

M58 Circular

V Series

Robust Circular High Power Connectors Size 3



M58 High Power

V Series Size 3



The Smiths Interconnect M58 series is designed for high power applications in high voltage power generation, mechanical engineering, rolling mill drives, mechatronics, heavy printing and paper making machines, conveyors and marine applications.

The adoption of crimp contacts allows for a consistent high quality connection and reduces the total installation time of the connector by minimizing the number of operations. Machined contacts feature a closed barrel design ideally suited for manual hand tools and support a wide range of wire termination cross sections.

In addition the series features outstanding protection against electromagnetic interference through a full 360° screen shielding.

Suitable for High Power Applications

Features & Benefits

Superior Performance

- Long life and low rate of wear through excellent shock and vibration resistance
- Outstanding protection against electromagnetic interference through a full 360° screen shielding
- Corrosion resistant

High Power Applications

- Crimp contacts for wire diameter from 10 mm² to 50mm²
- Ground connection

UL certified

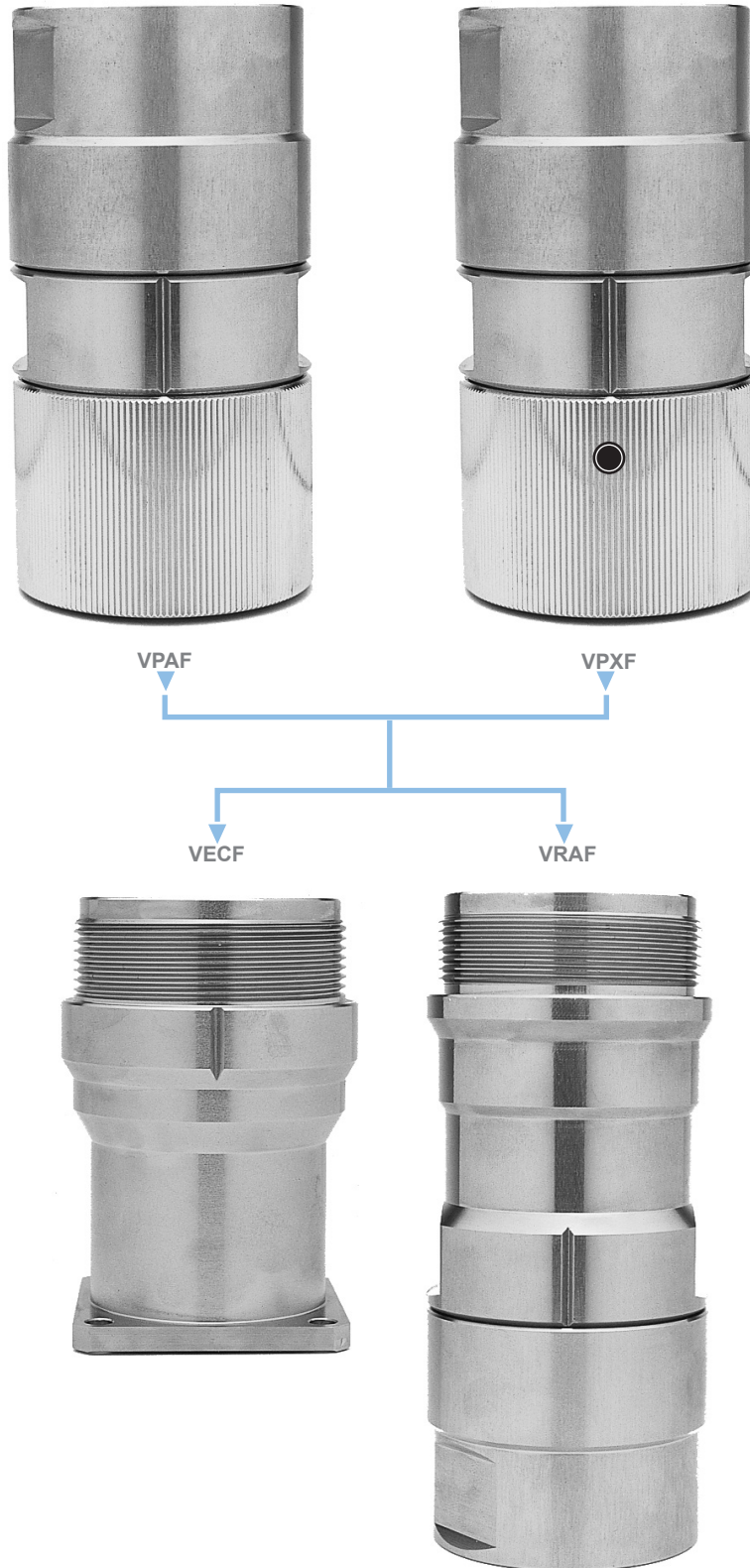
- UL/CSA approval file No. 178462

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Type Overview



How to Order



1 CONNECTOR FAMILY

V M58 CIRCULAR POWER CONNECTORS, SIZE 3
SERIES V (UL VERSION = SERIES F)

2 CONNECTOR LAYOUT

E	C	F	Straight receptacle with integrated ground shell connection*
R	A	F	

P	A	F	Plug with shield connection, ground shell connection* and threaded connection PG42
P	X	F	

*Earthing connection only for connectors (not for applications)

3 INSERTS

0	8	C	8way, for pins 4 x Ø 10 mm, 4 x Ø 1.6 mm for receptacle VECF and extension VRAF
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0	8	D	8way, for sockets 4 x Ø 10 mm, 4 x Ø 1.6 mm for plug VPAF and VPXF
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4 TERMINATION STYLE - CRIMP CONTACTS

N	N	N	N	Without contacts, contacts to be ordered separately
M	R	A	I	Pins, Ø 10 mm AWG 8, Ø 1.6 mm AWG 18-16 for receptacles and extensions
M	R	A	K	Pins, Ø 10 mm AWG 6, Ø 1.6 mm AWG 18-16 for receptacles and extensions
M	R	A	L	Pins, Ø 10 mm AWG 4, Ø 1.6 mm AWG 18-16 for receptacles and extensions
M	R	A	M	Pins, Ø 10 mm AWG 2, Ø 1.6 mm AWG 18-16 for receptacles and extensions
M	R	A	P	Pins, Ø 10 mm AWG 1/0, Ø 1.6 mm AWG 18-16 for receptacles and extensions

F	R	A	S	Sockets Ø 10 mm AWG 8, Ø 1.6 mm AWG 20-16 for plugs
F	R	A	T	Sockets Ø 10 mm AWG 6, Ø 1.6 mm AWG 20-16 for plugs
F	R	A	P	Sockets Ø 10 mm AWG 4, Ø 1.6 mm AWG 20-16 for plugs
F	R	A	R	Sockets Ø 10 mm AWG 2, Ø 1.6 mm AWG 20-16 for plugs
F	R	A	U	Sockets Ø 10 mm AWG 1/0 Ø 1.6 mm AWG 20-16 for plugs

5 CABLE CLAMPS

0	0	0	Without cable clamp, threaded connection PG42
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6 VERSION NUMBER

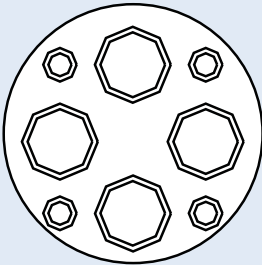
-	-	For customized designs only, please contact factory
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Technical Characteristics

Material & Finishes

Shell	Aluminium, brass
Shell plating	chemical nickel-plated
Inserts	PA
Contacts	brass, CuBe
Contact plating	gold-plated and silver-plated
Sealing	FKM, NBR
Storage conditions	-40°C to +70°C / humidity min. 40%

Electrical

<p>Size 3 Data based on DIN EN 61984</p>		
Number of ways x contact diameter [mm]	4 x 10	4 x 1.6
Crimp termination cross section [mm ²] Crimp termination cross section [AWG]	10 - 50 8 - 1/0	0.5/0.75 - 1.5 20/18 - 16
Nominal current* [A] @ environmental temperature 50°C / 122°F @ environmental temperature 20°C / 68°F	150 165	15 15
* Assembly: receptacle/extension 50mm ² , plug 50mm ²		
Max. operating voltage [Vrms]	630	125
Contact resistance [mΩ]	< 1	< 3
Insulation resistance [Ωcm]	10 ¹³	10 ¹³

Physical & Environmental

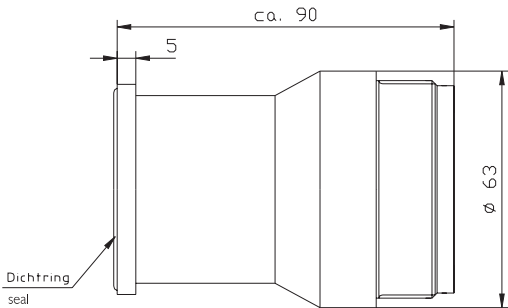
Operating temperature range	-40°C to +125°C (UL version: -40°C to +110°C)
Environmental level	IP67 (mated)
Contamination level	2 (unmated), 3 (mated)
Installation altitude	up to 4000 m
Overtoltage category	III
Fire & Smoke	UL94-V0
RoHS	Compliant

Receptacle

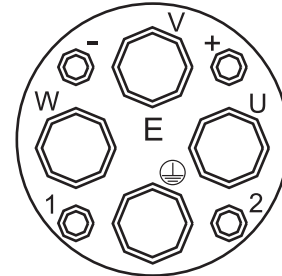
CONTACT ARRANGEMENTS
VIEW WIRED SIDE

LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR

Straight receptacle,
with integrated ground shell connection



Dimensions are in mm



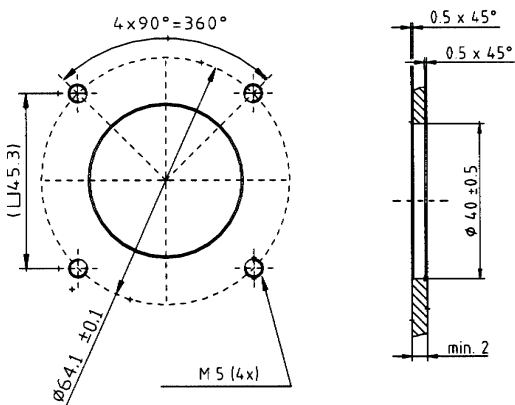
08C

TERMINATION CROSS SECTION [mm²]

SHELL	INSERT	TERMINATION CROSS SECTION [mm ²]					CABLE CLAMP
		4 x 0.75 - 1.5 4 x 10	4 x 0.75 - 1.5 4 x 16	4 x 0.75 - 1.5 4 x 25	4 x 0.75 - 1.5 4 x 35	4 x 0.75 - 1.5 4 x 50	
VECF FECF*	08C	MRAI					000
			MRAK				
				MRAL			
					MRAM		
						MRAP	

* UL Version

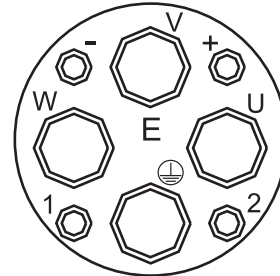
Mounting arrangement VECF/FECF



Extension

CONTACT ARRANGEMENTS
VIEW WIRED SIDE

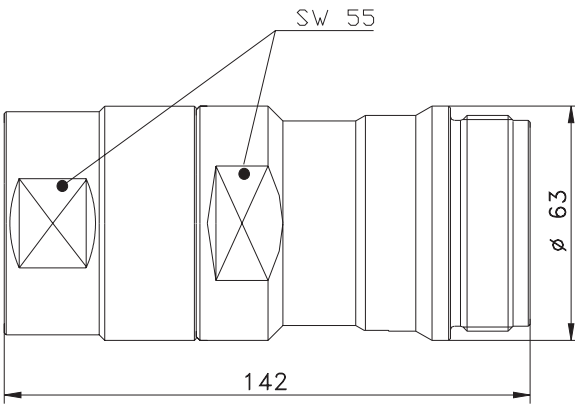
LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR



08C

TERMINATION CROSS SECTION [mm²]

Extension with shield connection, ground shell connection and threaded connection PG42



Dimensions are in mm

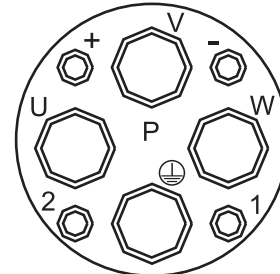
* UL Version

SHELL	INSERT	TERMINATION CROSS SECTION [mm ²]					CABLE CLAMP
		4 x 0.75 - 1.5 4 x 10	4 x 0.75 - 1.5 4 x 16	4 x 0.75 - 1.5 4 x 25	4 x 0.75 - 1.5 4 x 35	4 x 0.75 - 1.5 4 x 50	
		VRAF FRAF*	08C	MRAI	MRAK	MRAL	

Plugs

CONTACT ARRANGEMENTS
VIEW WIRED SIDE

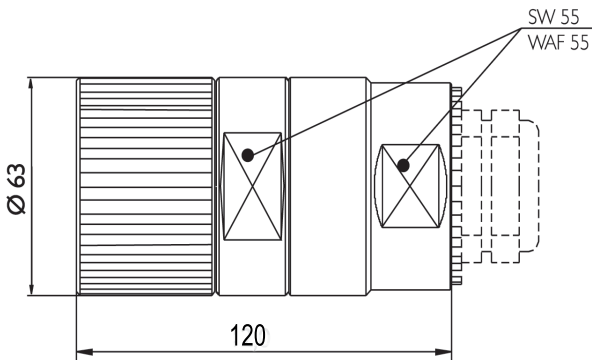
LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR



08D

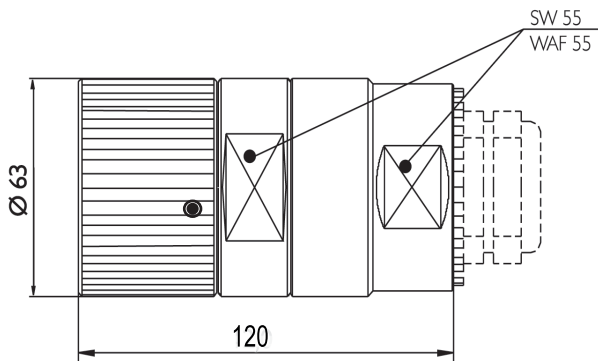
TERMINATION CROSS SECTION [mm²]

Plug with shield connection, ground shell connection and threaded connection PG42



Shielding corresponding to EN 50081/82n

Plug with shield connection, ground shell connection and threaded connection PG42, and coupling ring with screw for vibration protection




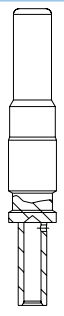
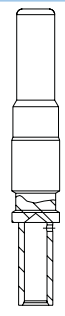
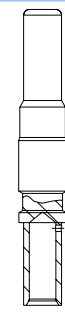


Shielding corresponding to EN 50081/82n

Dimensions are in mm

* UL Version

SHELL	INSERT	TERMINATION CROSS SECTION [mm ²]					CABLE CLAMP
		4 x 0.50 - 1.5 4 x 10	4 x 0.50 - 1.5 4 x 16	4 x 0.50 - 1.5 4 x 25	4 x 0.50 - 1.5 4 x 35	4 x 0.50 - 1.5 4 x 50	
		VPAF FPXF*	08D	FRAS	FRAT	FRAP	
VPXF FPXF*	08D	FRAS	FRAT	FRAP	FRAR	FRAU	000


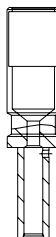



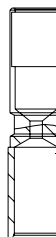
Pins

Type		A	I	K	L	M	P
Contact diameter [mm]		1.6	10	10	10	10	10
PART NUMBER AND LAYOUT							
		021.370.1020	021.00427.1045	021.000428.1045	021.000425.1045	021.000426.1045	021.000429.1045
Termination cross section**	[AWG] [mm ²]	18 – 16 0.75 - 1.5	8 10	6 16	4 25	2 35	1/0 50
Min. conductor diameter [mm]		1.8	4.1	5.5	6.6	7.7	10.0
Max. insulation diameter [mm]		3.1	-	-	-	-	-
Crimping tool / part number		B152	B283	B283	B283	B283	B283
Extraction tool / part number		B244	B284	B284	B284	B284	B284

Note:

** Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K[#mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

Sockets

Type		A	S	T	P	R	U
Contact diameter [mm]		1.6	10	10	10	10	10
PART NUMBER AND LAYOUT		020.122.2000 	090.000023.2000 	090.000024.2000 	090.000021.2000 	090.000022.2000 	090.000025.2000 
Termination cross section**	[AWG] [mm ²]	20 – 16 0.5 - 1.5	8 10	6 16	4 25	2 35	1/0 50
Min. conductor diameter [mm]		1.8	4.1	5.5	6.6	7.7	10.0
Max. insulation diameter [mm]		3.1	-	-	-	-	-
Crimping tool / part number		B152	B283	B283	B283	B283	B283
Extraction tool / part number		B154	B284	B284	B284	B284	B284

UL cross reference list

Standard	UL Version	USR		CNR		DIN EN 61984	
VPAF... VRAF... VECF...	FPAF... FRAF... FECF...	1.6	10	1.6	10	1.6	10
contact diameter [mm]		1.6	10	1.6	10	1.6	10
max. current [A]		15	100	10	75	15	165
max. voltage [V]		125	600	125	600	125	630

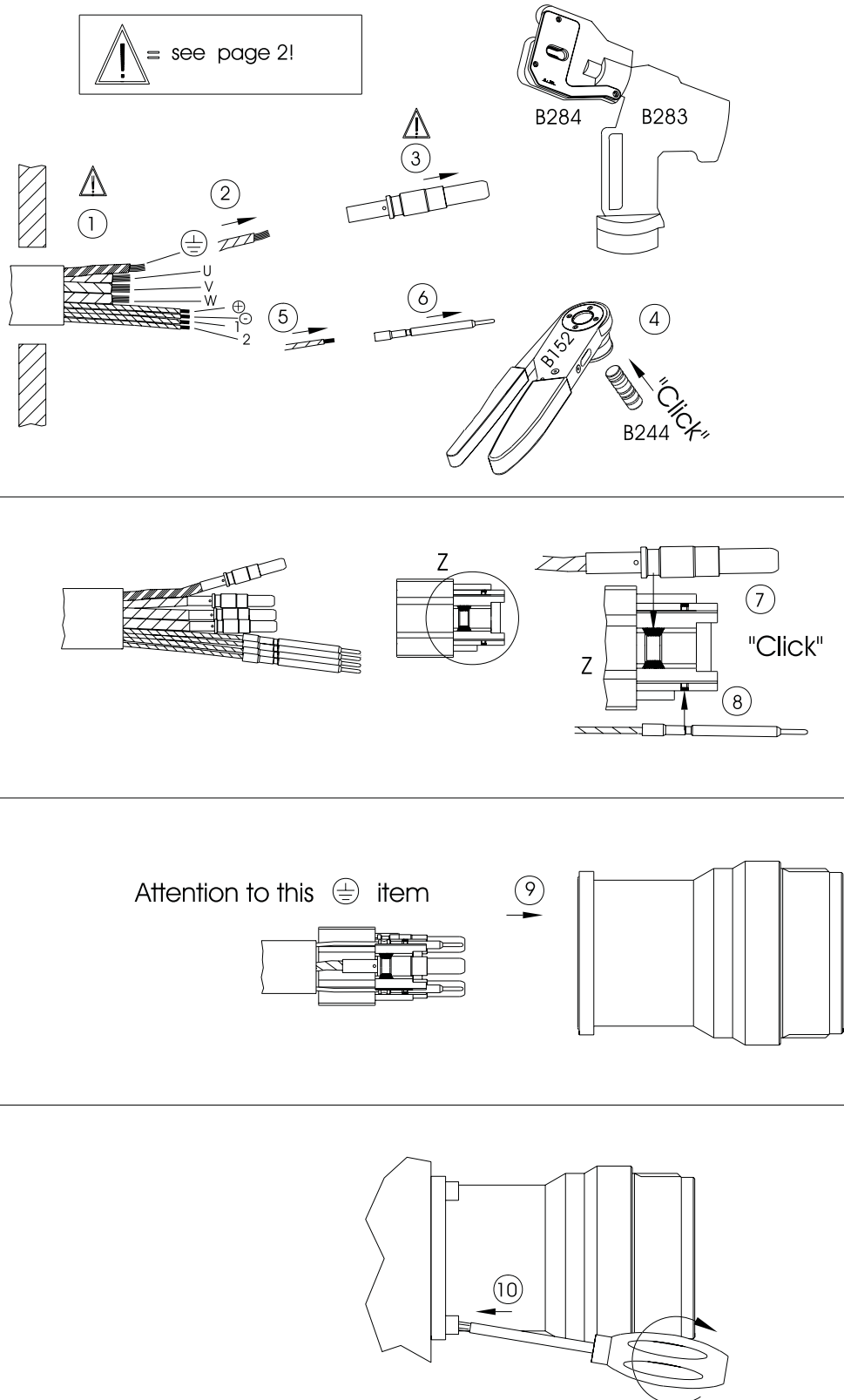
Note:

According to the certifacton all types of UL-versions of our connectors can only be used with our contacts. Therefore UL-versions can only be offered as a package with contacts included

Assembly instructions

Receptacle VECF08C...

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Note:

After assembly the connector has to be tested for the functions of the safety measures according to EN 60204-1, VDE 0113 Teil1

Assembly instructions

Receptacle VECF08C...



Tooling and facts for assembling

Note about step 8: the ground contact is the last to be assembled!

power:

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools		
						crimping tool	positioner	
U V W	I	021.000427.1045	10	70	23		B 283 + B 284	
	K	021.000428.1045	16	70	23			
	L	021.000425.1045	25	70	23			
	M	021.000426.1045	35	70	23			
	P	021.000429.1045	50	70	23			

ground contact:

= crimp position

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools		
						crimping tool	positioner	
	I	021.000427.1045	10	73	23		B 283 + B 284	
	K	021.000428.1045	16	73	23			
	L	021.000425.1045	25	73	23			
	M	021.000426.1045	35	73	23			
	P	021.000429.1045	50	73	23			

signal:

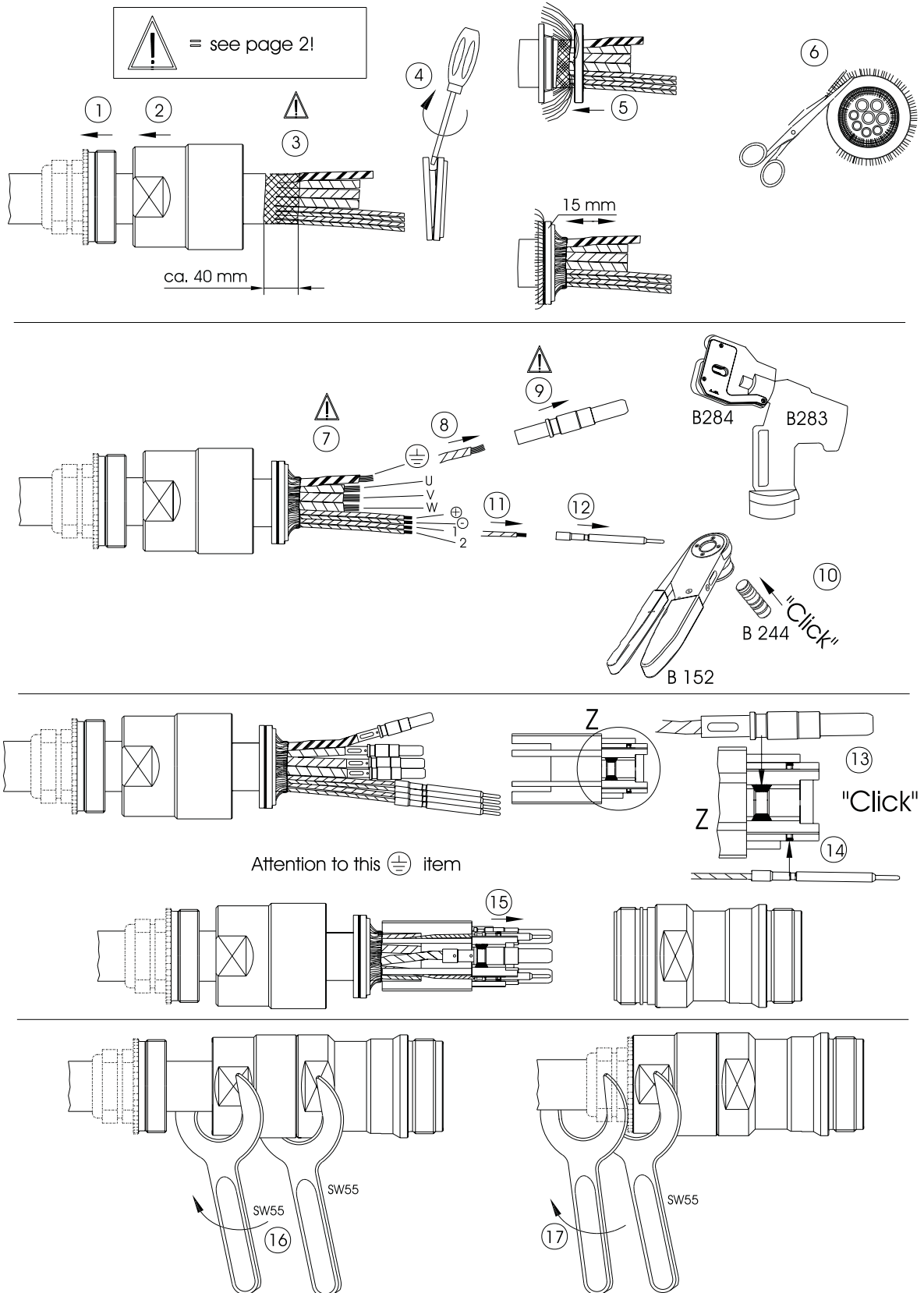
= crimp position

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools		
						crimping tool	positioner	adjustment
+ - 1 2	A		0.75	70	7			6
			1.0	70	7			6
			1.5	70	7			7

Assembly instructions

Extension VRAF08C...

Page 1 of 2



Note: After assembly the connector has to be tested for the functions of the safety measures according to EN 60204-1, VDE 0113 Teil1

Assembly instructions

Extension VRAF08C...



Tooling and facts for assembling
 Note about step 8: the ground contact is the last to be assembled!

power:

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools		
				a	b	crimping tool positioner B 283 + B284		
U V W	I	021.000427.1045	10	70	23			
	K	021.000428.1045	16	70	23			
	L	021.000425.1045	25	70	23			
	M	021.000426.1045	35	70	23			
	P	021.000429.1045	50	70	23			

ground contact:

= crimp position

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools		
				a	b	crimping tool positioner B 283 + B284		
	I	021.000427.1045	10	73	23			
	K	021.000428.1045	16	73	23			
	L	021.000425.1045	25	73	23			
	M	021.000426.1045	35	73	23			
	P	021.000429.1045	50	73	23			

signal:

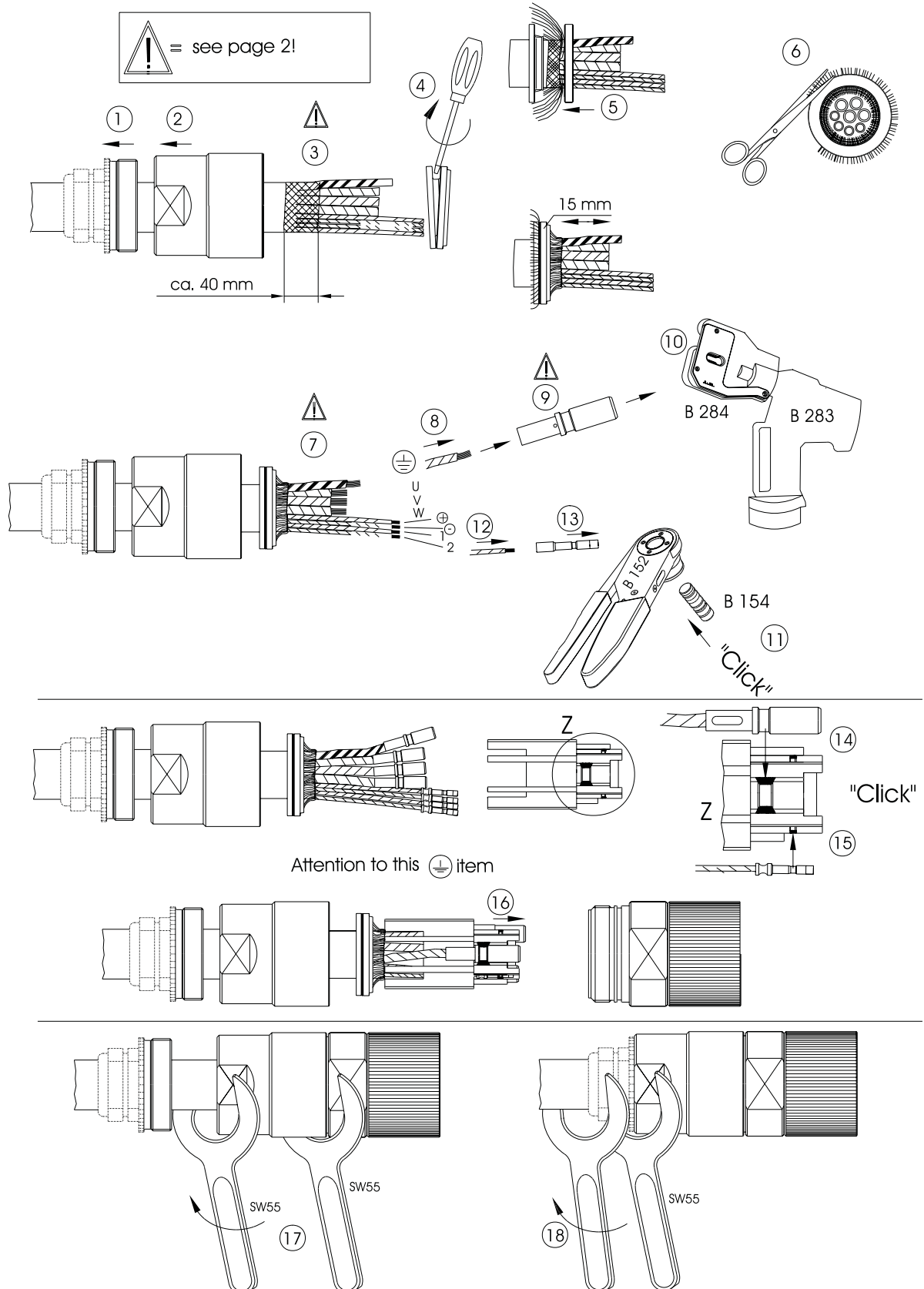
= crimp position

contact arrangement	part number	contact 021.370.1020	wire range [mm ²]	strip length		crimping tools		
				a	b	crimping tool B 152	positioner B 244	adjustment
+ - 1 2	A		0.75	70	7			6
			1.0	70	7			6
			1.5	70	7			7

Assembly instructions

Plug VPAF08C... / VPXF08C...

page 1 of 2



Note: After assembly the connector has to be tested for the functions of the safety measures according to EN 60204-1, VDE 0113 Teil1

Assembly instructions

Plug VPAF08C... / VPXF08C...

Page 2 of 2



Tooling and facts for assembling
Note about step 15: the ground pin is the last to be assembled!

power:

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools	
				a	b	crimping tool positioner B 283 + B 284	
U V W	S	090.000023.2000	10	70	23		
	T	090.000024.2000	16	70	23		
	P	090.000021.2000	25	70	23		
	R	090.000022.2000	35	70	23		
	U	090.000025.2000	50	70	23		

ground pin:





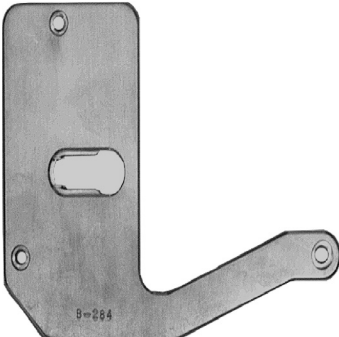
= Crimpstelle/crimp position

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools	
				a	b	crimping tool positioner B 283 + B 284	
	S	090.000023.2000	10	73	23		
	T	090.000024.2000	16	73	23		
	P	090.000021.2000	25	73	23		
	R	090.000022.2000	35	73	23		
	U	090.000025.2000	50	73	23		

Signal:

contact arrangement	part number	contact	wire range [mm ²]	strip length		crimping tools	
				a	b	crimping tool B 152	positioner B 154
+ - 1 2	A		0.5	100	7		
			1.0	100	7		
			1.5	100	7		

Tools

Crimping tools	Part number
	B152
	B283
Crimp accessories	Part number
	MASTER GAUGE B189 B290
	POSITIONER B154, B244
	POSITIONER B284

Disclaimer 2020

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.

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