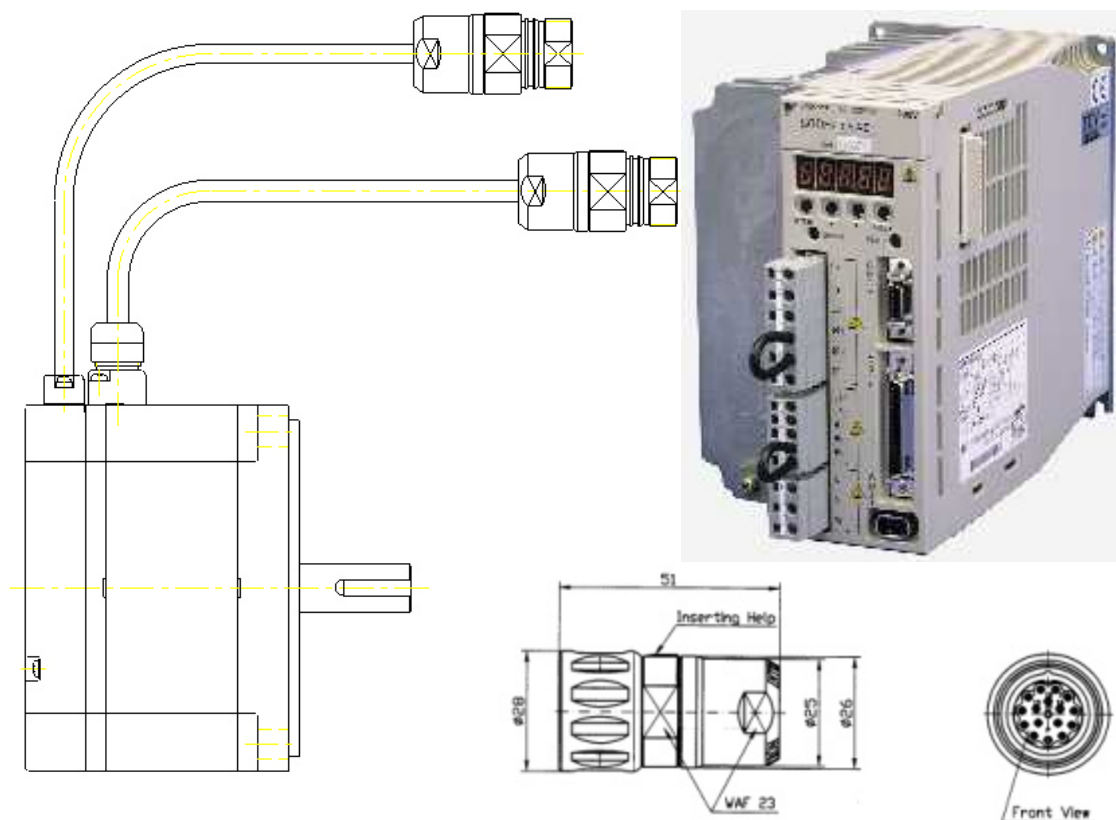




S-II Series SGMAH & SGMPH SGDH

Specification of Connectors and Cables





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1 Servomotors SGMAH/PH 200V

1.1 Motor Cable for SGMAH-xxAxx and SGMPH-xxAxx

Part-No	Description	Stock
DP9325252/3G	Motor cable with connector (3m)	CP
DP9325253/3G	Motor cable with connector (3m) w/ brake	CP
DP9325252/5G	Motor cable with connector (5m)	CP
DP9325253/5G	Motor cable with connector (5m) w/ brake	CP
DP9325252/10G	Motor cable with connector (10m)	CP
DP9325253/10G	Motor cable with connector (10m) w/ brake	CP
DP9325252/15G	Motor cable with connector (15m)	CP
DP9325253/15G	Motor cable with connector (15m) w/ brake	CP
DP9325252/20G	Motor cable with connector (20m)	CP
DP9325253/20G	Motor cable with connector (20m) w/ brake	CP
DP9325254/3G	Motor cable with connector (3m) for SGMPH-15	CP
DP9325255/3G	Motor cable with connector (3m) for SGMPH-15 w/ brake	CP
DP9325254/5G	Motor cable with connector (5m) for SGMPH-15	CP
DP9325255/5G	Motor cable with connector (5m) for SGMPH-15 w/ brake	CP
DP9325254/10G	Motor cable with connector (10m) for SGMPH-15	CP
DP9325255/10G	Motor cable with connector (10m) for SGMPH-15 w/ brake	CP
DP9325254/15G	Motor cable with connector (15m) for SGMPH-15	CP
DP9325255/15G	Motor cable with connector (15m) for SGMPH-15 w/ brake	CP
DP9325254/20G	Motor cable with connector (20m) for SGMPH-15	CP
DP9325255/20G	Motor cable with connector (20m) for SGMPH-15 w/ brake	CP

1.2 Encoder Cable for SGMAH-xxAxx and SGMPH-xxAxx

Part-No	Description	Stock
DP9325256/3G	Encoder cable with connector both end (3m)	CP
DP9325256/5G	Encoder cable with connector both end (5m)	CP
DP9325256/10G	Encoder cable with connector both end (10m)	CP
DP9325256/15G	Encoder cable with connector both end (15m)	CP
DP9325256/20G	Encoder cable with connector both end (20m)	CP

1.3 Motor Connector for SGMAH-xxAxx and SGMPH-xxAxx

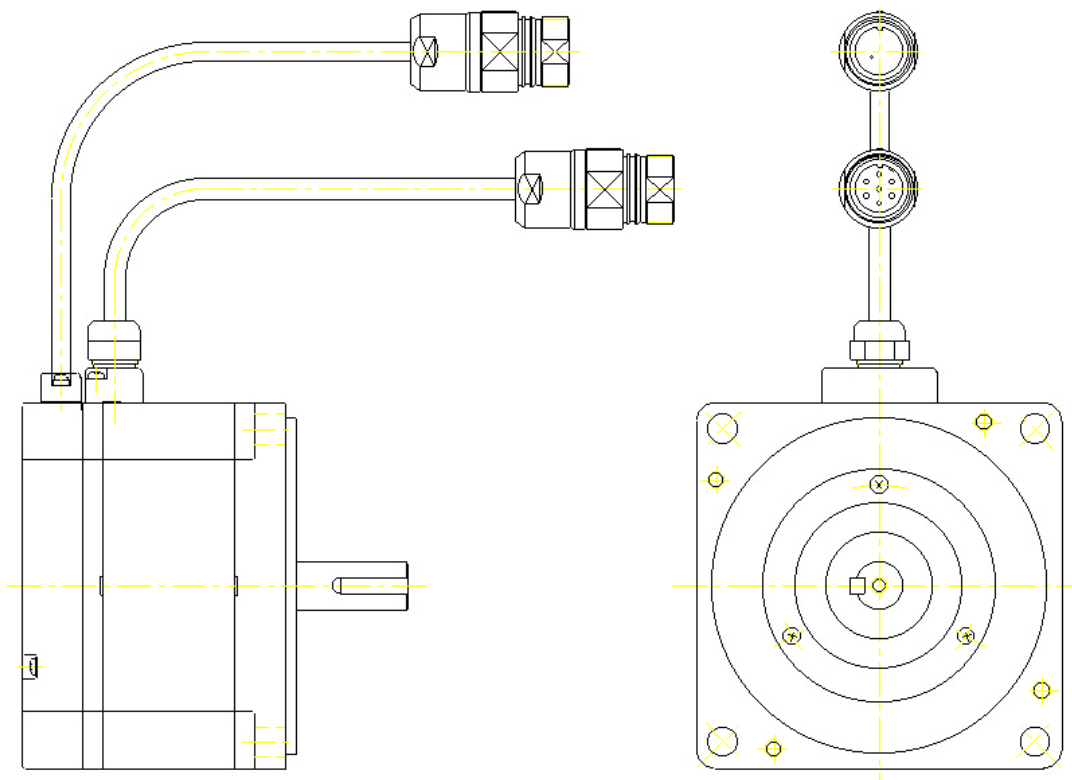
Part-No	Description	Stock
S PN A 06K FS DN 169	Motor connector cable side	CP
S RU C 06J MS CN 236	Motor connector motor side for SGMAH/PH up to 750W	CP
S RU C 06J MS CN 236	Motor connector motor side for SGMPH-15	CP

1.4 Encoder Connector for SGMAH-xxAxx and SGMPH-xxAxx

Part-No	Description	Stock
S PN A 17H FR ON 169	Encoder connector cable side	CP
S RU C 17G MR WN 087	Encoder connector motor side for SGMAH/PH	CP

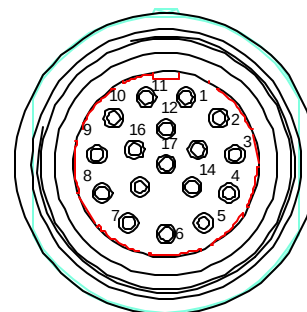


1.5 Motor Drawing SGMPH 200V (Example)



1.5.1 Encoder Plug (Front View)

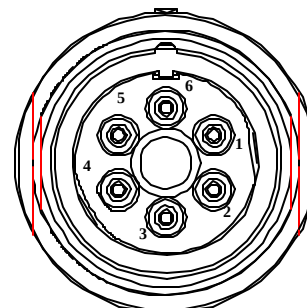
Encoder Connector		
Pin	Output	Wire colour
1	0V (16 Bit Absolute Encoder)	--
2	3,6V (16 Bit Absolute Encoder)	--
3	Data +	Blue
4	Data -	Blue/White
5~7, 10~17	Free	--
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield Wire



S RU C 17G MR...

1.5.2 Motor Plug 230V (Front View)

Motor Connector		
Pin	Output	Wire Colour
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	*Brake Terminal	Black
5	*Brake Terminal	Black
6	FG (Frame Ground)	Green/Yellow



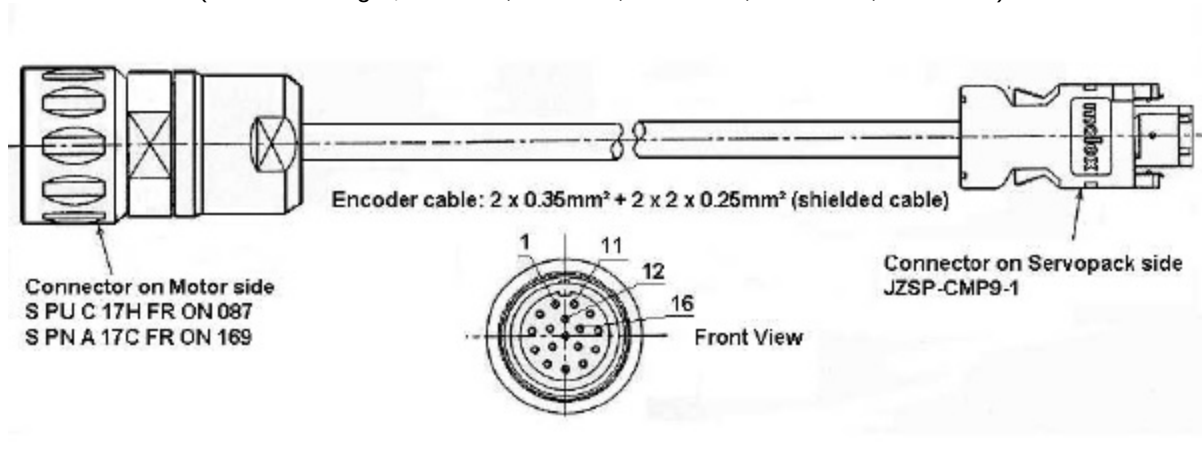
S RU C 06J MS...

*Note: Pins 4 and 5 used only for motors with brake



1.5.3 Encoder Cable for Servomotors SGMAH / SGMPH

Part no: DP9325256-##G SGMAH-xxA, SGMAH-xxD, SGMPH-xxA and SGMP-xxD
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)



Terminal connection Encoder side

No.	Description	Colour
1	0V (Battery)	Orange/White
2	3.6V (Battery)	Orange
3	DATA +	Blue
4	DATA -	Blue/White
5-7	Free	-
8	+5V (Power supply)	Red (AWG22)
9	0V (Power supply)	Black (AWG22)
10-17	Free	-
Connector case	Frame ground	Shield wire

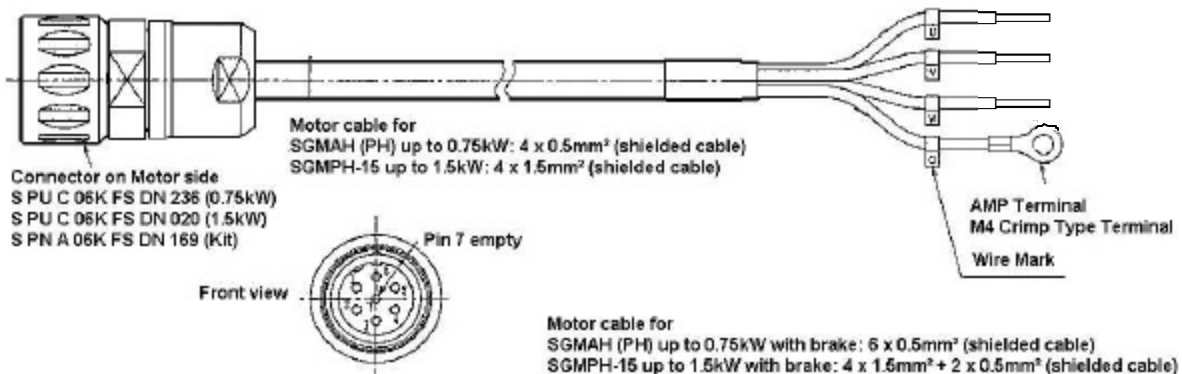
Terminal connection Servopack side

No.	Description	Colour
1	+5V (Power Supply)	Pink
2	0V (Power Supply)	Grey
3	3.6V (Battery)	Green
4	0V (Battery)	Yellow
5	DATA +	White
6	DATA -	Brown
Connector case	Frame ground	Shield wire



1.5.4 Motor Cable for Servomotors SGMAH / SGMPH 200V Series

Part no: DP9325252-##G SGMAH, SGMPH-01Axx - SGMPH-08Axx
 DP9325254-##G SGMPH-15Axx
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)

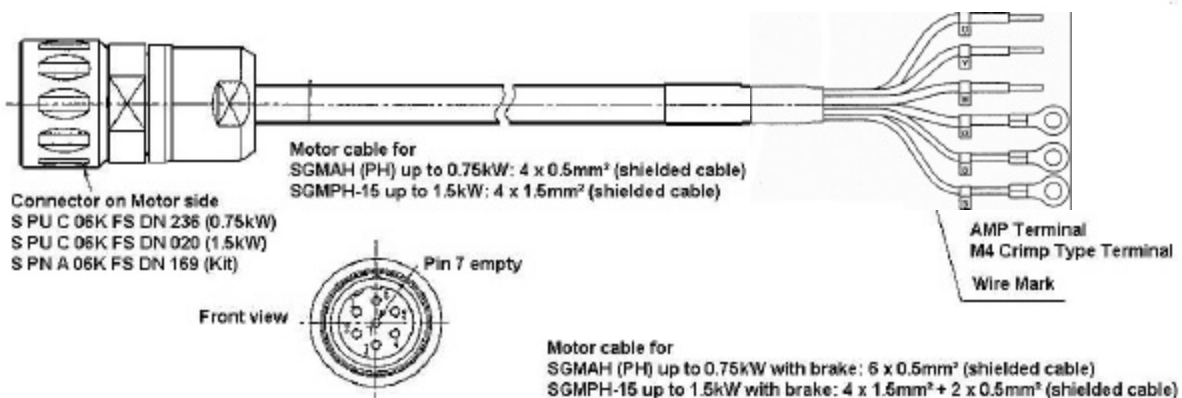


Terminal connection

No.	Description	Colour
1	Phase U	Black (white 1)
2	Phase V	Black (white 2)
3	Phase W	Black (white 3)
4	free	-
5	Free	-
6	Frame ground	Green/Yellow

1.5.5 Motor Cable for Servomotors with Brake SGMAH / SGMPH 200 Series

Part no: DP9325253-##G SGMAH, SGMPH-01Axxx C - SGMPH-08Axxx C
 DP9325255-##G SGMPH-15Axxx C
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)



Terminal connection

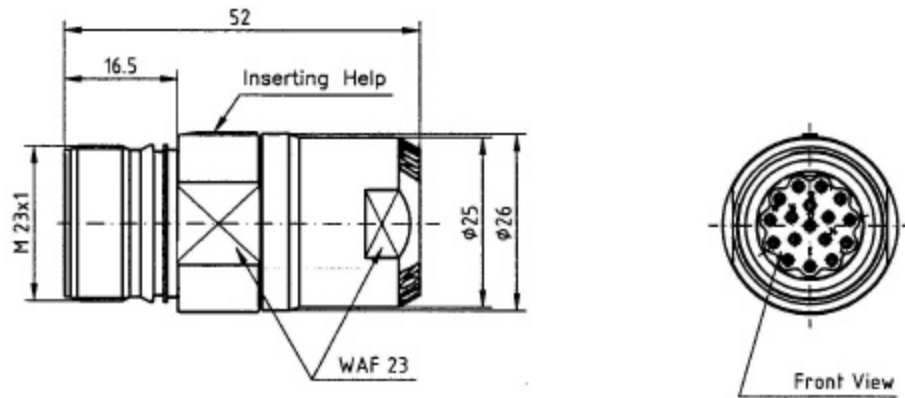
No.	Description	Colour
1	Phase U	Black (white 1)
2	Phase V	Black (white 2)
3	Phase W	Black (white 3)
4	Brake	Black (white 4)
5	Brake	Black (white 5)
6	Frame ground	Green/Yellow



1.6 Specification of Encoder Connector

1.6.1 Encoder Connector (Encoder side)

Part – No: S RU C 17G MR WN 087



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : Ø5,5mm
 Type of protection : IP67 connected
 IP00 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Pin Ø1	Pin Ø1
Part-No.	: 021.311.1020	021.402.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

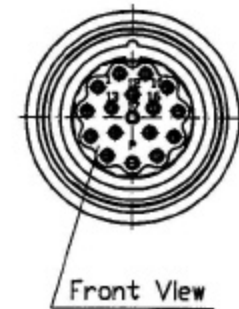
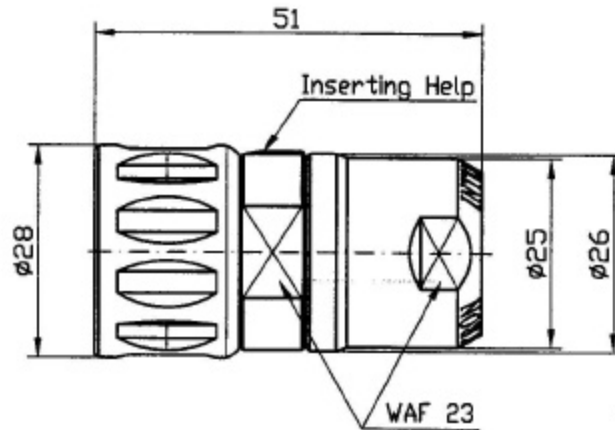
Tools:

Crimping Tool	Positioner	Positioner
B 150	B 055/A	B 055/A
B 161	B 200	-----



1.6.2 Encoder connector (cable side)

Part – No: S PU C 17H FR...



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : depend on cable diameter
 Type of protection : IP67 connected
 IP10 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Socket Hypertac Ø1	Socket Hypertac Ø1
Part-No.	: 020.256.1020	020.353.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

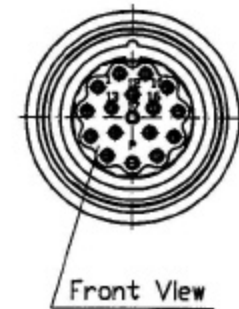
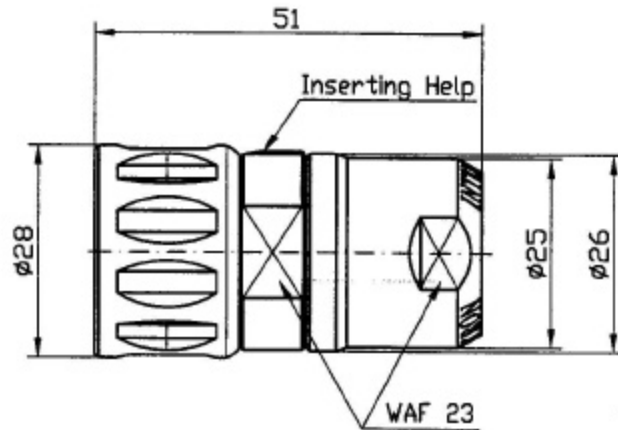
Tools:

Crimping Tool	Positioner	Positioner
B 151	B 200	-----
B 150	B 055/A	B 055/A



1.6.3 Encoder connector (cable side) with flexible cable clamp

Part – No: S PN A 17H FR ON 169



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : Ø5,5 - Ø12mm
 Type of protection : IP67 connected
 IP10 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Socket Hypertac Ø1	Socket Hypertac Ø1
Part-No.	: 020.256.1020	020.353.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

Tools:

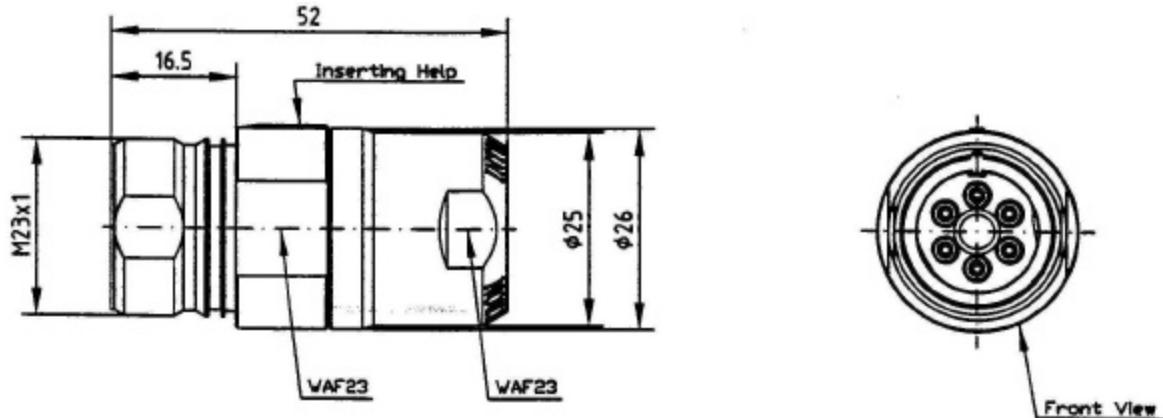
Crimping Tool	Positioner	Positioner
B 151	B 200	-----
B 150	B 055/A	B 055/A



1.7 Specification of Motor Connector

1.7.1 Motor Connector (motor side) with Ground connection

Part – No: S RU C 06J MS CN...



Specifications:

Poles: : 6
 Temperature Range : -25°C up to 125°C
 Cable Clamp : shown in tabel
 Type of protection : IP67 connected
 : IP00 not connected

Part – No.	Plug with Cable Clamp
S RU C 06J MS CN 236	Cable Ø 7mm
S PU C 06J MS CN 020	Cable Ø 9,5mm
Reference: Original Yaskawa Lead	

Electrical Performance:

Current Rating : 15A, environmental temperature 60°C
 max. Current : 23 A cyclic (5 sec on, 10 sec out)
 Voltage Rating : 250 V
 Test Voltage : 4000V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : Peek
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type : Pin Ø2
 Part-No. : 021.421.1020
 Termination : solder cup
 Latch Retention : > 35N

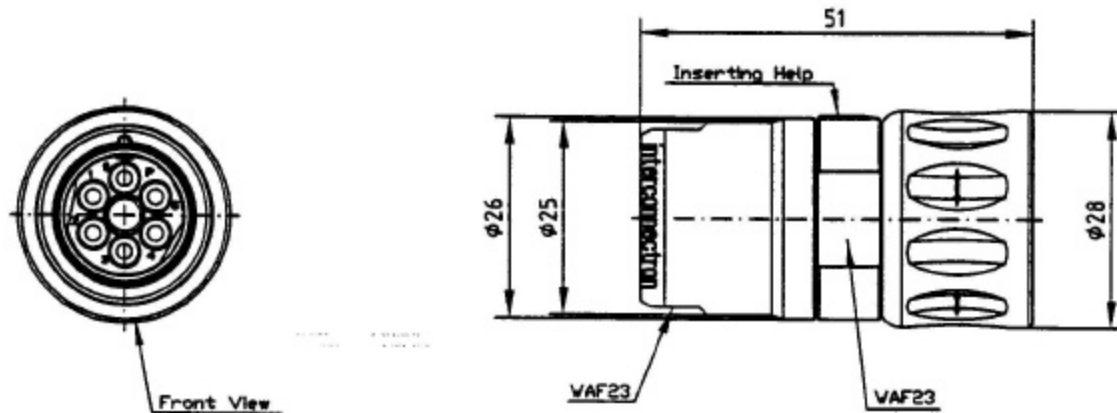
Tools:

Crimping Tool : Positioner



1.7.2 Motor Connector (cable side) with Ground connection

Part – No: S PU C 06K FS DN ...



Specifications:

Poles: : 6
 Temperature Range : -25°C up to 125°C
 Cable Clamp : shown in tabel
 Type of protection : IP67 connected
 IP00 not connected

Part – No.	Plug with Cable Clamp
S PU C 06K FS BN 149	Cable Ø 9,2mm
S PU C 06K FS BN 160	Cable Ø 9,5mm
S PU C 06K FS BN 160	Cable Ø 10,4mm
Reference: Original Yaskawa Lead	

Electrical Performance:

Current Rating : 15A, environmental temperature 60°C
 max. Current : 23 A cyclic (5 sec on, 10 sec out)
 Voltage Rating : 250 V
 Test Voltage : 4000V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : Peek
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type : Socket Hypertac Ø2
 Part-No. : 020.030.1020
 Termination : solder cup
 Latch Retention : > 35N

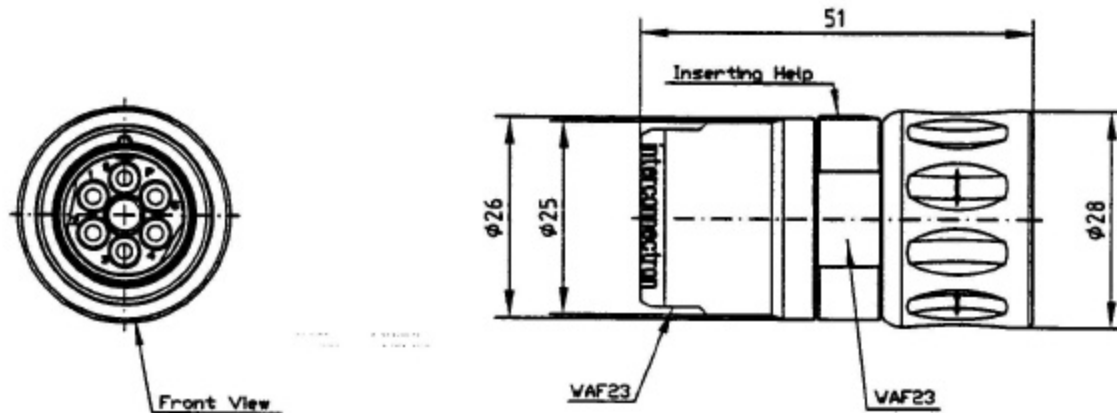
Tools:

Crimping Tool Positioner



1.7.3 Motor Connector Kit (cable side) with Ground connection and flexible cable clamp

Part – No: S PN A 06K FS DN 169



Specifications:

Poles: : 6
 Temperature Range : -25°C up to 125°C
 Cable Clamp : Ø 5.5 - Ø 12 mm
 Type of protection : IP67 connected
 IP10 not connected

Performance Electrical:

Current Rating : 15A, environmental temperature 60°C
 max. Current : 23 A cyclic (5 sec on, 10 sec out)
 Voltage Rating : 250 V
 Test Voltage : 4000V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : Peek
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type : Socket Hypertac Ø2
 Part-No. : 020.030.1020
 Termination : solder cup
 Latch Retention : > 35N

Tools:

Crimping Tool Positioner
 ----- -----



1.8 Specification of Encoder cable

Type:	Control Cable 2 x 0,35mm ² + 2 x 2 x 0,25mm ²	
Construction:	0,35mm ²	0,25mm ²
Conductor	: bare copper-wire 0,35 mm ² , flexible	bare copper-wire 0,25 mm ² , flexible
Insulation	: Polyesterelastomer 12Y	Polyesterelastomer 12Y
Colour	: white + brown	green/yellow, grey/pink
Twisting	: two pairs	
Cabeling	: 2 cores + 2 pairs	
Wrapping	: insulationtape	
Shield	: braided tinned copper screen	
Wrapping	: Seperatingtape	
Jacket	: Polyurethan TPU	
Colour	: black –dull-	
Printing (wt)	: ERNST + ENGRING VDE-REG-NR. 8589 2 x 0,35 + 2 x 2 x 0,25 90°C 300V ##### -HALOGENFREE- (#####: coded manufacture date)	
Overall diameter	: (6,0 ± 0,3) mm	

Electrical datas (at 20°C)		(0,25 mm ²)	(0,50 mm ²)
Conductor resistance	: ≤	82,0 Ω/km	: ≤ 41,0 Ω/km
Insulation resistance	: >	200 MΩxkm	
Screen attenuation	up to 30MHz	: 45 dB (approxiamate value)	
	up to 1 GHZ	: 30 dB (approxiamate value)	
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)			
Test voltage	(C/C)	: 2,0 kV _{eff}	
	(C/S)	: 1,0 kV _{eff}	
Operating voltage	:	300V	
Operating current (single cable) at ambient temperature			
		0,35mm ²	0,25mm ²
	20°C	: ≤ 4,5 A	: ≤ 2,2 A
	30°C	: ≤ 3,8 A	: ≤ 1,9 A
	40°C	: ≤ 3,2 A	: ≤ 1,6 A
	50°C	: ≤ 2,5 A	: ≤ 1,2 A
	60°C	: ≤ 1,9 A	: ≤ 0,9 A
	70°C	: ≤ 1,2 A	: ≤ 0,6 A

Temperature range	(Transport & storage)	: -70°C bis + 90°C
	(Installation & handling)	: -40°C bis + 90°C
	(Operating)	: -20°C bis + 80°C
Bending radius	(Operating)	: ≥ 3 x cable-Ø
	(several times)	: ≥ 7,5 x cable-Ø
	(several times optimum):	: ≥ 10 x cable-Ø
Bending strength	(r= 10 x cable-Ø at 20°C)	: ≥ 5.000.000 cycles
reduced working life at higher operating temperatures.		
Oil resistance	: acc. VDE 0282 part 10	
Hydrolyse resistance	: acc. VDE 0282 part 10	
Flame resistance	: acc. VDE 0472 part 804 condition B	
Approbation	: VDE-expert evidence (VDE-REG-Nr.6589)	

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



1.9 Specification of the Motor cable 4 x 0,5mm²

Type: Motor supply cable 4 x 0,5mm²

Construction:

Conductor : bare copper-wire 0,5 mm², high flexible
 Insulation : Polyesterelastomer 12Y
 Colour : black with white numbers 1 – 3 + yellowgreen
 Cabeling : 4 cores with fillers
 Wrapping : insulationtape
 Shield : braided tinned copper screen
 Wrapping : Seperatingtape
 Jacket : Polyurethan TPU
 Colour : black –dull-
 Printing (wt) : ERNST + ENGRING VDE-REG-NR. 6508 4 x 0,5 90°C 300V
 ##### -HALOGENFREE- (#####: coded manufacture date)
 Overall diameter : (7,2 ± 0,3) mm

Electrical datas (at 20°C)

Conductor resistance	:	≤	41,0 Ω/km
Insulation resistance	:	>	200 MΩxkm
Screen attenuation	up to 30MHz	:	45 dB (approxiamate value)
	up to 1 GHZ	:	30 dB (approxiamate value)
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)			
Test voltage	(C/C)	:	3,0 kV _{eff}
	(C/S)	:	3,0 kV _{eff}
Operating voltage	:	:	600/1000V
Operating current (single cable) at ambient temperature			
	20°C	:	≤ 10 A
	30°C	:	≤ 9,0 A
	40°C	:	≤ 7,0 A
	50°C	:	≤ 5,0 A
	60°C	:	≤ 3,0 A
	70°C	:	≤ 1,5 A
Temperature range (Transport & storage) : -70°C bis + 90°C			
(Installation & handling) : -40°C bis + 90°C			
(Operating) : -20°C bis + 80°C			
Bending radius	(Operating)	:	≥ 3 x cable-Ø
	(several times)	:	≥ 7,5 x cable-Ø
	(several times optimum):	:	≥ 10 x cable-Ø
Bending strength	(r= 10 x cable-Ø at 20°C)	:	≥ 5.000.000 cycles
reduced working life at higher operating temperatures.			
Oil resistance	:	:	acc. VDE 0282 part 10
Hydrolyse resistance	:	:	acc. VDE 0282 part 10
Flame resistance	:	:	acc. VDE 0472 part 804 test condition B
Approbation	:	:	VDE-expert evidence
	:	:	(VDE-REG-Nr.6508)

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



1.10 Specification of the Motor cable 4 x 1,5mm²

Type: Motor supply cable 4 x 1,5mm²

Construction:

Conductor : bare copper-wire 1,5 mm², high flexible
 Insulation : Polyesterelastomer 12Y
 Colour : black with white numbers 1 – 3 + yellowgreen
 Cabeling : 4 cores with fillers
 Wrapping : insulationtape
 Shield : braided tinned copper screen
 Wrapping : Seperatingtape
 Jacket : Polyurethan TPU
 Colour : black –dull-
 Printing (wt) : ERNST + ENGRING VDE-REG-NR. 6508 4 x 1,5 90°C 300V
 ##### -HALOGENFREE- (#####: coded manufacture date)
 Overall diameter : (9,5 ± 0,5) mm

Electrical datas (at 20°C)

Conductor resistance	:	≤	13,5 Ω/km
Insulation resistance	:	>	200 MΩxkm
Screen attenuation	up to 30MHz	:	45 dB (approxiamate value)
	up to 1 GHZ	:	30 dB (approxiamate value)

(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)

Test voltage	(C/C)	:	3,0 kV _{eff}
	(C/S)	:	3,0 kV _{eff}
Operating voltage	:	:	600/1000V

Operating current (single cable) at ambient temperature

	20°C	:	≤	19 A
	30°C	:	≤	18 A
	40°C	:	≤	17 A
	50°C	:	≤	14 A
	60°C	:	≤	11 A
	70°C	:	≤	8 A

Temperature range (Transport & storage) : -70°C bis + 90°C
 (Installation & handling) : -40°C bis + 90°C
 (Operating) : -20°C bis + 80°C

Bending radius (Operating) : ≥ 3 x cable-Ø
 (several times) : ≥ 7,5 x cable-Ø
 (several times optimum): ≥ 10 x cable-Ø

Bending strength (r= 10 x cable-Ø at 20°C) : ≥ 5.000.000 cycles
 reduced working life at higher operating temperatures.

Oil resistance : acc. VDE 0282 part 10
 Hydrolyse resistance : acc. VDE 0282 part 10
 Flame resistance : acc. VDE 0472 part 804 test condition B
 Approbation : VDE-expert evidence
 (VDE-REG-Nr.6508)

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



1.11 Specification of the Motor cable with brake wires 6 x 0,5mm²

Type: Motor supply cable 6 x 0,5mm²

Construction:

Conductor : bare copper-wire 0,5 mm², high flexible
 Insulation : Polyesterelastomer 12Y
 Colour : black with white numbers 1 – 5 + yellowgreen
 Cabeling : 6 cores with fillers
 Wrapping : insulationtape
 Shield : braided tinned copper screen
 Wrapping : Seperatingtape
 Jacket : Polyurethan TPU
 Colour : black –dull-
 Printing (wt) : ERNST + ENGRING VDE-REG-NR. 6508 6 x 0,5 90°C 300V
 ##### -HALOGENFREE- (#####: coded manufacture date)
 Overall diameter : (9,2 ± 0,4) mm

Electrical datas (at 20°C)

Conductor resistance	(0,5 mm ²)	: ≤	41,0 Ω/km
Insulation resistance		: >	200 MΩxkm
Screen attenuation	up to 30MHz	: 45 dB (approxiamate value)	
	up to 1 GHZ	: 30 dB (approxiamate value)	
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)			
Test voltage	(C/C)	: 3,0 kV _{eff}	
	(C/S)	: 3,0 kV _{eff}	
Operating voltage		: 600/1000V	
Operating current (single cable) at ambient temperature			
	20°C	: ≤	10 A
	30°C	: ≤	9,0 A
	40°C	: ≤	7,0 A
	50°C	: ≤	5,0 A
	60°C	: ≤	3,0 A
	70°C	: ≤	1,5 A
Temperature range (Transport & storage) : -70°C bis + 90°C			
(Installation & handling) : -40°C bis + 90°C			
(Operating) : -20°C bis + 80°C			
Bending radius	(Operating)	: ≥	3 x cable-Ø
	(several times)	: ≥	7,5 x cable-Ø
	(several times optimum):	: ≥	10 x cable-Ø
Bending strength	(r= 10 x cable-Ø at 20°C)	: ≥	5.000.000 cycles
reduced working life at higher operating temperatures.			
Oil resistance		: acc. VDE 0282 part 10	
Hydrolyse resistance		: acc. VDE 0282 part 10	
Flame resistance		: acc. VDE 0472 part 804 test condition B	
Approbation		: VDE-expert evidence	
		(VDE-REG-Nr.6508)	

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



1.12 Specification of the Motor cable with brake wires 4 x 1,5mm² + 2 x 0,5mm²

Type: Motor supply cable 4 x 1,5mm² + 2 x 0,5mm²

Construction:	1,5mm ²	0,5mm ²
Conductor	: bare copper-wire 1,5 mm ² , high flexible	bare copper-wire 0,5 mm ² , high flexible
Insulation	: Polyesterelastomer 12Y	Polyesterelastomer 12Y
Colour	: black with white numbers 1 - 3 + <u>yellow</u> green	black with white numbers 5 - 6
Cabeling	: 6 cores with fillers	
Wrapping	: insulationtape	
Shield	: braided tinned copper screen	
Wrapping	: Seperatingtape	
Jacket	: Polyurethan TMPU	
Colour	: black –dull-	
Printing (wt)	: ERNST + ENGRING VDE-REG-NR. 6508 4 x 1,5 + 2 x 0,5 90°C 300V ##### -HALOGENFREE- (#####: coded manufacture date)	
Overall diameter	: max. 10,4 mm	

Electrical datas (at 20°C)	(1,5 mm ²)	(0,5 mm ²)
Conductor resistance	: ≤ 13,5 Ω/km	≤ 41,0 Ω/km
Insulation resistance	: > 200 MΩxkm	
Screen attenuation	up to 30MHz : 45 dB (approxiamate value)	
	up to 1 GHz : 30 dB (approxiamate value)	
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)		
Test voltage	(C/C) : 3,0 kV _{eff}	
	(C/S) : 3,0 kV _{eff}	
Operating voltage	: 600/1000V	
Operating current (single cable) at ambient temperature		

	1,5mm ²	0,5mm ²
20°C	: ≤ 19 A	≤ 6,3 A
30°C	: ≤ 18 A	≤ 6,0 A
40°C	: ≤ 17 A	≤ 5,5 A
50°C	: ≤ 14 A	≤ 4,5 A
60°C	: ≤ 11 A	≤ 3,5 A
70°C	: ≤ 8 A	≤ 2,5 A

Temperature range	(Transport & storage) : -70°C bis + 90°C
	(Installation & handling) : -40°C bis + 90°C
	(Operating) : -20°C bis + 80°C
Bending radius	(Operating) : ≥ 3 x cable-Ø
	(several times) : ≥ 7,5 x cable-Ø
	(several times optimum): ≥ 10 x cable-Ø
Bending strength	(r= 10 x cable-Ø at 20°C) : ≥ 5.000.000 cycles
reduced working life at higher operating temperatures.	
Oil resistance	: acc. VDE 0282 part 10
Hydrolyse resistance	: acc. VDE 0282 part 10
Flame resistance	: acc. VDE 0472 part 804 test condition B
Approbation	: VDE-expert evidence (VDE-REG-Nr.6508)

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



2 SGMAH/PH 400V

2.1 Motor Cable for SGMAH-xxDxx and SGMPH-xxDxx

Part-No	Description	Stock
JZSP-CMM20D15-03G	Motor cable with connector (3m)	CP
JZSP-CMM30D15-03G	Motor cable with connector (3m) w/ brake	CP
JZSP-CMM20D15-05G	Motor cable with connector (5m)	CP
JZSP-CMM30D15-05G	Motor cable with connector (5m) w/ brake	CP
JZSP-CMM20D15-10G	Motor cable with connector (10m)	CP
JZSP-CMM30D15-10G	Motor cable with connector (10m) w/ brake	CP
JZSP-CMM20D15-15G	Motor cable with connector (15m)	CP
JZSP-CMM30D15-15G	Motor cable with connector (15m) w/ brake	CP
JZSP-CMM20D15-20G	Motor cable with connector (20m)	CP
JZSP-CMM30D15-20G	Motor cable with connector (20m) w/ brake	CP

2.2 Encoder Cable for SGMAH-xxDxx and SGMPH-xxDxx

Part-No	Description	Stock
DP9325256/3G	Encoder cable with connector both end (3m)	CP
DP9325256/5G	Encoder cable with connector both end (5m)	CP
DP9325256/10G	Encoder cable with connector both end (10m)	CP
DP9325256/15G	Encoder cable with connector both end (15m)	CP
DP9325256/20G	Encoder cable with connector both end (20m)	CP

2.3 Motor Connector for SGMAH-xxDxx and SGMPH-xxDxx

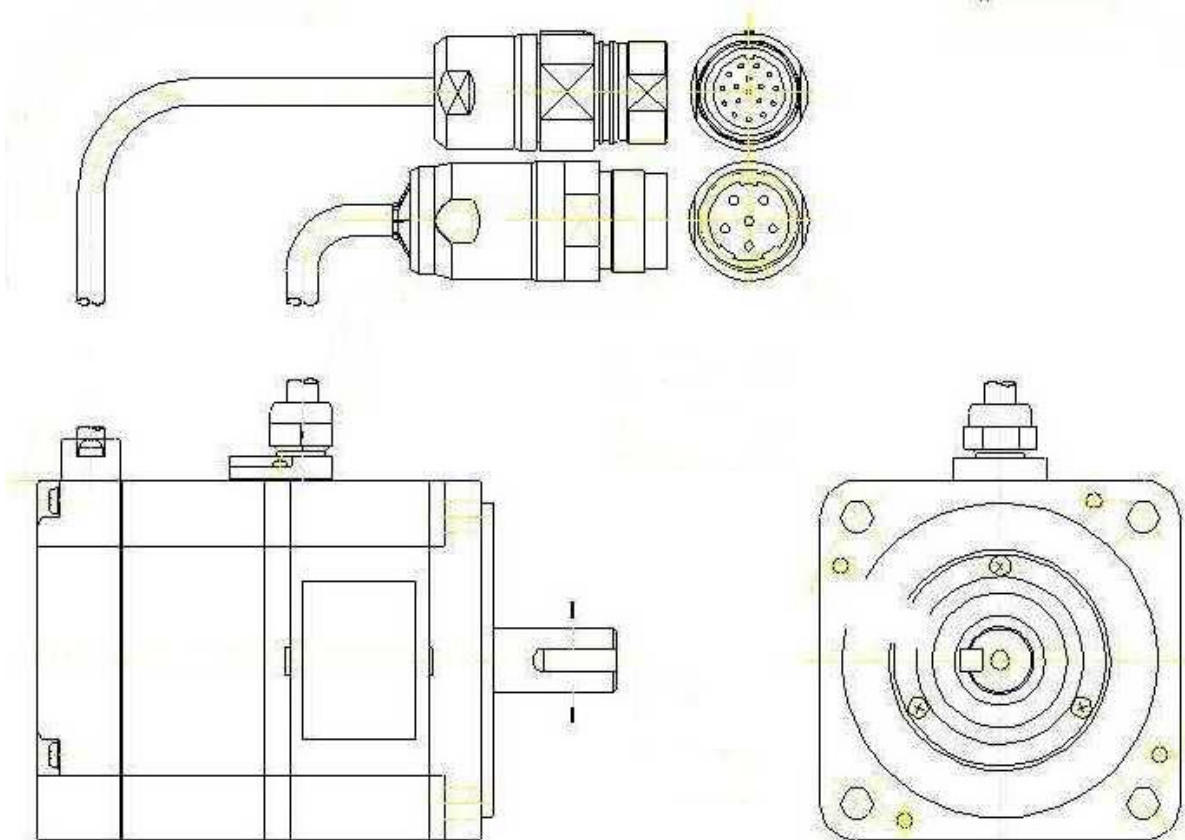
Part-No	Description	Stock
L RR A 06A MR PN 180	Motor connector motor side for SGMAH/PH-xxDxx	CP
L PR A 06B FR BN 170	Motor connector cable side	CP

2.4 Encoder Connector for SGMAH-xxDxx and SGMPH-xxDxx

Part-No	Description	Stock
S PN A 17H FR ON 169	Encoder connector cable side	CP
S RU C 17G MR WN 087	Motor connector motor side for SGMAH/PH	CP

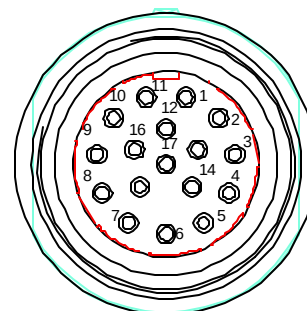


2.5 Motor Drawing SGMPH 400V (Example)



2.5.1 Encoder Plug (Front View)

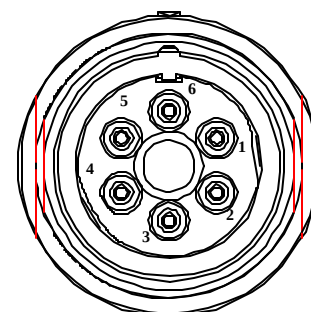
Encoder Connector		
Pin	Output	Wire colour
1	0V (16 Bit Absolute Encoder)	--
2	3,6V (16 Bit Absolute Encoder)	--
3	Data +	Blue
4	Data -	Blue/White
5~7, 10~17	Free	--
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield Wire



S RU C 17G MR...

2.5.2 Motor Plug 400V (Front View)

Motor Connector		
Pin	Output	Wire Colour
1	Phase U	Red
2	Phase V	White
3	FG (Frame Ground)	Green/Yellow
4	Phase W	Blue
5	*Brake Terminal	Black
6	*Brake Terminal	Black



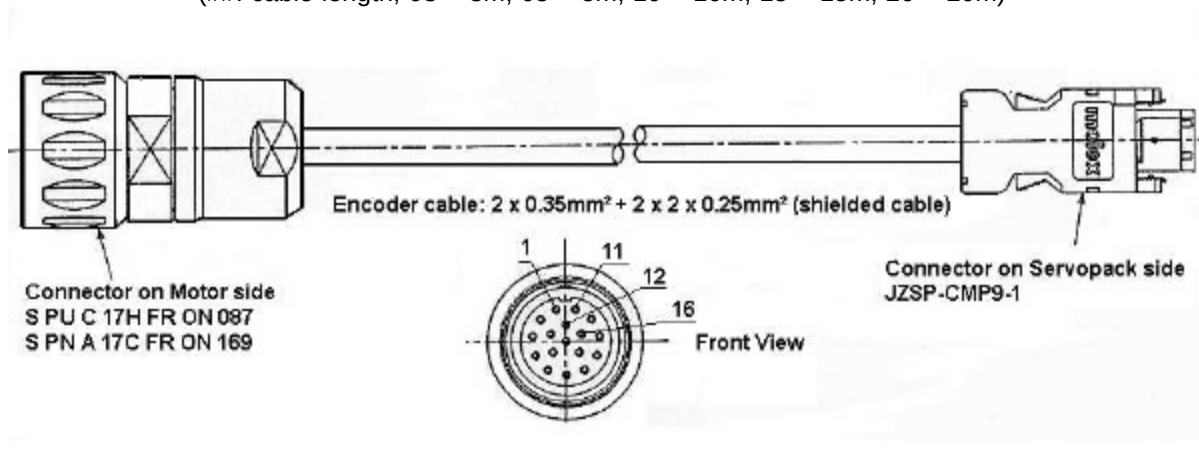
L RR A 06A ...

*Note: Pins 4 and 5 used only for motors with brake



2.5.3 Encoder Cable for Servomotors SGMAH / SGMPH 400V

Part no: DP9325256-##G SGMAH-xxA, SGMAH-xxD, SGMPH-xxA and SGMP-xxD
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)



Terminal connection Encoder side

No.	Description	Colour
1	0V (Battery)	Orange/White
2	3.6V (Battery)	Orange
3	DATA +	Blue
4	DATA -	Blue/White
5-7	Free	-
8	+5V (Power supply)	Red (AWG22)
9	0V (Power supply)	Black (AWG22)
10-17	Free	-
Connector case	Frame ground	Shield wire

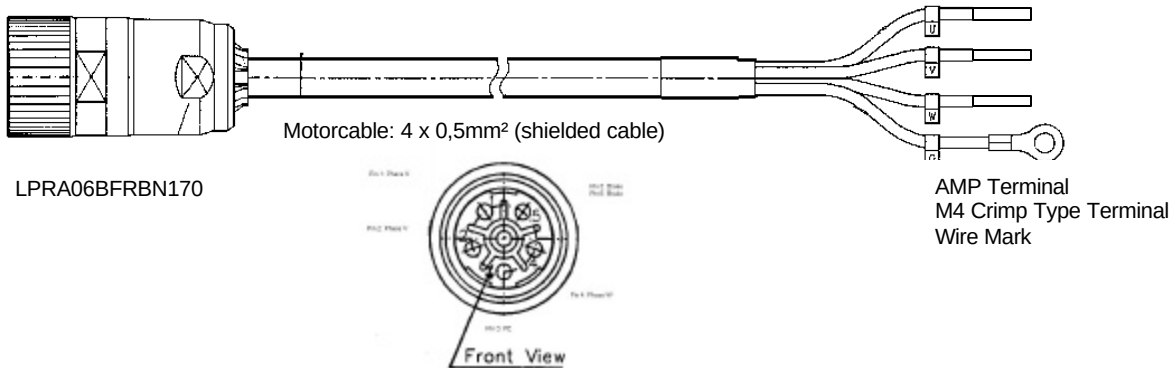
Terminal connection Servopack side

No.	Description	Colour
1	+5V (Power Supply)	Pink
2	0V (Power Supply)	Grey
3	3.6V (Battery)	Green
4	0V (Battery)	Yellow
5	DATA +	White
6	DATA -	Brown
Connector case	Frame ground	Shield wire



2.5.4 Motor Cable for Servomotors SGMAH / SGMPH

Part no: JZSP-CMM20D15-##G SGMAH-03Dxx, SGMAH-07Dxx
 SGMPH-02Dxx - SGMPH-15Dxx
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)

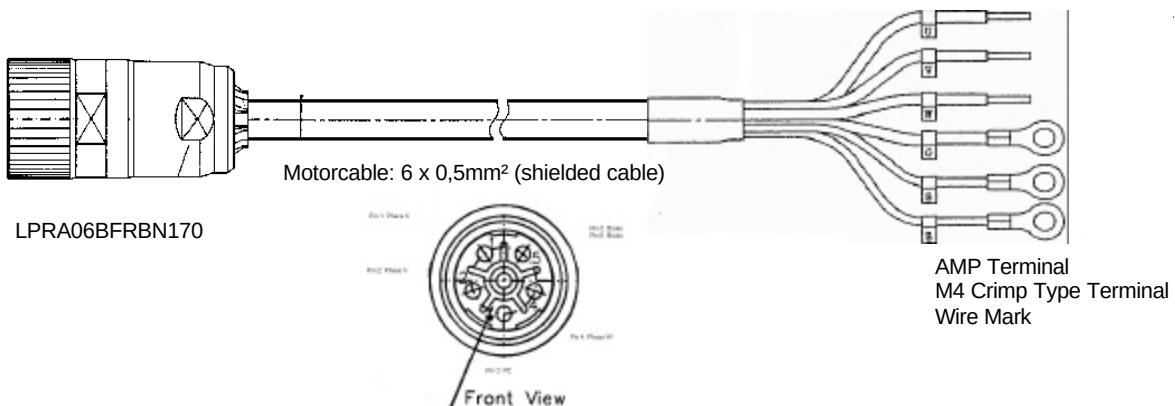


Terminal connection

No.	Description	Colour
1	Phase U	Black (white 1)
2	Phase V	Black (white 2)
3	Frame ground	Yellow/Green
4	Phase W	Black (white 3)
5	Free	-
6	Free	-

2.5.5 Motor Cable for Servomotors with Brake SGMAH / SGMPH

Part no: JZSP-CMM20D15-##G SGMAH-03DxxxC, SGMAH-07DxxxC
 SGMPH-02DxxxC - SGMPH-15DxxxC
 (##: cable length, 03 = 3m; 05 = 5m; 10 = 10m; 15 = 15m; 20 = 20m)



Terminal connection

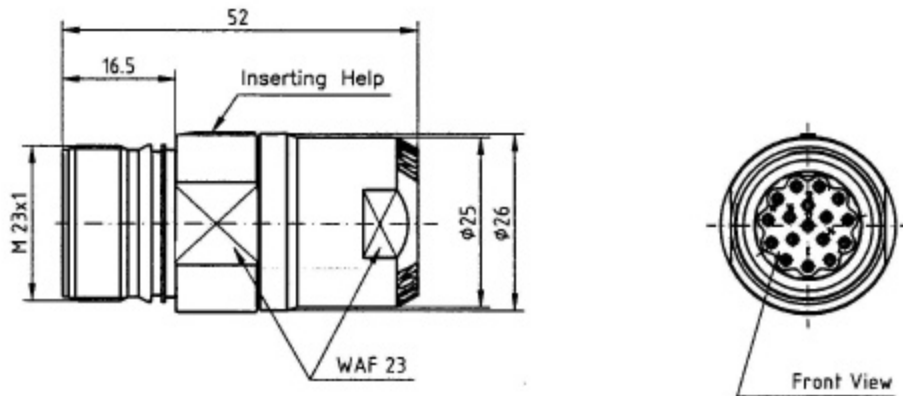
No.	Description	Colour
1	Phase U	Black (white 1)
2	Phase V	Black (white 2)
3	Frame ground	Yellow/Green
4	Phase W	Black (white 3)
5	Brake	Black (white 4)
6	Brake	Black (white 5)



2.6 Specification of Encoder Connector

2.6.1 Encoder Connector (Encoder side)

Part – No: S RU C 17G MR WN 087



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : Ø5,5mm
 Type of protection : IP67 connected
 IP00 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Pin Ø1	Pin Ø1
Part-No.	: 021.311.1020	021.402.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

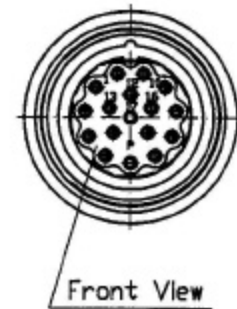
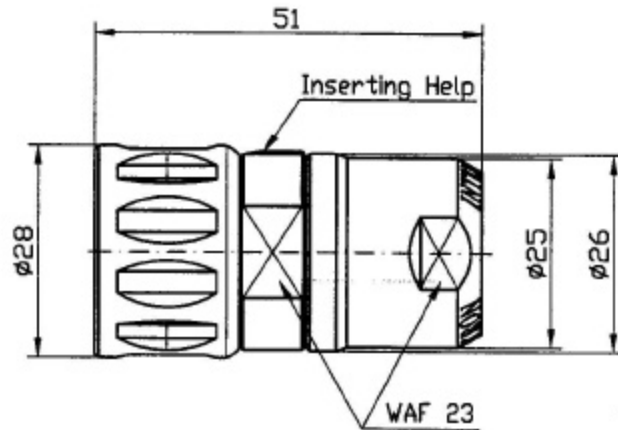
Tools:

Crimping Tool	Positioner	Positioner
B 150	B 055/A	B 055/A
B 161	B 200	-----



2.6.2 Encoder connector (cable side)

Part – No: S PU C 17H FR...



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : depend on cable diameter
 Type of protection : IP67 connected
 IP10 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Socket Hypertac Ø1	Socket Hypertac Ø1
Part-No.	: 020.256.1020	020.353.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

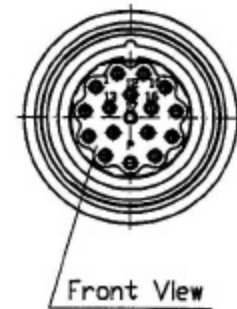
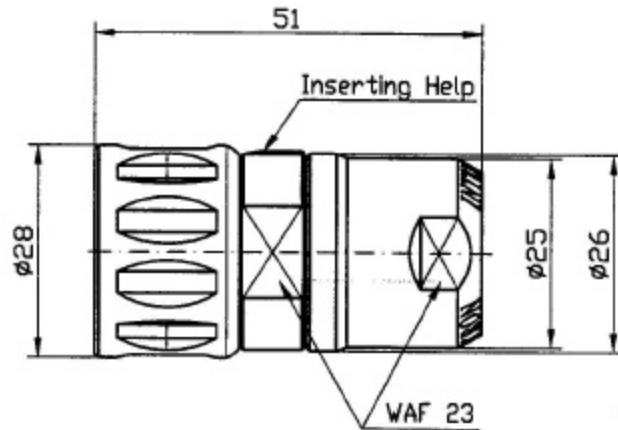
Tools:

Crimping Tool	Positioner	Positioner
B 151	B 200	-----
B 150	B 055/A	B 055/A



2.6.3 Encoder connector (cable side) with flexible cable clamp

Part – No: S PN A 17H FR ON 169



Specifications:

Poles: : 17
 Temperature Range : -25°C up to 125°C
 Cable Clamp : Ø5,5 - Ø12mm
 Type of protection : IP67 connected
 IP10 not connected

Electrical Performance:

Current Rating : 9A
 Voltage Rating : 20 V
 Test Voltage : 800V
 Contact Resistance : < 5 mOhm
 Mating Cycles : > 500

Materials:

Body : PA 6.6, glass-fiber reinforced
 Insulator : PBT, glass-fiber reinforced
 Contacts : Brass / Gold plated
 Seals : FPM

Contacts:

Type	: Socket Hypertac Ø1	Socket Hypertac Ø1
Part-No.	: 020.256.1020	020.353.1020
Termination	: Crimp	Crimp
Crimp Range	: 0.24 up 1.0mm ²	0.05 up to 0.34mm ²
Latch Retention	: > 30N	> 30N

Tools:

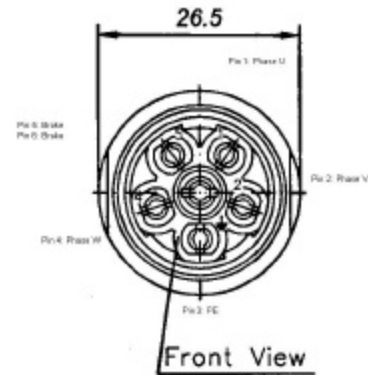
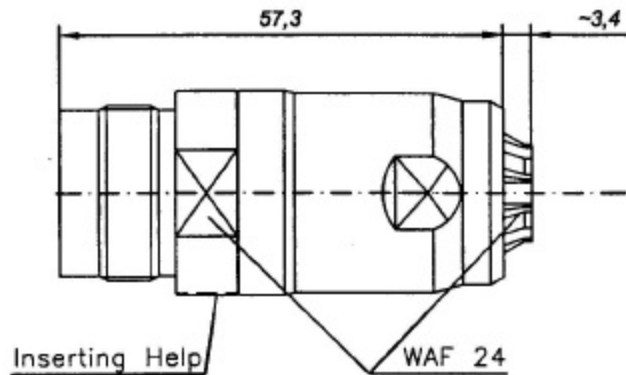
Crimping Tool	Positioner	Positioner
B 151	B 200	-----
B 150	B 055/A	B 055/A



Specification of Motor Connectors 400V

2.6.4 Motor Connector 400V (motor side) with Ground connection

Part – No: L RR A 06A...



Specifications:

Poles: : 6 (5 + PE)
 Temperature Range : -40°C up to 125°C
 Cable Clamp : Ø
 Type of protection : IP67 connected
 IP00 not connected

Electrical Performance:

Current Rating : 20 A
 Voltage Rating : 250 V
 Test Voltage : 4000V
 Contact Resistance : < 3 mOhm
 Mating Cycles : > 500

Materials:

Body : Brass / Nickel plated
 Insulator : PA 6.6
 Contacts : Brass / Nickel plated
 Seals : FPM

Contacts:

Type : Pin Ø2mm
 Part-No. : 021.279.1020
 Termination : crimp; 0.4 to 2.5mm²
 Latch Retention : > 40N

Tools:

Crimping Tool	Positioner	Contact Insertion	Contact Removal	Insulator Removal
B 151; B 179	B 165	B 117	B 037 A	-----

Specification in accordance with: VDE 0110/0627

Contamination Level: 3

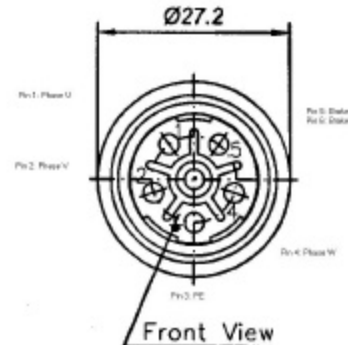
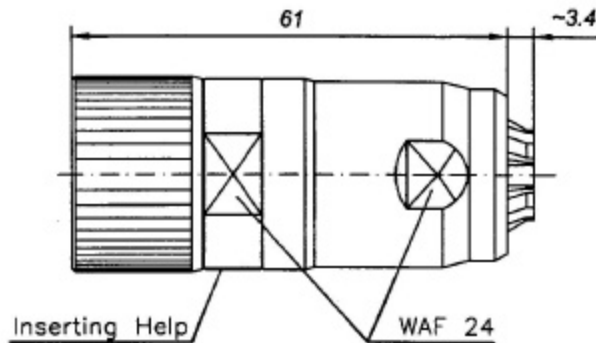
Excess voltage category: 3

Installation Altitude: ≤4000m



2.6.5 Motor Connector 400V (cable side) with Ground connection

Part – No: L PR A 06B FR BN 170



Specifications:

Poles: : 6 (5 + PE)
 Temperature Range : -40°C up to 125°C
 Cable Clamp : Ø
 Type of protection : IP67 connected
 IP10 not connected

Electrical Performance:

Current Rating : 20 A
 Voltage Rating : 250 V
 Test Voltage : 4000V
 Contact Resistance : < 3 mOhm
 Mating Cycles : > 500

Materials:

Body : Brass / Nickel plated
 Insulator : PA 6.6
 Contacts : Brass / Nickel plated
 Seals : FPM

Contacts:

(not included)

Type	Socket Hypertac Ø2	Socket Hypertac Ø2	Socket Hypertac Ø2	Socket Hypertac Ø2
Part-No.	020.090.1020	020.105.1020	020.123.1020	020.018.1020
Termination	Crimp 0.14 – 1.5mm ²	Crimp 0.75 – 2.5mm ²	Crimp 1.0 – 2.5mm ²	Crimp -----
Latch Retention	> 40N	> 40N	> 40N	> 40N

Tools:

Contact Insertion	-----	-----	-----	-----
Contact Removal	-----	-----	-----	-----
Insulator Removal	-----	-----	-----	-----
Crimping Tool	Positoner	Positoner	Positoner	Positoner
B 151	B 157	B 157	-----	-----
B 152	B 157 (0.75mm ²)	B 157	B 154	-----
B 179	B 157	B 157	B 154	-----

Specification in accordance with: VDE 0110/0627 Contamination Level: 3 Excess voltage category: 3 Installation Altitude: ≤4000m



2.7 Specification of Encoder Cable

Type:	Control Cable 2 x 0,35mm ² + 2 x 2 x 0,25mm ²	
Construction:	0,35mm ²	0,25mm ²
Conductor	: bare copper-wire 0,35 mm ² , flexible	bare copper-wire 0,25 mm ² , flexible
Insulation	: Polyesterelastomer 12Y	Polyesterelastomer 12Y
Colour	: white + brown	green/yellow, grey/pink
Twisting	: two pairs	
Cabeling	: 2 cores + 2 pairs	
Wrapping	: insulationtape	
Shield	: braided tinned copper screen	
Wrapping	: Seperatingtape	
Jacket	: Polyurethan TPU	
Colour	: black –dull-	
Printing (wt)	: ERNST + ENGRING VDE-REG-NR. 8589 2 x 0,35 + 2 x 2 x 0,25 90°C 300V ##### -HALOGENFREE- (#####: coded manufacture date)	
Overall diameter	: (6,0 ± 0,3) mm	

<u>Electrical datas (at 20°C)</u>		(0,25 mm²)	(0,50 mm²)
Conductor resistance	: ≤	82,0 Ω/km	: ≤ 41,0 Ω/km
Insulation resistance	: >	200 MΩxkm	
Screen attenuation	up to 30MHz : up to 1 GHZ :	45 dB (approxiamate value) 30 dB (approxiamate value)	
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)			
Test voltage	(C/C) : (C/S) :	2,0 kV _{eff} 1,0 kV _{eff}	
Operating voltage	:	300V	
Operating current (single cable) at ambient temperature		0,35mm²	0,25mm²
	20°C : ≤	4,5 A ;	: ≤ 2,2 A
	30°C : ≤	3,8 A ;	: ≤ 1,9 A
	40°C : ≤	3,2 A ;	: ≤ 1,6 A
	50°C : ≤	2,5 A ;	: ≤ 1,2 A
	60°C : ≤	1,9 A ;	: ≤ 0,9 A
	70°C : ≤	1,2 A ;	: ≤ 0,6 A
Temperature range	(Transport & storage) : -70°C bis + 90°C (Installation & handling) : -40°C bis + 90°C (Operating) : -20°C bis + 80°C		
Bending radius	(Operating) : ≥ (several times) : ≥ (several times optimum): ≥	3 x cable-Ø 7,5 x cable-Ø 10 x cable-Ø	
Bending strength	(r= 10 x cable-Ø at 20°C) : ≥	5.000.000 cycles	
reduced working life at higher operating temperatures.			
Oil resistance	: acc. VDE 0282 part 10		
Hydrolyse resistance	: acc. VDE 0282 part 10		
Flame resistance	: acc. VDE 0472 part 804 condition B		
Approbation	: VDE-expert evidence (VDE-REG-Nr.6589)		

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



2.8 Specification of the Motor cable 4 x 0,5mm²

Type: Motor supply cable 4 x 0,5mm²

Construction:

Conductor : bare copper-wire 0,5 mm², high flexible
 Insulation : Polyesterelastomer 12Y
 Colour : black with white numbers 1 – 3 + yellowgreen
 Cabeling : 4 cores with fillers
 Wrapping : insulationtape
 Shield : braided tinned copper screen
 Wrapping : Seperatingtape
 Jacket : Polyurethan TPU
 Colour : black –dull-
 Printing (wt) : ERNST + ENGRING VDE-REG-NR. 6508 4 x 0,5 90°C 300V
 ##### -HALOGENFREE- (#####: coded manufacture date)
 Overall diameter : (7,2 ± 0,3) mm

Electrical datas (at 20°C)

Conductor resistance	:	≤	41,0 Ω/km
Insulation resistance	:	>	200 MΩxkm
Screen attenuation	up to 30MHz	:	45 dB (approxiamate value)
	up to 1 GHZ	:	30 dB (approxiamate value)
(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)			
Test voltage	(C/C)	:	3,0 kV _{eff}
	(C/S)	:	3,0 kV _{eff}
Operating voltage	:		600/1000V
Operating current (single cable) at ambient temperature			
	20°C	:	≤ 10 A
	30°C	:	≤ 9,0 A
	40°C	:	≤ 7,0 A
	50°C	:	≤ 5,0 A
	60°C	:	≤ 3,0 A
	70°C	:	≤ 1,5 A
Temperature range (Transport & storage) : -70°C bis + 90°C			
(Installation & handling) : -40°C bis + 90°C			
(Operating) : -20°C bis + 80°C			
Bending radius	(Operating)	:	≥ 3 x cable-Ø
	(several times)	:	≥ 7,5 x cable-Ø
	(several times optimum):	:	≥ 10 x cable-Ø
Bending strength	(r= 10 x cable-Ø at 20°C)	:	≥ 5.000.000 cycles
reduced working life at higher operating temperatures.			
Oil resistance	:		acc. VDE 0282 part 10
Hydrolyse resistance	:		acc. VDE 0282 part 10
Flame resistance	:		acc. VDE 0472 part 804 test condition B
Approbation	:		VDE-expert evidence
	:		(VDE-REG-Nr.6508)

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.



2.9 Specification of the Motor cable with brake wires 6 x 0,5mm²

Type: Motor supply cable 6 x 0,5mm²

Construction:

Conductor : bare copper-wire 0,5 mm², high flexible
 Insulation : Polyesterelastomer 12Y
 Colour : black with white numbers 1 – 5 + yellowgreen
 Cabeling : 6 cores with fillers
 Wrapping : insulationtape
 Shield : braided tinned copper screen
 Wrapping : Seperatingtape
 Jacket : Polyurethan TPU
 Colour : black –dull-
 Printing (wt) : ERNST + ENGRING VDE-REG-NR. 6508 6 x 0,5 90°C 300V
 ##### -HALOGENFREE- (#####: coded manufacture date)
 Overall diameter : (9,2 ± 0,4) mm

Electrical datas (at 20°C)

Conductor resistance	(0,5 mm ²)	: ≤	41,0 Ω/km
Insulation resistance		: >	200 MΩxkm
Screen attenuation	up to 30MHz	: 45 dB (approxiamate value)	
	up to 1 GHZ	: 30 dB (approxiamate value)	

(Test methode acc. IEC 96-1 Amend. 2 (1993) A.5.6 „Line injection method“)

Test voltage	(C/C)	: 3,0 kV _{eff}
	(C/S)	: 3,0 kV _{eff}
Operating voltage		: 600/1000V

Operating current (single cable) at ambient temperature

	20°C	: ≤	10 A
	30°C	: ≤	9,0 A
	40°C	: ≤	7,0 A
	50°C	: ≤	5,0 A
	60°C	: ≤	3,0 A
	70°C	: ≤	1,5 A

Temperature range (Transport & storage) : -70°C bis + 90°C
 (Installation & handling) : -40°C bis + 90°C
 (Operating) : -20°C bis + 80°C

Bending radius (Operating) : ≥ 3 x cable-Ø
 (several times) : ≥ 7,5 x cable-Ø
 (several times optimum): ≥ 10 x cable-Ø

Bending strength (r= 10 x cable-Ø at 20°C) : ≥ 5.000.000 cycles
 reduced working life at higher operating temperatures.

Oil resistance : acc. VDE 0282 part 10
 Hydrolyse resistance : acc. VDE 0282 part 10
 Flame resistance : acc. VDE 0472 part 804 test condition B
 Approbation : VDE-expert evidence
 (VDE-REG-Nr.6508)

The jacket surface has low adhesion, this prevents a stickness by contact.

All materials are halogenfree.

Applicable for use in flexible chain cable holder systems.

Not for use outdoor or in earth

When used as control cable the relevant installation and/or appliance standards have to be regarded.