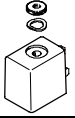
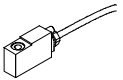


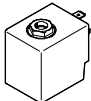



Solenoid coils MSF/MSN1/MD-2/MH-2

Product range overview

Version	Type	For valve series										→ Page/ Internet
		MFH	MOFH	JMFH	JMFDH	NVF3	MUFH	MN1H	JMN1H	JMN1DH	VZWM-L	
F solenoid coil												
	MSF	■	■	■	■	■	■	-	-	-	-	4
F solenoid coil for explosive atmospheres (with ATEX certification)												
	MSF...EX	■	■	■	■	■	■	-	-	-	-	6
N1 solenoid coil												
	MSN1 ¹⁾	-	-	-	-	-	-	■	■	■	-	9
H solenoid coil												
	MH-2	-	-	-	-	-	-	-	-	-	■	11
D solenoid coil												
	MD-2	-	-	-	-	-	-	-	-	-	■	11

1) Free of copper, PTFE and silicone

 Note
 ATEX certification is only effective in combination with other ATEX-certified components.
 → www.festo.com/en/ex

Solenoid coils MSF/MSN1/MD-2/MH-2

Selection aid

Solenoid valves and corresponding solenoid coils														
Valve series	Valve type	Solenoid coil												
		D	E	EB	F	H	N1	N2	V	Y	Z	ZB	ZC	
ISO 15407-1	MN2H, JMN2H, JMN2DH	-	-	-	-	-	-	■	-	-	-	-	-	-
ISO 5599-1	MN1H, JMN1H, JMN1DH	-	-	-	-	-	■	-	-	-	-	-	-	-
	MFH, JMFH, JMFDH	-	-	-	■	-	-	-	-	-	-	-	-	-
	MDH, JMDH	■	-	-	-	-	-	-	-	-	-	-	-	-
	MEBH, JMEBH, JMEBDH	-	-	■	-	-	-	-	-	-	-	-	-	-
Namur	NVF3	-	-	-	■	-	-	-	-	-	-	-	-	-
	MN1H	-	-	-	-	-	■	-	-	-	-	-	-	-
Compact Performance	CPE10-M1BH, CPE14-M1BH	-	-	-	-	-	-	-	-	-	-	-	-	■
	CPE18, CPE24	-	-	■	-	-	-	-	-	-	-	-	-	-
Tiger 2000	MFH, JMFH	-	-	-	■	-	-	-	-	-	-	-	-	-
	MVH, JMVH	-	-	-	-	-	-	-	■	-	-	-	-	-
Tiger Classic	MFH, MOFH, JMFH, JMFDH	-	-	-	■	-	-	-	-	-	-	-	-	-
Midi Pneumatic	MEBH, MOEBH, JMEBH	-	-	■	-	-	-	-	-	-	-	-	-	-
	MEH, MOEH, JMEH	-	■	-	-	-	-	-	-	-	-	-	-	-
Directly actuated solenoid valves	MZBH, MOZBH	-	-	-	-	-	-	-	-	-	-	-	■	-
	MEBH, MOEBH	-	-	■	-	-	-	-	-	-	-	-	-	-
	MVH, MOVH	-	-	-	-	-	-	-	■	-	-	-	-	-
	MDH, MODH	■	-	-	-	-	-	-	-	-	-	-	-	-
Miniature valves	MH1	-	-	-	-	-	-	-	-	-	-	-	-	■
Fast-switching valves	MH2, MH3	-	-	-	-	-	-	-	-	-	-	-	-	■
	MH4	-	-	■	-	-	-	-	-	-	-	-	-	-
Smart Cubic	CPASC1	-	-	-	-	-	-	-	-	-	-	-	-	■
VB series	VUVB	-	-	■	-	-	-	-	-	-	-	-	-	-
Micro/Mini Pneumatic	MZH, MOZH, JMZH	-	-	-	-	-	-	-	-	-	-	■	-	-
	MYH, MOYH, JMYH	-	-	-	-	-	-	-	-	■	-	-	-	-
M5 Compact system	MUFH	-	-	-	■	-	-	-	-	-	-	-	-	-
Process directional control valves	VZWM-L	■	-	-	-	■	-	-	-	-	-	-	-	-

Solenoid coils MSF/MSN1

Type codes

Solenoid coils

		MSFG	–	24DC	–	OD
Type						
MSFG	F solenoid coil, for DC voltage					
MSFW	F solenoid coil, for AC voltage					
MSN1G	N1 solenoid coil, for DC voltage					
MSN1W	N1 solenoid coil, for AC voltage					
Operating voltage						
12DC	12 V DC					
24DC	24 V DC					
24AC/12DC	12 V DC/24 V AC					
24DC/42AC	24 V DC/42 V AC					
42DC	42 V DC					
24AC	24 V AC					
48AC	48 V AC					
110AC	110 V AC					
230AC	230 V AC					
240AC	240 V AC					
Scope of delivery						
OD	Without plug socket					



Solenoid coils, explosion-proof

		MSFG	–	24DC	–	K5	–	M	–	EX
Type										
MSFG	F solenoid coil, for DC voltage									
MSFW	F solenoid coil, for AC voltage									
Operating voltage										
24	24 V DC									
24DC	24 V DC									
24AC	24 V AC									
24-50/60	24 V AC, 50/60 Hz									
110AC	110 V AC									
110-50/60	110 V AC, 50/60 Hz									
230AC	230 V AC									
230-50/60	230 V AC, 50/60 Hz									
Cable length										
	1 m									
K5	5 m									
KX	On request									
ATEX specification										
	II 3 GD EEx nA II T1 30°C X									
M	II 2 GD EExm II T5									
Explosion protection										
EX	Explosion-proof to EN 50 028									

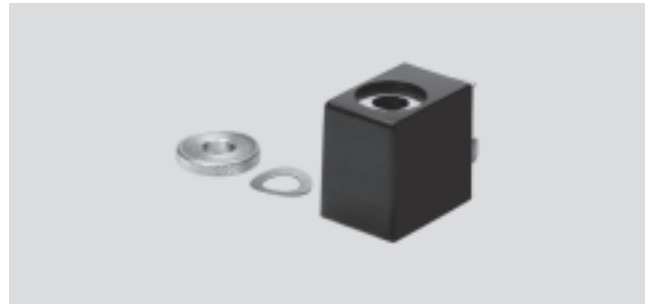
Solenoid coils MSF

Technical data

FESTO

-  Voltage
12 ... 42 V DC
24 ... 240 V AC
-  Temperature range
-5 ... +40 °C

- In compliance with VDE regulation 0580, insulation class F
- Can be replaced without interrupting the pneumatic circuit
- Low power consumption and temperature rise



General technical data	
Type of mounting	Via knurled nut
Mounting position	Any (can be rotated 360° on the armature tube)
Max. tightening torque of plug socket [Nm]	0.4
Product weight [g]	55

Materials	
Solenoid coil	Duroplastic, copper, steel
Note on materials	RoHS-compliant

Electrical data								
Type	MSFG-12	MSFG-42	MSFG-24/42	MSFW-24	MSFW-48	MSFW-110	MSPW-230	MSPW-240
Electrical connection	3-pin Plug vanes with connection pattern to Festo standard for MSSD-F							
Min. starting time [ms]	10							
Permissible voltage fluctuations [%]	±10							
Permissible frequency fluctuations [%]	-		±5					
Duty cycle [%]	100							
Power factor cosφ	-		0.7					
Switching position display	No							
Protection class to EN 60529	IP65 with plug socket							

Coil characteristics								
Type	MSFG-12	MSFG-42	MSFG-24/42	MSFW-24	MSFW-48	MSFW-110	MSPW-230	MSPW-240
Output	12 V DC, 4.1 W	42 V DC, 5.5 W	24 V DC, 4.5 W	-	-	-	-	-
Switching power 50/60 Hz	-	-	42 V AC, 9 VA	24 V AC, 9 VA	48 V AC, 9 VA	110 V AC, 9 VA	230 V AC, 9 VA	240 V AC, 9 VA
Holding capacity 50/60 Hz	-	-	42 V AC, 7 VA	24 V AC, 7 VA	48 V AC, 7 VA	110 V AC, 7 VA	230 V AC, 7 VA	240 V AC, 7 VA

Operating and environmental conditions								
Type	MSFG-12	MSFG-42	MSFG-24/42	MSFW-24	MSFW-48	MSFW-110	MSPW-230	MSPW-240
Ambient temperature [°C]	-5 ... +40							
CE mark (see declaration of conformity)	-					To EU Low Voltage Directive		

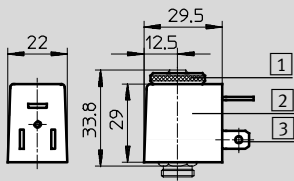
Solenoid coils MSF

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com



- 1 Retaining nut
- 2 Solenoid coil
(can be rotated 360°
on the armature tube)
- 3 Plug vanes for plug sockets
MSSD-F, KMF



Note

Can only be operated on aluminium valves with valve body dimensions ≥ 26 x 16 x 14 mm



Ordering data

Description		Part No.	Type
Solenoid coil			
	Without plug socket, with disc-spring washer and knurled nut	12 V DC	34410 MSFG-12DC-OD
		24 V DC, 42 V AC	34411 MSFG-24/42-50/60-OD
		42 V DC	34413 MSFG-42DC-OD
		24 V AC	34415 MSFW-24AC-OD
		48 V AC	34418 MSFW-48AC-OD
		110 V AC	34420 MSFW-110AC-OD
		230 V AC	34422 MSFW-230AC-OD
		240 V AC	34424 MSFW-240AC-OD
Plug socket			
	Cable connection via clamping screws	34431	MSSD-F
	Cable connection via insulation displacement technology	192746	MSSD-F-S-M16
Plug socket with cable			
	Operating voltage 24 V DC, switching status display via LED	Cable length 2.5 m	30935 KMF-1-24DC-2,5-LED
		Cable length 5 m	30937 KMF-1-24DC-5-LED
		Cable length 10 m	193458 KMF-1-24DC-10-LED
	Operating voltage up to 240 V	Cable length 2.5 m	30936 KMF-1-230AC-2,5
		Cable length 5 m	30938 KMF-1-230AC-5
Illuminating seal			
	Operating voltage 12 ... 24 V DC	19143	MF-LD-12-24DC
	Operating voltage 230 V DC/V AC	19144	MF-LD-230AC
Inscription label			
	Scope of delivery: 35 pieces in frame	33362	KMC/F/V-BZ-35X

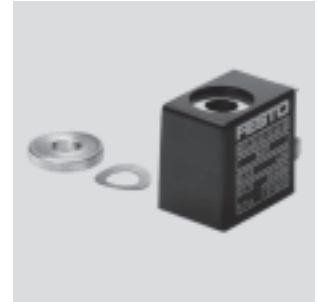
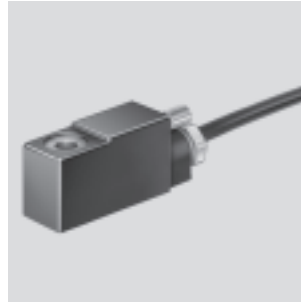
Solenoid coils MSF...-EX

Technical data

FESTO

-  Voltage
24 V DC
24 ... 240 V AC
-  Temperature range
-5 ... +40 °C

- In compliance with ATEX directive
- In compliance with VDE regulation 0580, insulation class F
- Cable or plug connection
- Can be replaced without interrupting the pneumatic circuit
- Manifold mounting permissible (minimum clearance from coil to coil 5 mm)



General technical data		
Type	MSF...-M	MSF
Min. starting time [ms]	10	
Type of mounting	Via knurled nut	
Mounting position	Any (can be rotated 360° on the armature tube)	
Product weight [g]	170	55

Materials		
Type	MSF...-M	MSF
Solenoid coil	Steel, copper, aluminium, epoxy resin	Steel, copper, duroplastic
Winding	Copper	Copper
Note on materials	RoHS-compliant	RoHS-compliant

Electrical data				
Type	MSFG-...-M-EX	MSFW-...-M-EX	MSFG-24-EX	MSFW-...-50/60-EX
Electrical connection	-		3-pin	
	Cable		Plug vanes with connection pattern to Festo standard for MSSD-F	
Conductor nominal cross section [mm ²]	0.75		-	
Min. starting time [ms]	10			
Permissible voltage fluctuations [%]	±10			
Permissible frequency fluctuations [%]	-	±5	-	±5
Duty cycle [%]	100			
Power factor cosφ	-			0.7
Switching position display	No			
Protection class to EN 60529	IP65 with plug socket			

Coil characteristics – Solenoid coils with connecting cable				
Type	MSFG-24DC-...-M-EX	MSFW-24AC-...-M-EX	MSFW-110AC-...-M-EX	MSFW-230AC-...-M-EX
Nominal operating voltage [V]	24 DC	24 AC	110 AC	230 AC
Output	4.3 W	4.4 VA	4.4 VA	4.2 VA

Coil characteristics – Solenoid coils with plug vanes				
Type	MSFG-24-EX	MSFW-24-50/60-EX	MSFW-110-50/60-EX	MSFW-230-50/60-EX
Nominal operating voltage [V]	24 DC	24 AC	110 AC	230 AC
Output	4.5 W	-	-	-
Pick-up power 50/60 Hz	-	9 VA	9 VA	9 VA
Holding capacity 50/60 Hz	-	7 VA	7 VA	7 VA

Solenoid coils MSF...-EX

Technical data

Operating and environmental conditions – Solenoid coils with connecting cable		
Type	MSFG-...-M-EX	MSFW-...-M-EX
Ambient temperature [°C]	-20 ... +40	-20 ... +40
ATEX category gas	II 2G	II 2G
Ex-ignition protection type gas	Ex mb II T5	Ex mb II T5
ATEX category dust	II 2D	II 2D
EX-ignition protection type dust	Ex tD A21 IP65 T95°C	Ex tD A21 IP65 T95°C
Designated organisation for the quality inspection	0123	0123
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	To EU Explosion Protection Directive (ATEX)
	-	To EU Low Voltage Directive

Operating and environmental conditions – Solenoid coils with plug vanes		
Type	MSFG-24-EX, MSFW-24-50/60-EX	MSFW-110-50/60-EX, MSFW-230-50/60-EX
Ambient temperature [°C]	-5 ... +40	-5 ... +40
ATEX ambient temperature [°C]	$-5 \leq Ta \leq +40$	$-5 \leq Ta \leq +40$
ATEX specification	II 3 GD EEx nA II T130°C X	II 3 GD EEx nA II T130°C X
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	To EU Explosion Protection Directive (ATEX)
	-	To EU Low Voltage Directive

Dimensions Download CAD data → www.festo.com

MSF...-M

- 1 Solenoid coil
- 2 Protective earth conductor connection
- 3 Heat-resistant rubber tubing, $\varnothing 6.1 \dots 7.9 \text{ mm}$
- 4 Mounting nut (tightening torque 100 ... 150 Ncm)
- 5 Cable length

Note: Can only be operated on aluminium valves with valve body dimensions $\geq 25 \times 25 \times 17 \text{ mm}$

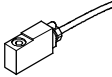
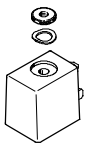
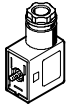
MSF

- 1 Retaining nut (tightening torque 0.4 Nm)
- 2 Solenoid coil
- 3 Plug vanes for plug sockets MSSD-F, KMF

Note: Can only be operated on aluminium valves with valve body dimensions $\geq 26 \times 16 \times 14 \text{ mm}$



Solenoid coils MSF...-EX

Technical data

Ordering data						
Description		Part No.	Type			
Solenoid coil						
	With connecting cable, explosion-proof, moulded-in cable, with disc-spring washer and knurled nut	24 V DC	Cable length 1 m	535619	MSFG-24DC-M-EX	
			Cable length 5 m	535621	MSFG-24DC-K5-M-EX	
			Cable length on request	538215	MSFG-24DC-KX-M-EX	
		24 V AC	Cable length 1 m	535623	MSFW-24AC-M-EX	
			Cable length on request	538216	MSFW-24AC-KX-M-EX	
		110 V AC	Cable length 1 m	535622	MSFW-110AC-M-EX	
			Cable length 5 m	535624	MSFW-110AC-K5-M-EX	
			Cable length on request	538218	MSFW-110AC-KX-M-EX	
		230 V AC	Cable length 1 m	535620	MSFW-230AC-M-EX	
			Cable length 5 m	535625	MSFW-230AC-K5-M-EX	
			Cable length on request	538217	MSFW-230AC-KX-M-EX	
			With plug vanes, explosion-proof, without plug socket, with disc-spring washer and knurled nut	24 V DC	536931	MSFG-24-EX
24 V AC	536932			MSFW-24-50/60-EX		
110 V AC	536933			MSFW-110-50/60-EX		
230 V AC	536934			MSFW-230-50/60-EX		
Plug socket						
	Cable connection via clamping screws	34431	MSSD-F			

Solenoid coils MSN1

Technical data

-  Voltage
12 V DC
24 V DC
24 ... 230 V AC
-  Temperature range
-10 ... +50 °C

- In compliance with VDE regulation 0580, insulation class F
- Can be replaced without interrupting the pneumatic circuit
- Connection pattern to EN 175301-803, type A
- Free of copper, PTFE and silicone



General technical data	
Type of mounting	Clamped via retaining clamp
Mounting position	Any (can be rotated 360° on the armature tube)
Product weight [g]	80

Materials	
Housing	PA
Pin contact	Steel
Winding	Copper
Note on materials	Free of copper and PTFE

Electrical data				
Type	MSN1G-24DC-OD	MSN1W-110AC-OD	MSN1W-230AC-OD	MSN1W-24AC/12DC
Electrical connection	Plug vanes, 3-pin, with connection pattern to EN 175301-803, type A			
	-	-	-	Clip
Min. starting time [ms]	10			
Permissible voltage fluctuations [%]	-15 / +10	At 50 Hz: ±10 At 60 Hz: -10 ... +20	±10	At 50 Hz: ±10 At 60 Hz: -10 ... +20
Duty cycle [%]	100			
Power factor cosφ	-	0.7	0.7	0.7
Protection class to EN 60529	IP65 with plug socket			

Coil characteristics				
Type	MSN1G-24DC-OD	MSN1W-110AC-OD	MSN1W-230AC-OD	MSN1W-24AC/12DC
Output	24 V DC, 2.5 W	-	-	12 V DC, 5 W
Switching power	50 Hz	-	110 V AC, 7.5 VA	24 V AC, 7.5 VA
	60 Hz	-	110 V AC, 5.0 VA	24 V AC, 5.0 VA
Holding capacity	50 Hz	-	110 V AC, 5.0 VA	24 V AC, 5.0 VA
	60 Hz	-	110 V AC, 3.7 VA	24 V AC, 3.7 VA

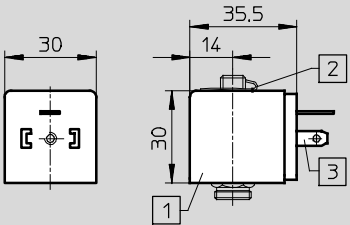
Operating and environmental conditions				
Type	MSN1G-24DC-OD	MSN1W-110AC-OD	MSN1W-230AC-OD	MSN1W-24AC/12DC
Ambient temperature [°C]	-10 ... +50			
Temperature of medium [°C]	-10 ... +50			
CE mark (see declaration of conformity)	-	To EU Low Voltage Directive		-
Certification	cULus recognized (OL)	Germanischer Lloyd	Germanischer Lloyd	-

Solenoid coils MSN1

Technical data

FESTO




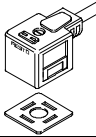


Dimensions Download CAD data → www.festo.com



1 Solenoid coil
(can be rotated 360°
on the armature tube)



2 Safety clip

3 Plug vanes with connection
pattern to EN 175301-803,
type A

Ordering data				
	Description		Part No.	Type
Solenoid coil				
	Without plug socket, with mounting clip, connection pattern to EN 175301-803, type A	24 V DC	123060	MSN1G-24DC-OD
		12 V DC, 24 V AC	170152	MSN1W-24AC/12DC
		110/120 V AC	123061	MSN1W-110AC-OD
		230 V AC	123062	MSN1W-230AC-OD
Plug socket				
	Cable connection via clamping screws		34583	MSSD-C
	Cable connection via insulation displacement technology		192748	MSSD-C-S-M16
Plug socket with cable				
	Operating voltage 24 V DC, switching status display via LED	Cable length 2.5 m	30931	KMC-1-24DC-2,5-LED
		Cable length 5 m	30933	KMC-1-24DC-5-LED
		Cable length 10 m	193459	KMC-1-24DC-10-LED
	Operating voltage up to 240 V	Cable length 2.5 m	30932	KMC-1-230AC-2,5
		Cable length 5 m	30934	KMC-1-230AC-5
Illuminating seal				
	Operating voltage 12 ... 24 V DC		19145	MC-LD-12-24DC
	Operating voltage 230 V DC/V AC		19146	MC-LD-230AC
Inscription label				
	Scope of delivery: 35 pieces in frame		33362	KMC/F/V-BZ-35X

Solenoid coils MD-2/MH-2

Technical data

-  Voltage
24 V DC
110, 230 V AC
-  Temperature range
-20 ... +50 °C
- Can be replaced without interrupting the pneumatic circuit
- Connection pattern to EN 175301-803, type A



General technical data		
Type	MD-2	MH-2
Type of mounting	Via knurled nut	Via lock nut
Max. tightening torque of fitting [Nm]	0.5	2
Mounting position	Any	
Product weight [g]	110	150

Materials		
Type	MD-2	MH-2
Solenoid coil	Duroplastic, copper, steel	
Winding	Copper	
Note on materials	-	Contains PWIS (paint-wetting impairment substances)

Electrical data				
Type	MD-2-24VDC	MD-2-...110VAC	MH-2-24VDC	MH-2-...110VAC
Electrical connection	Plug vanes with connection pattern to EN 175301-803, type A			
Min. starting time [ms]	-			12
Permissible voltage fluctuations [%]	±10			
Permissible frequency fluctuations [%]	-	±10		
Duty cycle [%]	100			
Power factor cosφ	-	0.7	0.7	
Switching position display	No			
Protection class to EN 60529	IP65 with plug socket			

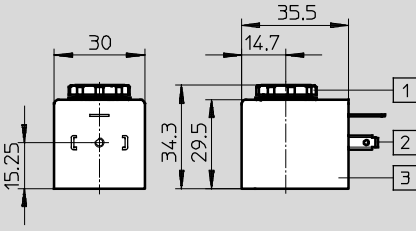
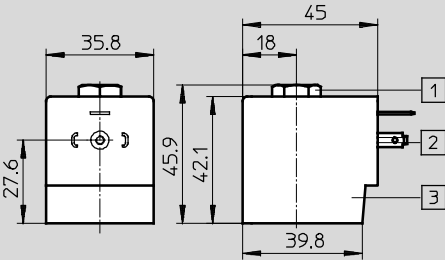
Coil characteristics						
Type	MD-2-24VDC	MD-2-110VAC	MD-2-230VAC	MH-2-24VDC	MH-2-110VAC	MH-2-230VAC
Output	24 V DC, 6.8 W	-	-	24 V DC, 7.6 W	110 V AC, 14 VA	230 V AC, 14 VA
Switching power 50/60 Hz	-	110 V AC, 14.5 VA	230 V AC, 14.5 VA	-	-	-
Holding capacity 50/60 Hz	-	110 V AC, 10.5 VA	230 V AC, 10.5 VA	-	-	-


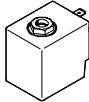

Operating and environmental conditions				
Type	MD-2-24VDC	MD-2-...VAC	MH-2-24VDC	MH-2-...VAC
Ambient temperature [°C]	-20 ... +50			
CE mark (see declaration of conformity)	-	To EU Low Voltage Directive	-	To EU Low Voltage Directive

Solenoid coils MD-2/MH-2

Technical data

FESTO

Dimensions		Download CAD data → www.festo.com
<p>MD-2 (system 8)</p>  <p>1 Knurled nut M8x0.75 3 Solenoid coil 2 Plug pattern to EN 175301-803, type A</p>	<p>MH-2 (system 13)</p>  <p>1 Hex nut G1/8 3 Solenoid coil 2 Plug pattern to EN 175301-803, type A</p>	

Ordering data			
	Description	Part No.	Type
Solenoid coil			
	Coils MD, without plug socket, connection pattern to EN 175301-803, type A	24 V DC 549903 110 V AC 549904 230 V AC 549905	MD-2-24VDC-PA MD-2-110VAC-PA MD-2-230VAC-PA
	Coils MH, without plug socket, connection pattern to EN 175301-803, type A	24 V DC 549906 110 V AC 549907 230 V AC 549908	MH-2-24VDC-PA MH-2-110VAC-PA MH-2-230VAC-PA
Plug socket			
	3-pin, square design MSF	550067	MSSD-N