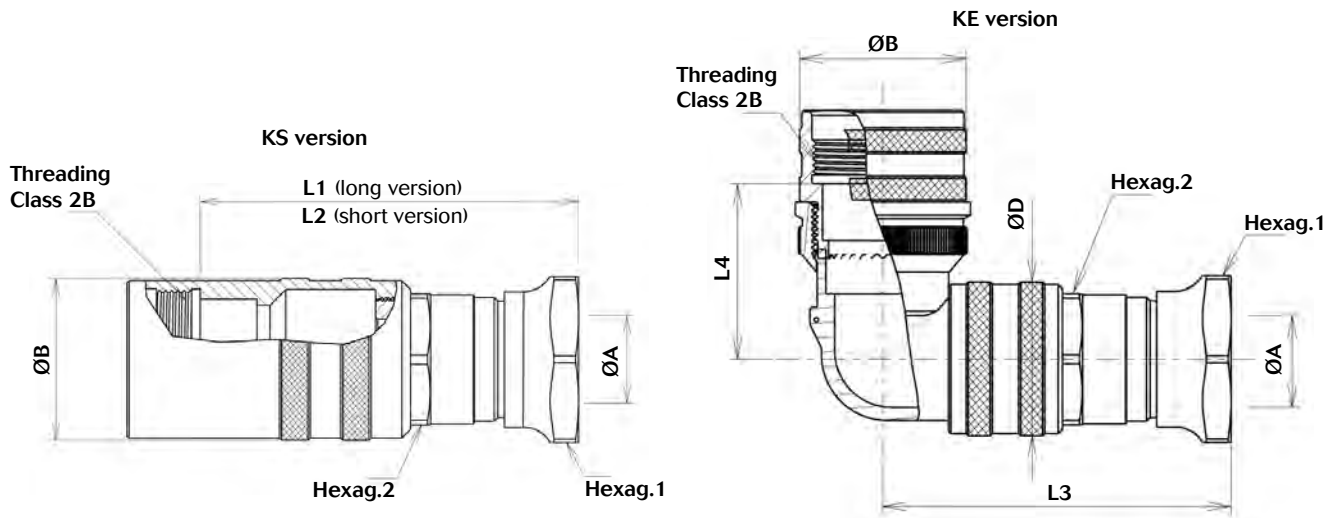


Layout	KS straight short version		KS straight long version		KE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*	Without grommet	With grommet*
18-19	VGE1KS180000	VGE1KS181900M	VGE1KS180010	VGE1KS181910M	VGE1KE180000	VGE1KE181900M
		VGE1KS181900L		VGE1KS181910L		VGE1KE181900L
18A1	VGE1KS180000	-	VGE1KS180010	-	VGE1KE180000	-
20-15	VGE1KS200000	VGE1KS201500M	VGE1KS200010	VGE1KS201510M	VGE1KE200000	VGE1KE201500M
		VGE1KS201500L		VGE1KS201510L		VGE1KE201500L
22-14	VGE1KS220000	VGE1KS221400M	VGE1KS220010	VGE1KS221410M	VGE1KE220000	VGE1KE221400M
		VGE1KS221400L		VGE1KS221410L		VGE1KE221400L
24-10	VGE1KS240000	VGE1KS241000M	VGE1KS240010	VGE1KS241010M	VGE1KE240000	VGE1KE241000M
		VGE1KS241000L		VGE1KS241010L		VGE1KE241000L
28-21	VGE1KS280000	VGE1KS282100M	VGE1KS280010	VGE1KS282110M	VGE1KE280000	VGE1KE282100M
		VGE1KS282100L		VGE1KS282110L		VGE1KE282100L
32A13	VGE1KS320000	VGE1KS32A1300M	VGE1KS320010	VGE1KS32A1310M	VGE1KE320000	VGE1KE32A1300M
		VGE1KS32A1300L		VGE1KS32A1310L		VGE1KE32A1300L
36A22	VGE1KS360000	VGE1KS36A2200M	VGE1KS360010	VGE1KS36A2210M	VGE1KE360000	VGE1KE36A2200M
		VGE1KS36A2200L		VGE1KS36A2210L		VGE1KE36A2200L
40A35	VGE1KS400000	VGE1KS40A3500M	VGE1KS400010	VGE1KS40A3510M	VGE1KE400000	VGE1KE40A3500M
		VGE1KS40A3500L		VGE1KS40A3510L		VGE1KE40A3500L
40A60	VGE1KS400000	VGE1KS40A6000M	VGE1KS400010	VGE1KS40A6010M	VGE1KE400000	VGE1KE40A6000M
		VGE1KS40A6000L		VGE1KS40A6010L		VGE1KE40A6000L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1KS & VGE1KE - Dimensions



layout	ØA	ØB	ØD	Hexag.1	Hexag.2	L1	L2	L3	L4
18-19	7/12	30	30	28	22	78.6	63.6	72.2	44
18A1	7/12	30	30	28	22	78.6	63.6	72.2	44
20-15	9/14	33	34	30	24	80.1	65.1	74.9	43.5
22-14	10/18	37	35	38	30	87.1	72.1	81.9	43
24-10	10/18	40	40	38	30	87.1	72.1	86.9	45.5
28-21	14/24	46	44.5	50	40	102.4	77.4	90.4	41
32A13	14/24	52	52	50	40	92.4	77.4	103.4	52
36A22	22/30	57	57	54	50	98.9	83.9	110.9	63.3
40A35	25/35	63	63	60	58	104.4	89.4	118.7	55.3
40A60	25/35	63	63	60	58	104.4	89.4	118.7	55.3

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



VGE1TS & VGE1TE - Part numbers

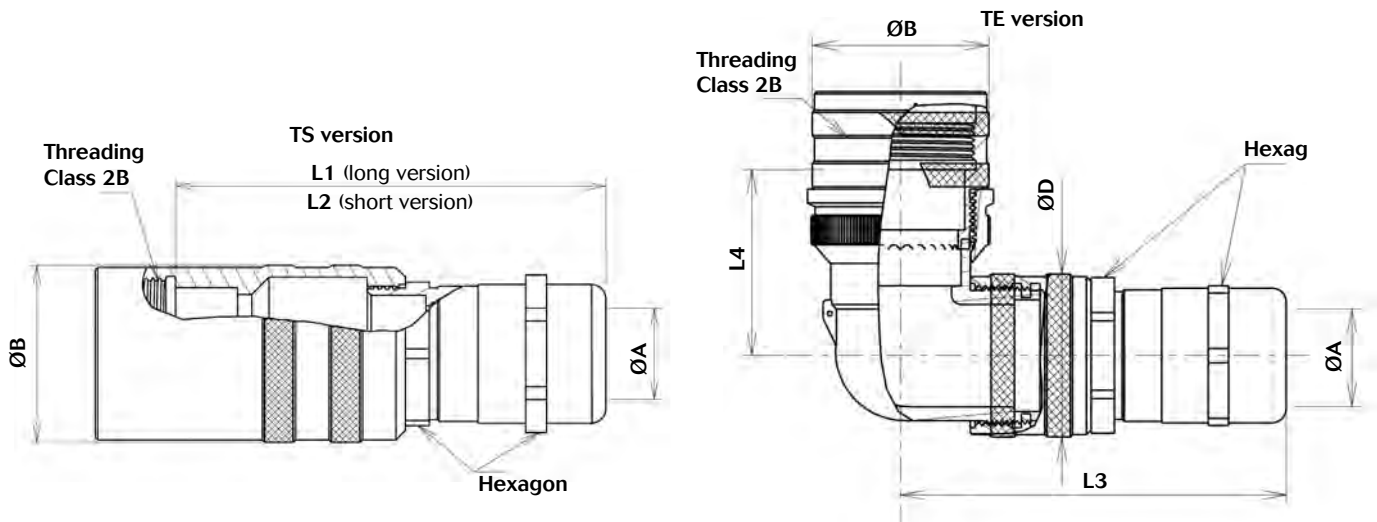


Layout	TS straight short version		TS straight long version		TE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*	Without grommet	With grommet*
18-19	VGE1TS180000	VGE1TS181900M	VGE1TS180010	VGE1TS181910M	VGE1TE180000	VGE1TE181900M
		VGE1TS181900L		VGE1TS181910L		VGE1TE181900L
18A1	VGE1TS180000	-	VGE1TS180010	-	VGE1TE180000	-
20-15	VGE1TS200000	VGE1TS201500M	VGE1TS200010	VGE1TS201510M	VGE1TE200000	VGE1TE201500M
		VGE1TS201500L		VGE1TS201510L		VGE1TE201500L
22-14	VGE1TS220000	VGE1TS221400M	VGE1TS220010	VGE1TS221410M	VGE1TE220000	VGE1TE221400M
		VGE1TS221400L		VGE1TS221410L		VGE1TE221400L
24-10	VGE1TS240000	VGE1TS241000M	VGE1TS240010	VGE1TS241010M	VGE1TE240000	VGE1TE241000M
		VGE1TS241000L		VGE1TS241010L		VGE1TE241000L
28-21	VGE1TS280000	VGE1TS282100M	VGE1TS280010	VGE1TS282110M	VGE1TE280000	VGE1TE282100M
		VGE1TS282100L		VGE1TS282110L		VGE1TE282100L
32A13	VGE1TS320000	VGE1TS32A1300M	VGE1TS320010	VGE1TS32A1310M	VGE1TE320000	VGE1TE32A1300M
		VGE1TS32A1300L		VGE1TS32A1310L		VGE1TE32A1300L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1TS & VGE1TE - Dimensions



layout	ØA	ØB	ØD	Hexagon	L1	L2	L3	L4
18-19	8/12.5	30	30	22	82.1	67.1	75.7	44
18A1	8/12.5	30	30	22	82.1	67.1	75.7	44
20-15	10/14.5	33	34	24	82.1	67.1	76.9	43.5
22-14	13.5/18	37	35	30	91.6	76.6	86.4	43
24-10	13.5/18	40	40	30	91.6	76.6	91.4	45.5
28-21	17/24	46	44.5	40	109.4	84.4	97.4	41
32A13	17/24	52	52	40	99.4	84.4	110.4	52

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



VGE1VS & VGE1VE - Part numbers

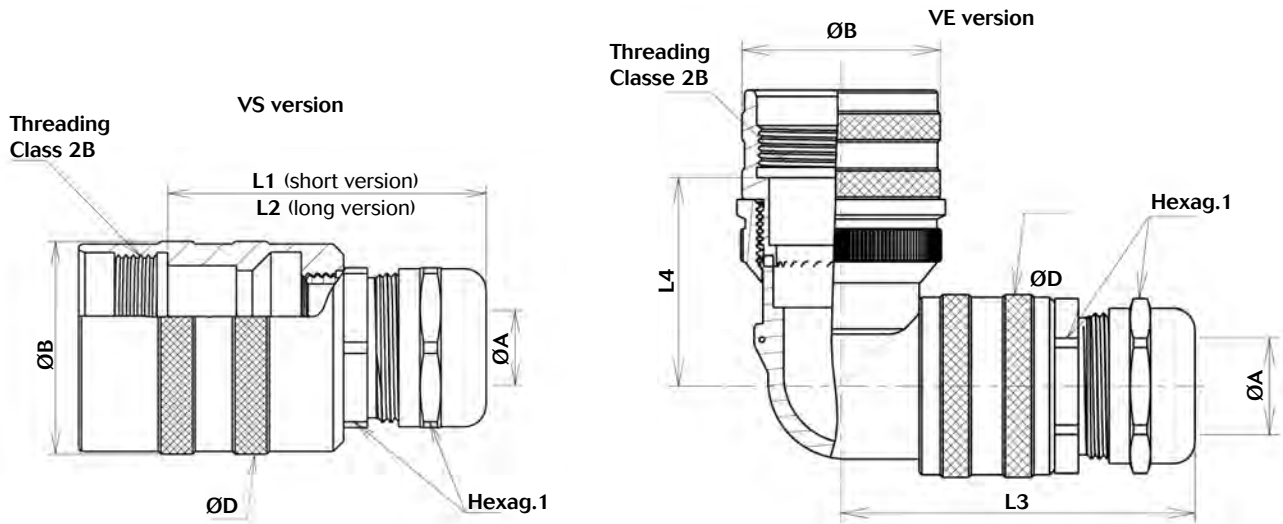


Layout	VS straight short version		VS straight long version		VE elbow 90° version	
	Without grommet	With grommet*	Without grommet	With grommet*	Without grommet	With grommet*
14A6	VGE1VS1400015	VGE1VS14A6015M	-	-	-	-
		VGE1VS14A6015L				
14A10	VGE1VS1400015	VGE1VS14A10015M	-	-	-	-
		VGE1VS14A10015L				
14R	VGE1VS1400015	-	-	-	-	-
18-19	VGE1VS180001	VGE1VS181901M	VGE1VS180011	VGE1VS181911M	VGE1VE180001	VGE1VE181901M
		VGE1VS181901L		VGE1VS181911L		VGE1VE181901L
18A1	VGE1VS180001	-	VGE1VS180011	-	VGE1VE180001	-
20-15	VGE1VS200001	VGE1VS201501M	VGE1VS200011	VGE1VS201511M	VGE1VE200001	VGE1VE201501M
		VGE1VS201501L		VGE1VS201511L		VGE1VE201501L
22-14	VGE1VS220001	VGE1VS221401M	VGE1VS220011	VGE1VS221411M	VGE1VE220001	VGE1VE221401M
		VGE1VS221401L		VGE1VS221411L		VGE1VE221401L
24-10	VGE1VS240001	VGE1VS241001M	VGE1VS240011	VGE1VS241011M	VGE1VE240001	VGE1VE241001M
		VGE1VS241001L		VGE1VS241011L		VGE1VE241001L
28-21	VGE1VS280001	VGE1VS282101M	VGE1VS280011	VGE1VS282111M	VGE1VE280001	VGE1VE282101M
		VGE1VS282101L		VGE1VS282111L		VGE1VE282101L
32A13	VGE1VS320001	VGE1VS32A1301M	VGE1VS320011	VGE1VS32A1311M	VGE1VE320001	VGE1VE32A1301M
		VGE1VS32A1301L		VGE1VS32A1311L		VGE1VE32A1301L

* Termination M = Male grommet / Termination L = Female grommet.



VGE1VS & VGE1VE - Dimensions



Layout	ØA	ØB	ØD	L1	L2	L3	L4	Hexag.1
14A6 14A10 14R	4/11	22	23	54	-	-	-	-
18-19	6/12.5	30	30	55.6	70.6	64	44	22
18A1	6/12.5	30	30	55.6	70.6	64	44	22
20-15	7/14.5	33	34	57.6	72.6	67.5	43.5	24
22-14	10/18	37	35	62.1	77.1	72	43	30
24-10	10/18	40	40	62.1	77.1	77	45.5	30
28-21	14/24	46	44.5	67.9	92.9	81	41	40
32A13	14/24	52	52	67.9	82.9	94	52	40

For other outlet type consult us

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



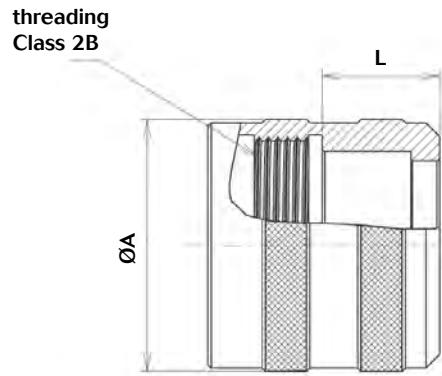
VGE1RS - Part numbers



Layout	RS backshell with grommet	Grommet type
14A6	VGE1RS14A600M	Male
	VGE1RS14A600L	Female
14A10	VGE1RS14A1000M	Male
	VGE1RS14A1000L	Female
18-19	VGE1RS181900M	Male
	VGE1RS181900L	Female
20-15	VGE1RS201500M	Male
	VGE1RS201500L	Female
22-14	VGE1RS221400M	Male
	VGE1RS221400L	Female
24-10	VGE1RS241000M	Male
	VGE1RS241000L	Female
28-21	VGE1RS282100M	Male
	VGE1RS282100L	Female
32A13	VGE1RS32A1300M	Male
	VGE1RS32A1300L	Female
36A22	VGE1RS36A2200M	Male
	VGE1RS36A2200L	Female
40A35	VGE1RS40A3500M	Male
	VGE1RS40A3500L	Female
40A60	VGE1RS40A6000M	Male
	VGE1RS40A6000L	Female



VGE1RS - Dimensions

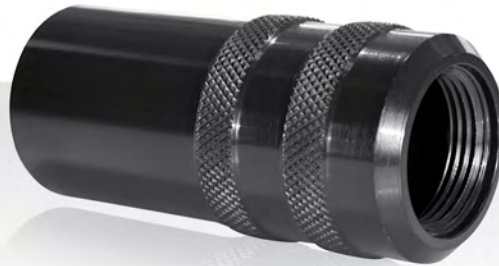


Layout	ØA	L
14A6 14A10	23	16.5
18-19	30	17.2
20-15	33	
22-14	37	
24-10	42	
28-21	46	16
32A13	52	
36A22	52	
40A35	57	
40A60		

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



VGE1PS - Part numbers



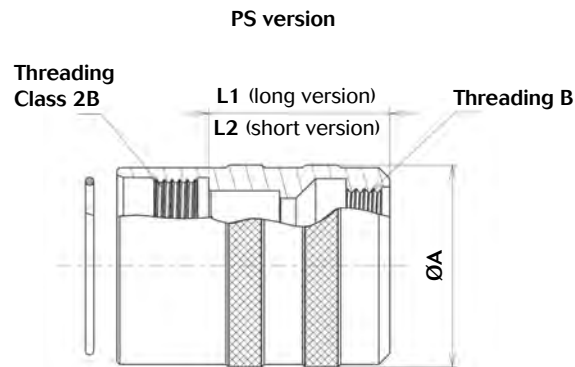
Layout	Threading	PS straight short version			PS straight long version		
		Without grommet	Male grommet	Female grommet	Without grommet	Male grommet	Female grommet
14A6	M16	VGE1PS140000	VGE1PS14A6000M	VGE1PS14A6000L	-	-	-
14A10	-	VGE1PS140000	VGE1PS14A1000M	VGE1PS14A1000L	-	-	-
18-19	M20	VGE1PS180007	VGE1PS181907M	VGE1PS181907L	VGE1PS180017	VGE1PS181917M	VGE1PS181917L
	M25	VGE1PS180008	VGE1PS181908M	VGE1PS181908L	VGE1PS180018	VGE1PS181918M	VGE1PS181918L
	PG13	VGE1PS180009	VGE1PS181909M	VGE1PS181909L	VGE1PS180019	VGE1PS181919M	VGE1PS181919L
20-15	M25	VGE1PS200007	VGE1PS201507M	VGE1PS201507L	-	-	-
	M20	VGE1PS200008	VGE1PS201508M	VGE1PS201508L	-	-	-
22-14	M25	VGE1PS220007	VGE1PS221407M	VGE1PS221407L	VGE1PS220017	VGE1PS221417M	VGE1PS221417L
	M32	VGE1PS220008	VGE1PS221408M	VGE1PS221408L	VGE1PS220018	VGE1PS221418M	VGE1PS221418L
24-10	M25	VGE1PS240007	VGE1PS241007M	VGE1PS241007L	-	-	-
	M32	VGE1PS240008	VGE1PS241008M	VGE1PS241008L	-	-	-
28-21	M32	VGE1PS280007	VGE1PS282107M	VGE1PS282107L	VGE1PS280017	VGE1PS282117M	VGE1PS282117L
	M40	VGE1PS280008	VGE1PS282108M	VGE1PS282108L	VGE1PS280018	VGE1PS282118M	VGE1PS282118L
	PG29	VGE1PS280009	VGE1PS282109M	VGE1PS282109L	-	-	-
32A13	M32	VGE1PS320007	VGE1PS32A1307M	VGE1PS32A1307L	-	-	-
	M40	VGE1PS320008	VGE1PS32A1308M	VGE1PS32A1308L	-	-	-
36A22	M40	VGE1PS360008	VGE1PS36A2208M	VGE1PS36A2208L	-	-	-
40A35	M32	VGE1PS400007	VGE1PS40A3507M	VGE1PS40A3507L	VGE1PS400017	VGE1PS40A3517M	VGE1PS40A3517L
	M40	VGE1PS400008	VGE1PS40A3508M	VGE1PS40A3508L	VGE1PS400018	VGE1PS40A3518M	VGE1PS40A3518L
	M32	VGE1PS400000	-	-	VGE1PS400010	-	-
	PG42	-	-	-	VGE1PS400019	VGE1PS40A3519M	VGE1PS40A3519L
40A60	M32	VGE1PS400007	VGE1PS40A6007M	VGE1PS40A6007L	VGE1PS400017	VGE1PS40A6017M	VGE1PS40A6017L
	M40	VGE1PS400008	VGE1PS40A6008M	VGE1PS40A6008L	VGE1PS400018	VGE1PS40A6018M	VGE1PS40A6018L
	PG42	-	-	-	VGE1PS400019	VGE1PS40A6019M	VGE1PS40A6019L

* see page 56

Note: Packaging = individual plastic bag + individual label + consumables.



VGE1PS - Dimensions



Layout	PS version			
	Threading B	ØA	L1	L2
14A6	M16x1.5	23	-	29
14A10	M16x1.5	23	-	29
18-19	PG13	30	48.6	34
20-15	PG16	33	48.6	34
22-14	PG21	37	48.6	34
24-10	PG21	40	48.6	34
28-21	PG29	46	58	33
32A13	PG29	52	48	33
36A22	PG36	57	48	33
40A35	PG42	63	48	33
40A60	PG42	63	48	33

For other outlet type consult us

Note: max dimensions in mm. Dimensions are not contractual and may be subject to modifications



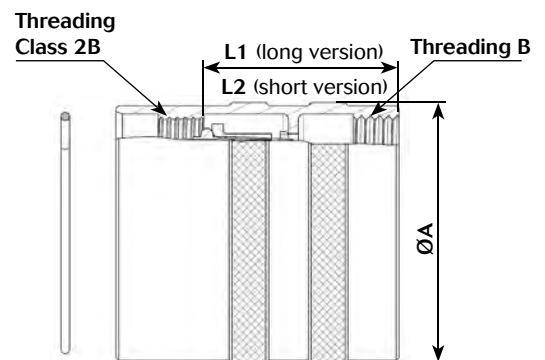
Specific PS backshell with braid fixation accessory - Part numbers & dimensions



Layout	PS straight short version		PS straight long version	
	Grommet male	Grommet female	Grommet male	Grommet female
18-19	VGE1 PS 1819 06M	VGE1 PS 1819 06L	-	-
28-21	VGE1 PS 2821 06M	VGE1 PS 2821 06L	VGE1 PS 2821 16M	VGE1 PS 2821 16L

The braid fixation accessory can not be supplied separately

Layout	Threading B	ØA	L1	L2
18-19	M20	30	-	34.1
28-21	M40	46	53.6	34.1



Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

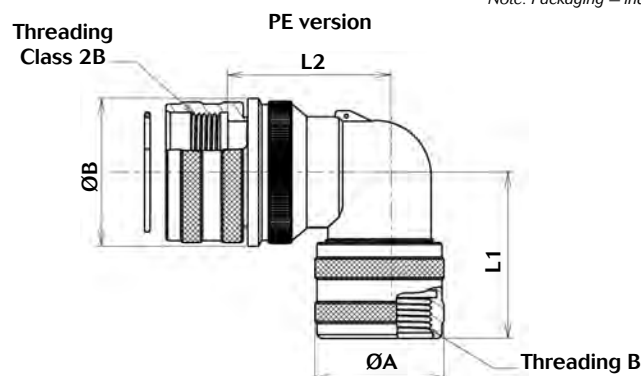


VGE1PE - Part numbers



Layout	Threading	PE elbow 90° version		
		Without grommet	Male grommet	Female grommet
18-19	M25	VGE1PE180009	VGE1PE181909M	VGE1PE181909L
20-15	M25	VGE1PE200009	VGE1PE201509M	VGE1PE201509L
22-14	M25	VGE1PE220001	VGE1PE221401M	VGE1PE221401L
	M32	VGE1PE220009	VGE1PE221409M	VGE1PE221409L
28-21	M32	VGE1PE280009	VGE1PE282109M	VGE1PE282109L
40A35	M32	VGE1PE400009	VGE1PE40A3509M	VGE1PE40A3509L
40A60	M32	VGE1PE400009	VGE1PE40A6009M	VGE1PE40A6009L

Note: Packaging = individual plastic bag + individual label + consumables.



Layout	PE version				
	Threading B	ØA	ØB	L1 max	L2
18-19	PG13	34.2	30	31	45
18A1	PG13	34.2	30	31	45
20-15	PG16	37.4	34	32	44.5
22-14	PG21	40.5	35	32	45
28-21	PG29	50.1	44.5	34	41.9
40A35	PG42	69.2	63	52.5	56
40A60	PG42	69.2	63	52.5	56

For other outlet type consult us

Note: max dimensions in mm. Dimensions are not contractual and may be subject to modifications

VEGETA/FEER1

VGE1/FER1 Series

Accessories

■ Grommet	60
■ Metallic Caps	61
■ Panel gasket for VGE1 & FER1	62
■ Fixing plate for VGE1 & FER1	63





Grommet

Part numbers				
Layout	Type of grommet	Part numbers	Ø Wire insulator	
			Min	Max
14A6	Male	VGE1M14A600	1.2	2.95
	Female	VGE1L14A600		
14A10	Male	VGE1M14A1000	1.15	1.8
	Female	VGE1L14A1000		
18-19	Male	VGE1M181900	1.2	2.95
	Female	VGE1L181900		
20-15	Male	VGE1M201500	1.5	3.6
	Female	VGE1L201500		
22-14	Male	VGE1M221400	1.2	2.95
	Female	VGE1L221400		
24-10	Male	VGE1M241000	4.2	6.2
	Female	VGE1L241000		
28-21	Male	VGE1M282100	1.2	2.95
	Female	VGE1L282100		
32A13	Male	VGE1M32A1300	1.8	3.6
	Female	VGE1L32A1300		
36A22	Male	VGE1M36A2200	2.4	3.6
	Female	VGE1L36A2200		
40A35	Male	VGE1M40A3500	2.4	3.6
	Female	VGE1L40A3500		
40A60	Male	VGE1M40A6000	2	2.95
	Female	VGE1L40A6000		



Grommet has to be used with a backshell

Grommet filler plug

Contact size	Part numbers	Color
#20	8500-4144	Red
#16	8500-479	Blue
#12		
#8	SB0834	Red



To use in empty grommet cavities

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



Metallic Caps - IP67

For VGE1

Shell size	Cap for receptacle	Cap for plug
18	VGE1E18	VGE1F18
20	VGE1E20	VGE1F20
22	VGE1E22	VGE1F22
24	VGE1E24	VGE1F24
28	VGE1E28	VGE1F28
32	VGE1E32	VGE1F32
36	VGE1E36	VGE1F36
40	VGE1E40	VGE1F40



For FER1

Shell size	Cap for receptacle
18	FER1 E 18
22	FER1 E 22
28	FER1 E 28



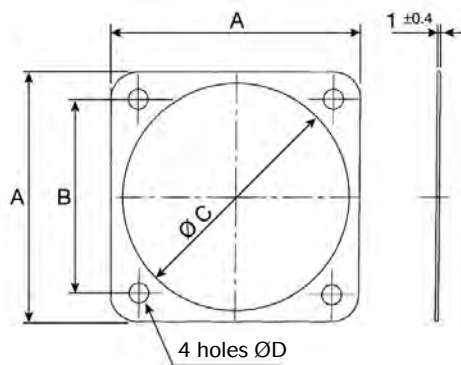


Panel gasket for VGE1 and FER1

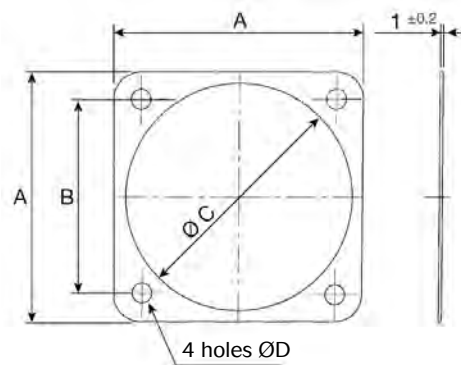
Part numbers & dimensions

Shell size	Part numbers		Dimensions			
	Non conductive	Conductive	A	B	Ø C	Ø D
14	VGE1G14	VGE1G14A	30	23	24.7	4.4
18	VGE1G18	VGE1G18A	35	27	30.8	4.3
20	VGE1G20	VGE1G20A	38	29.4	34.2	
22	VGE1G22	VGE1G22A	41	31.8	37.4	
24	VGE1G24	VGE1G24A	44.5	34.9	40.9	
28	VGE1G28	VGE1G28A	50.8	39.7	46.7	5.2
32	VGE1G32	VGE1G32A	57	44.5	53.4	
36	VGE1G36	VGE1G36A	63.5	49.2	59.6	
40	VGE1G40	VGE1G40A	69.9	55.5	65.5	

Panel gasket (not conductive)



Panel gasket (conductive)



How to order a receptacle including a panel gasket ?

VGE1B.....Ø4: Receptacle with non conductive gasket
 VGE1B.....Ø5: Receptacle with conductive gasket
 FER1B.....Ø4: Receptacle with non conductive gasket
 FER1B.....Ø5: Receptacle with conductive gasket
 Example: VGE1B2214SNØ5 = Female receptacle layout 22-14 delivered with a conductive gasket

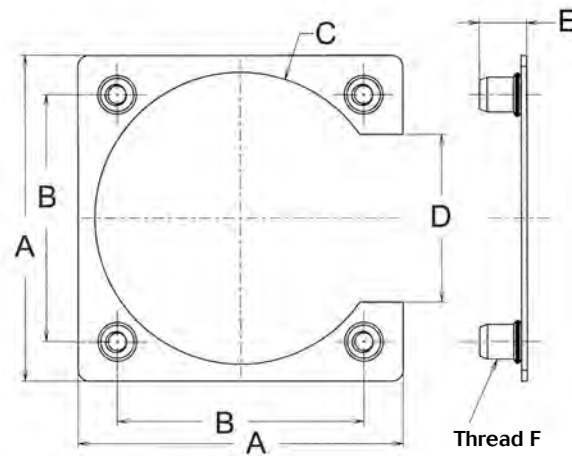
*Note: max dimensions in mm
 Dimensions are not contractual and may be subject to modifications*



Fixing plate for VGE1 and FER1

Part numbers & dimensions

Shell size	Part numbers	Dimensions					
		A	B	Ø C	D	E	Thread F
18	VGE1CP18	34.2	27	30.3	19.7	7.7	M3
20	VGE1CP20	38.1	28.4	33.3	22		
22	VGE1CP22	40.5	31.8	36.5	23		
24	VGE1CP24	44	34.9	38.1	25.8		
28	VGE1CP28	50.8	39.7	46.4	28.6		
32	VGE1CP32	58.7	44.5	52.6	30.2	8.5	M4
36	VGE1CP36	63.5	49.2	58.8	34.9		
40	VGE1CP40	74.2	55.5	68.1	38.1		



Fixing plates can be used with VGE1 and FER1 receptacles

Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

VEGETA/FEER1

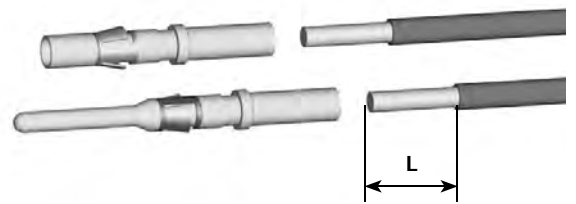
Technical information

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■ Backshell mounting sequence and coupling torque	70
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■ Coupling / Orientation	76
■ Panel cut out	77



Contact crimping instruction

Wire stripping			
Contact type & size	Part numbers		Stripping length (L)
	Male	Femelle	
Contact #20	RM24W3K	RC24W3K	4.8
	RM20W3K	RC20W3K	
	RM18W3K	RC18W3K	
Contact #16	RM28M1*	RC28M1*	4.8
	RM24M9*	RC24M9*	
	RM20M12*	RC20M12*	7.1
	RM16M23*	RC16M23*	
	RM14M30*	RC14M30*	
Contact #12	82911459N*	82911458*	7 to 8
	82911461N*	82911460*	
	82911463N*	82911462*	
	82911465N*	82911464*	
Contact #8	82913601*	82913600*	6.5 to 7.5
	82913603*	82913602*	
	82913605*	82913604*	
	82913607*	82913606*	



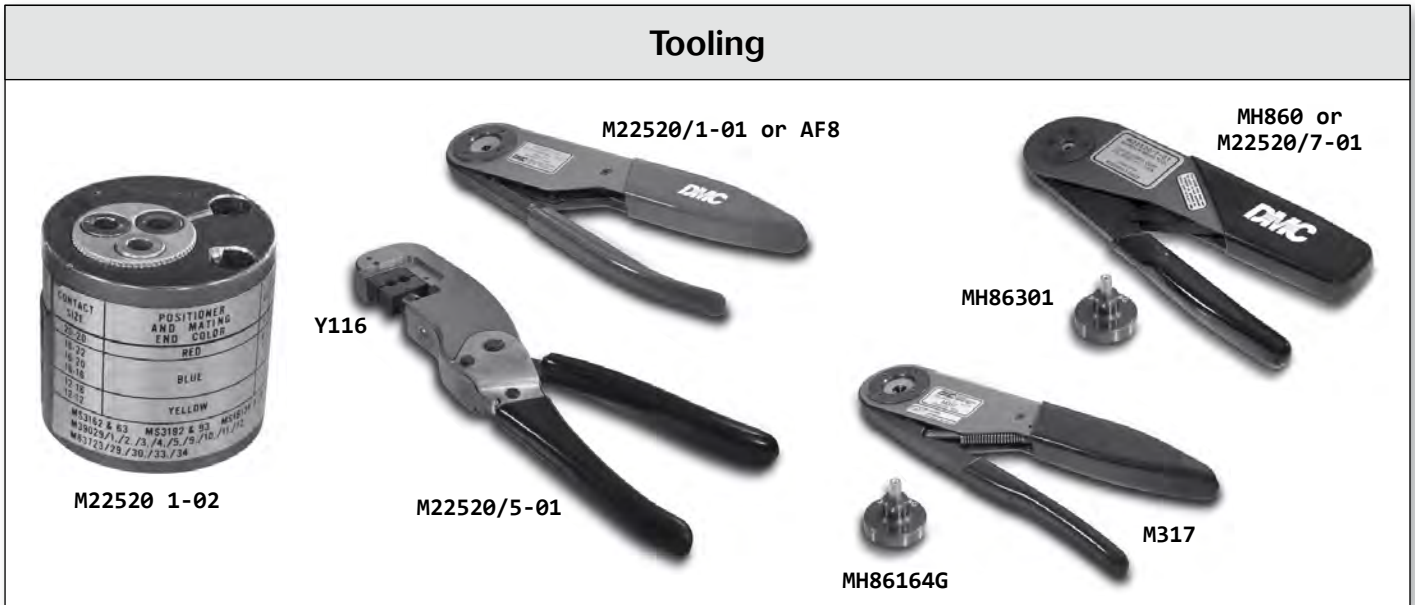
Tooling								
Contact size		Wire size		Part numbers		Tool	Locator	Tool selector
#	mm	AWG	mm ²					
#20	1.0	26-24	0.13-0.20	RM24W3K	RC24W3K	MH860 (M22520/7-01)	MH86301	6/7
		22-20	0.32-0.52	RM20W3K	RC20W3K			
		20-18	0.50-0.93	RM18W3K	RC18W3K			
#16	1.6	30-28	0.05-0.08	RM28M1*	RC28M1*	MH860 (M22520/7-01)	MH86164G	4/6
		26-24	0.13-0.2	RM24M9*	RC24M9*	MH860 (M22520/7-01)	MH86164G	5/6
		22-20	0.32-0.52	RM20M12*	RC20M12*	MH860 (M22520/7-01)	MH86164G	5/7
		20-16	0.5-1.5	RM16M23*	RC16M23*	MH860 (M22520/7-01)	MH86164G	6/9
		16-14	1.5-2.5	RM14M30*	RC14M30*	AF8 (M22520/1-01)	TP1142	8
#12	2.4	20	0.5	82911459N*	82911458*	M317	VGE10077A	-
		18	0.75-1.0	82911461N*	82911460*	M317	VGE10077A	-
		16	1.5	82911463N*	82911462*	M317	VGE10077A	-
		14	2.5	82911465N*	82911464*	M317	VGE10077A	-
#8	3.6	16	1.5	82913601*	82913600*	M317	VGE10078A	-
		14	2.5	82913603*	8291 3602*	M317	VGE10078A	-
		12	4	82913605*	82913604*	M317	VGE10078A	-
		10	6	82913607*	82913606*	M317	VGE10078A	-

* Plating code see page 34

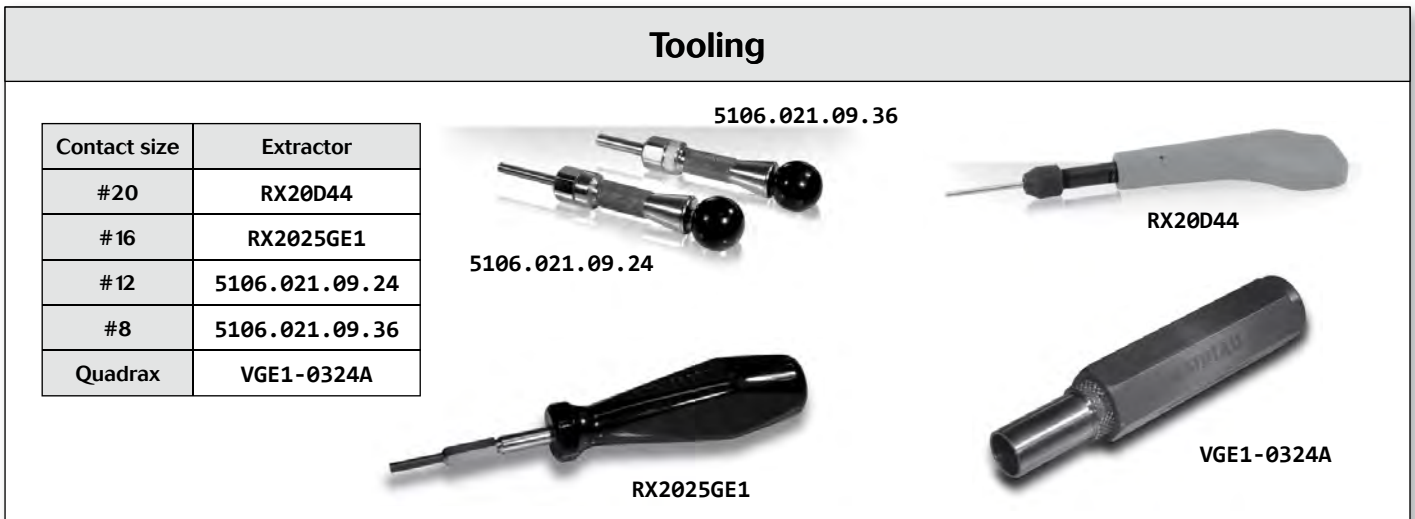
Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications



Contact crimp tooling



Contact removal



Special case with the tool RX2025GE1:

A - When setting up in the cell, keep firmly the tool by the hexagonal metallic part and insert tool in cavity.

B - Push the tool by the handle to extract the contact.


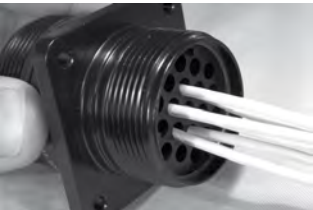

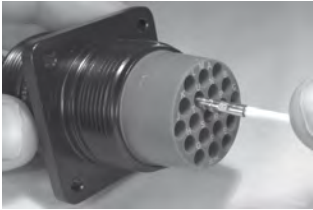
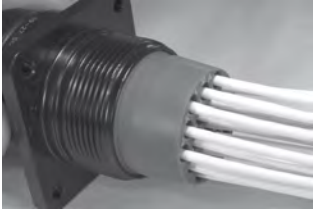
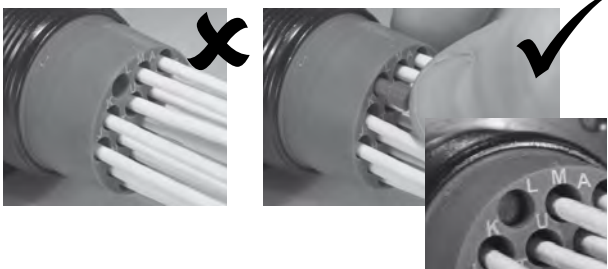
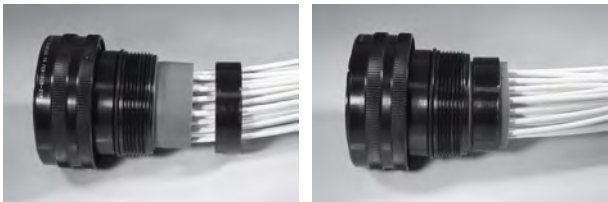


Extraction:

Place the tool into the cavity from front face of the connector, push on the handle, then remove the contact.



Contact mounting

Without grommet	With grommet
<p>A - Place manually the contacts in the cavity, push until the mechanical stop is reached. Operation control: manually pull with a little effort and the contact should not withdraw.</p>  <p>B - Not mandatory to wire all cavities.</p> 	<p>A - For grommet mounting, insert the three insulator pins with grommet's hole.</p>  <p>B - Place manually the contacts in the cavity, push until the mechanical stop is reached. Operation control: manually pull with a little effort and the contact should not withdraw.</p>  <p>C - Mandatory to wire all cavities.</p>  <p>D - If a cavity is empty, it is mandatory to use a grommet filler plug.</p>  <p>E - Put the compression ring over the grommet.</p> 



Cabling with backshell

With grommet

A - Pass wires through the backshells/accessories.



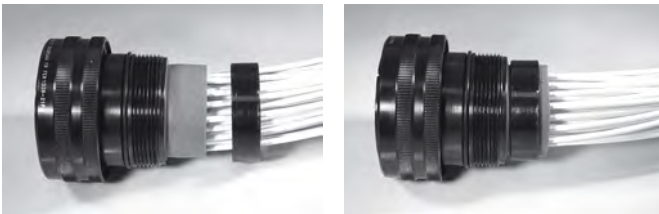
B - On sealed version, mount the O-ring on the groove's plug.



C - Contact mounting: place grommet in the rear connector face, push each contact in insulator's hole.



D - Place the conical ring on the grommet.



E - Screw the adaptor until you feel the back stop.





Backshell mounting sequence and coupling torque

	Shell		Recomanded torque
Adaptor/connector	T 14		8 Nm
	Other size		10 Nm
Reductor/adaptor	40		10 Nm
Backshell/adaptor or Backshell/reductor	CS	T 14	4 Nm
	PS	T 40	10 Nm
	SS (PMA)	T 22	5 Nm
	VS	All	10 Nm

Modular gasket for backshells JS,JE, KS and KE

For cable gland backshell, the gasket is delivered clogged.

Remove inner part of the gasket to adjust the internal diameter to fit the diameter of the cable.



A - Through the packing rings closed using a screwdriver

B - To turned the packing rings around the screwdriver



C - Remove the rest of the cap by hand

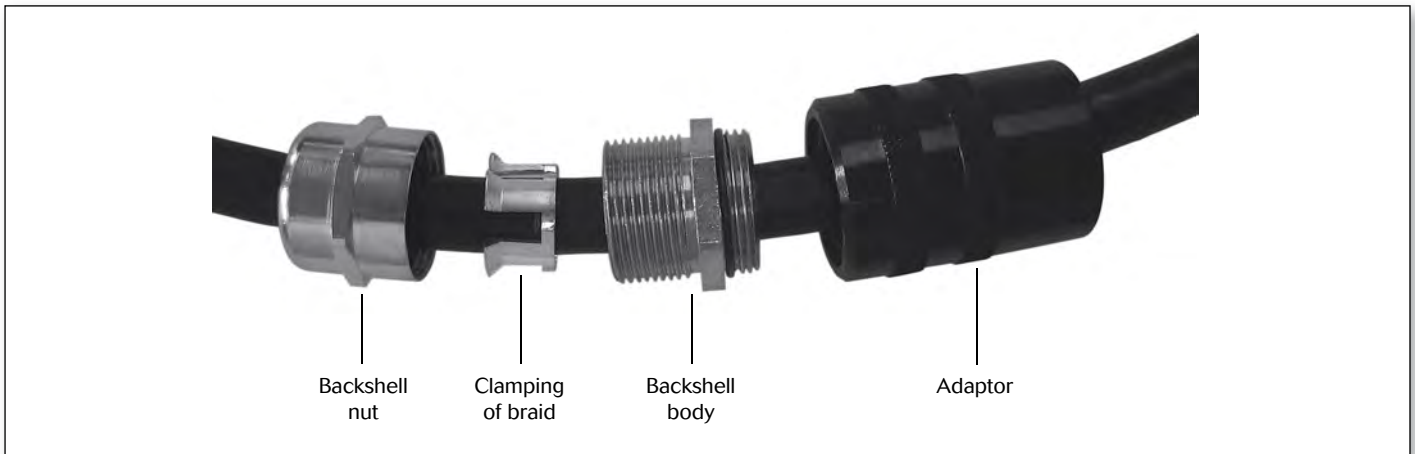
D - Finally













How to harness a shielded cable

Method A: braid fixed with TS type backshell



Case n°1: cable $\varnothing = 13.5$ to 18 mm braid $\varnothing > 13.5$ mm	Case n°2: cable $\varnothing = 15^{\pm 1}$ mm braid $\varnothing \leq 13.5$ mm
<p>$\varnothing = 13.5 / 18$ $\varnothing = 13.5 \text{ mini}$</p>	<p>$\varnothing = 15 \pm 1$ $\varnothing = < 13.5$</p>
<p>A - Strip cable, adjust braid length.</p>	<p>A - Turn the shielding on the sheath.</p>
<p>16 mm 80 mm</p>	<p>65 mm</p>
<p>B - Strip wires, crimp and mount contacts.</p>	<p>B - Strip wires, crimp and mount contacts.</p>



Case n°1: cable $\varnothing = 13.5$ to 18 mm brand $\varnothing > 13.5$ mm	Case n°2: cable $\varnothing = 15^{\pm 1}$ mm brand $\varnothing \leq 13.5$ mm
<p>C - Thread accessories:</p> <ul style="list-style-type: none"> • Adaptor / plug body or receptacle: tightening torque = 10 Nm 	<p>C - Thread accessories:</p> <ul style="list-style-type: none"> • Adaptor / plug body or receptacle: tightening torque = 10 Nm
	
<p>• Backshell body / adaptor: tightening torque = 10 Nm</p>	<p>• Backshell body / adaptor: tightening torque = 10 Nm</p>
	
<p>D - slip the clamping of braid inside the backshell' body</p>	<p>D - slip the clamping of braid inside the backshell' body</p>
	
<p>E - Thread the backshell nut /backshell body</p> <ul style="list-style-type: none"> • Tightening torque = 7 Nm 	<p>E - Thread the backshell nut /backshell body</p> <ul style="list-style-type: none"> • Tightening torque = 7 Nm
	
<p>Warning: during the clamping of part, always support the cable to avoid rotation.</p>	<p>Warning: during the clamping of part, always support the cable to avoid rotation.</p>



How to harness a shielded cable Method B: braid fixed on the conic ring

A - Before each operation

Pass on the cable or bundle of conductor in the following order : the sealing gland backshell (1), the adaptor (2) and the conical ring (3).



B - Pass the contacts through the grommet (4)



C - Slide the grommet onto the cable and insert the contacts into the connector



D - Place the grommet on the insulator of the connector



E - Fold the individual braid or braids on the grommet



F - Put the external braid on the grommet



G - Fix the braids with the conical ring



H - Adjust the length of the braids



I - Secure the braids with the conical ring



J - Screw the adaptor (2) and secure the cable by tightening the sealing gland backshell (1)





Quadrax crimping instruction

Tooling



M22520 1-02

Y116



M22520/5-01



M22520/1-01 or AF8

Cabling process

A - Cable, cable insulator, ferrule position may vary depending on cable dimensional.
For more detail, and strip length, please consult us.



Line contacts crimping.



Contact mounting on insulator.



B -Place braid around ferrule.



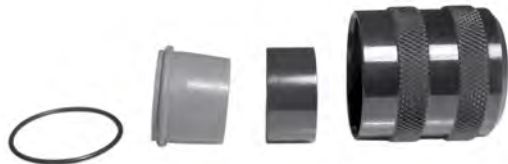
Mount insulator in external contact cell, crimp the contact.
Cut excess of braid.

Done !

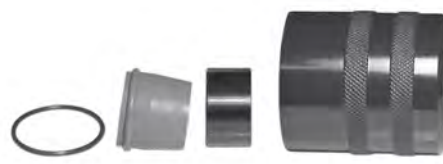


Backshells exploded views

Backnut (type RS)



Adaptator



Cable clamp (type CS)



Conduit backshell (type SS)



Cable clamp with sealing gland (type JS)



Cable clamp with sealing gland and trumpet shape (type KS)



Cable clamp with sealing gland for shielding (type TS)



PS backshell with braid fixation accessory



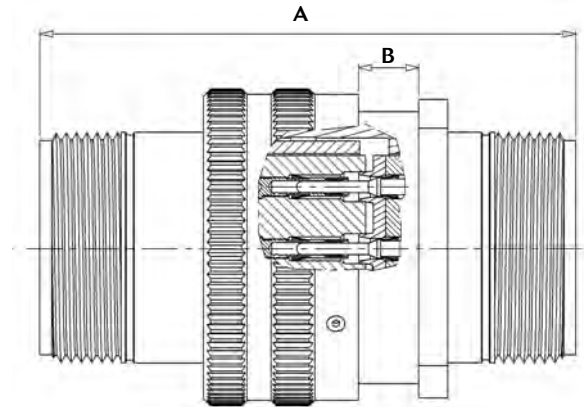
Grommet in option



Connector mated length

VGE1 plug & receptacle

Shell size	A max	B max
14	70	7
18	75.50	7.80
20		
22		
24		
28	80.50	8.80
32		
36		
40		



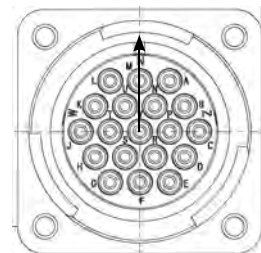
Note: max dimensions in mm
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Insert orientations

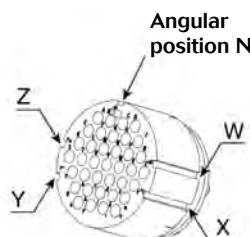
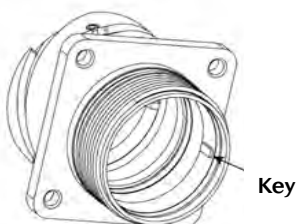
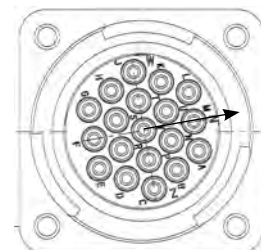
Alternative insert orientation positions

Layouts	N	W	X	y	Z
14A6 / 14A10 14R	0°	-	-	108°	-
18-19	0°	-	120°	240°	-
20-15	0°	80°	-	-	280°
22-14	0°	80°	-	-	280°
24-10	0°	80°	110°	250°	280°
28-21	0°	80°	110°	250°	280°
32A13	0°	65°	130°	230°	295°
36A22	0°	80°	110°	250°	280°
40A35	0°	70°	130°	230°	290°
40A60	0°	80°	110°	250°	280°

22-14 position N



22-14 position W



0°: insert not mounted in the shell

VGE1/FER1 Series

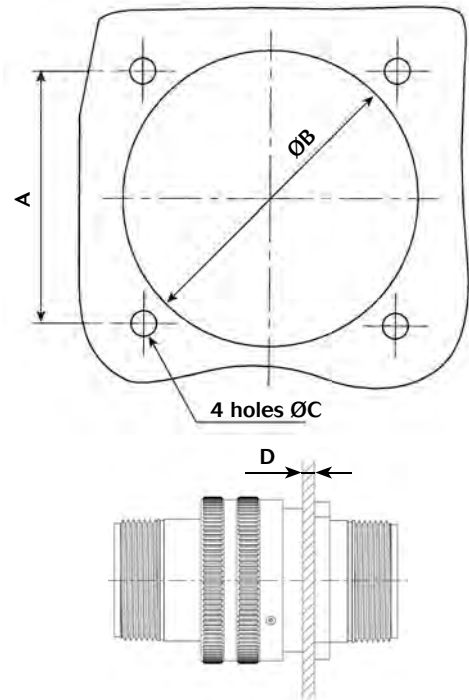
Square flange receptacle



Panel cut out

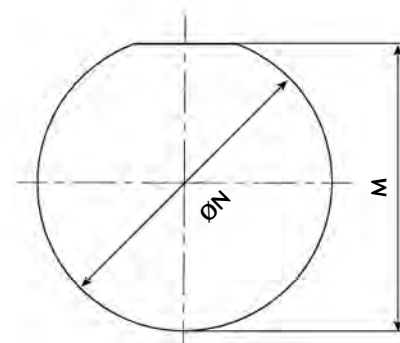
VGE1 plug & receptacle

Shell size	A ± 0.15	$\varnothing B \pm 0.3$	$\varnothing C \pm 0.10$	D
14	23	24.7	3.4	3
18	27	31.2	3.4	3
20	29.4	34.6	3.4	3
22	31.8	37.8	3.4	3
24	34.9	41.3	3.9	3
28	39.7	47.1	3.9	3
32	44.5	53.8	4.5	3
36	49.2	60	4.5	3
40	55.5	66.4	4.5	3



Jam nut receptacle

Shell size	M	$\varnothing N$
18	33.90	35.20
22	40.25	41.55



Note: max dimensions in mm
Dimensions are not contractual and may be subject to modifications

VGE1/FER1 Series





Purchase order memo

Contact			
Part numbers	Page	Quantity	Note

Backshell			
Part numbers	Page	Quantity	Note

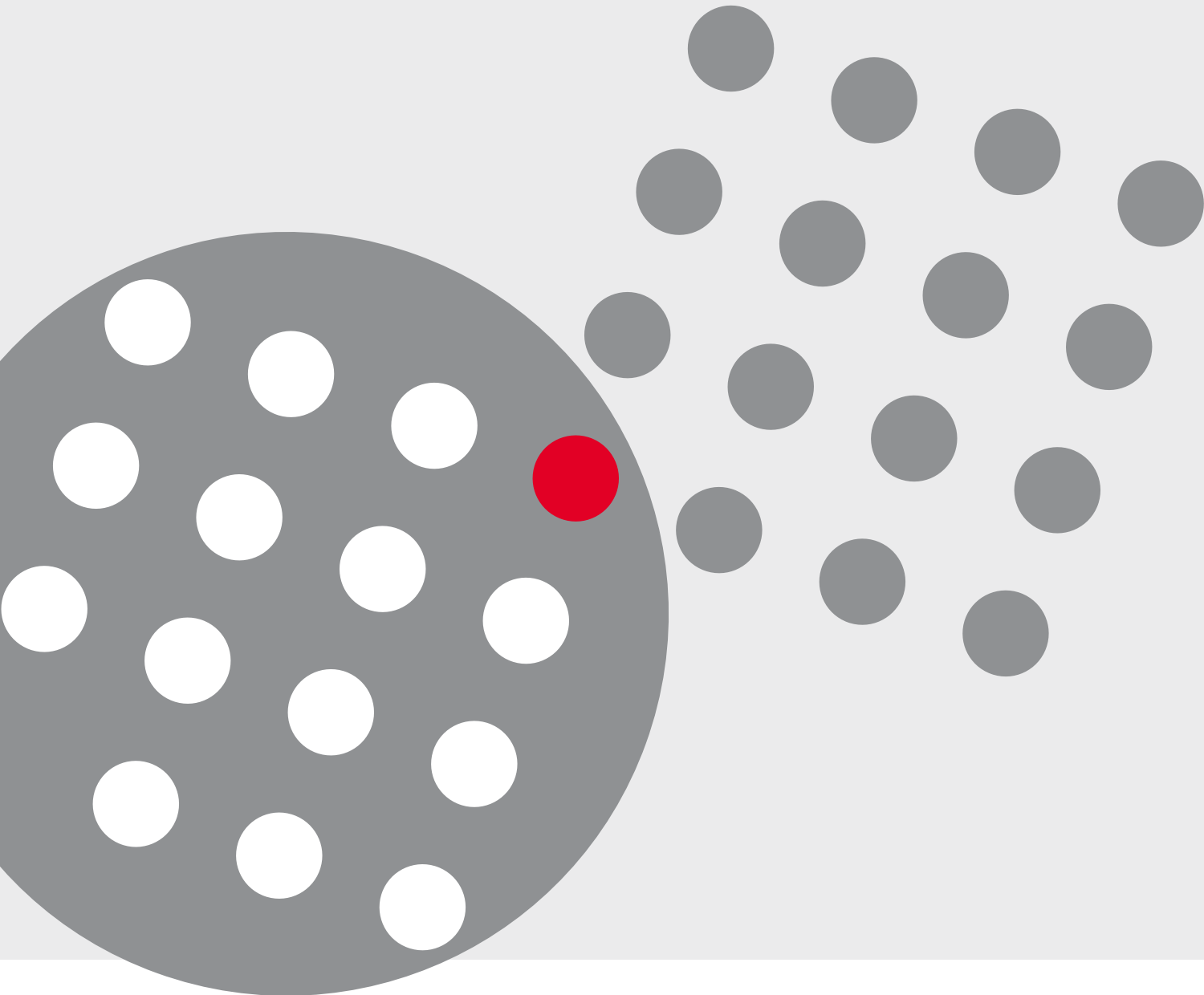
Accessory			
Part numbers	Page	Quantity	Note



Notes



Notes



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