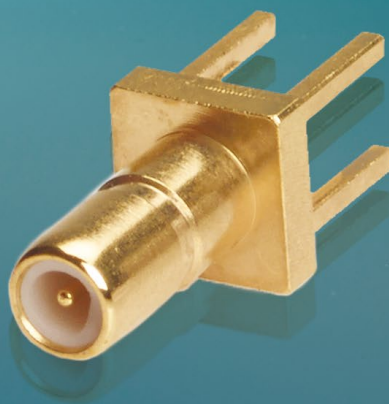




SSMA / SSMB / SSMC

R121 / R203 / R202



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SECTION 12 TABLE OF CONTENTS

Introduction



50Ω	DC - 18 GHz
DC-34 GHz possible	

GENERAL

- Miniature coaxial connectors
- Screw-on coupling
- High RF performance
- Reduced weight and size

APPLICABLE STANDARDS

- CECC 22 160
- MIL-STD-348 fig.319

APPLICATIONS

- Military aeronautics
- Missiles
- Detection - countermeasures

SPACE QUALIFIED APPROVAL

- SCC 3402 (ESA)

Introduced in the 1960s, the SSMA series of connectors are of identical construction to the classic SSMA series but offer the benefit of reduced dimensions. They are recommended for use on equipment having limited component space availability combined with frequency requirements up to 34 GHz. Today, SSMA is mostly used for maintenance of existing equipment. For new projects, we advise using SMP or SMP-LOCK™ connectors.

Characteristics

Test / Characteristics	Values / Remarks
------------------------	------------------

ELECTRICAL CHARACTERISTICS

Impedance	50Ω	
Frequency range	DC - 18 GHz	
VSWR	.085" / RG405 semi-rigid cable: 1.07 + 0.01 F [GHz]	
Insertion loss (typ.) dB	0.04 √F [GHz]	
RF leakage (min) dB	-90 + F [GHz]	
Insulation resistance	≥ 1000 MΩ	
Contact resistance	Center contact: 5mΩ max. / Outer contact: 2.5mΩ max.	
Voltage in V. Rms	Dielectric withstanding voltage ≥ 750 V. 150 V.	Working voltage ≤ 250 V. 65 V.
• At sea level		
• At 70,000 ft		

MECHANICAL CHARACTERISTICS

Durability	> 500 cycles
Force to engage / disengage	Torque 12 N.cm [2 inch-pounds]
Recommended coupling not torque	60 to 80 N.cm [5.3 to 7.1 inch-pounds]
Cable retention force	.085" / RG405 cable > 136 N [30lbf]
Center contact retention force	22N [5lbf] min.

ENVIRONMENTAL CHARACTERISTICS

Temperature range	- 55°C / +155°C • Standard models • Semi-rigid cables
Thermal cycling	MIL-STD-202, Method 102, Condition D
Vibration	MIL-STD-202, Method 204, Condition A, 10g
Shock	MIL-STD-202, Method 213, Condition A, 50g
Moisture resistance	MIL-STD-202, Method 106
Corrosion	MIL-STD-202, Method 101, Condition B

MATERIALS AND PLATING

	Material	Plating
Body/nut	Stainless steel / Brass	Gold or Passivated / BBR
Center contacts	Brass (male) / Beryllium copper (female)	Gold over Nickel
Gaskets	Silicon rubber	
Insulators	PTFE	

Plugs

PLUGS FOR SEMI-RIGID CABLES, SOLDER TYPE

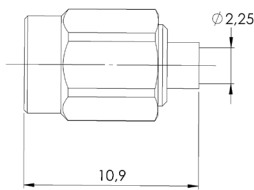


Fig. 1

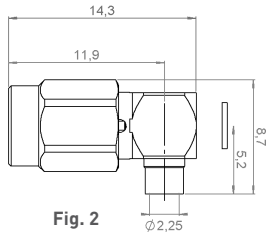


Fig. 2

Cable group	Cable group dia.	Part number (Gold)	Fig.	Captive center contact	Note
RG405	.085"	R121 053 000	1	yes	Straight
		R121 153 000	2		Right angle

PLUGS FOR FLEXIBLE CABLE, CRIMP TYPE

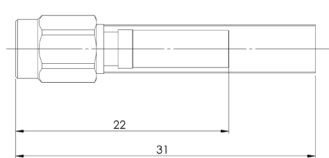


Fig. 1

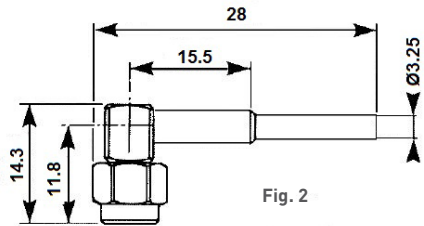


Fig. 2

Cable group	Cable group dia.	Part number (Gold)	Fig.	Captive center contact	Note
RG174 / RG316	2.6/50S	R121 072 000	1	yes	Straight - heatshrink sleeve
		R121 172 000	2		Right angle - heatshrink sleeve
		9765-9523-003			Right angle

Receptacles and adapters

EXTENDED DIELECTRIC FEMALE RECEPTACLE

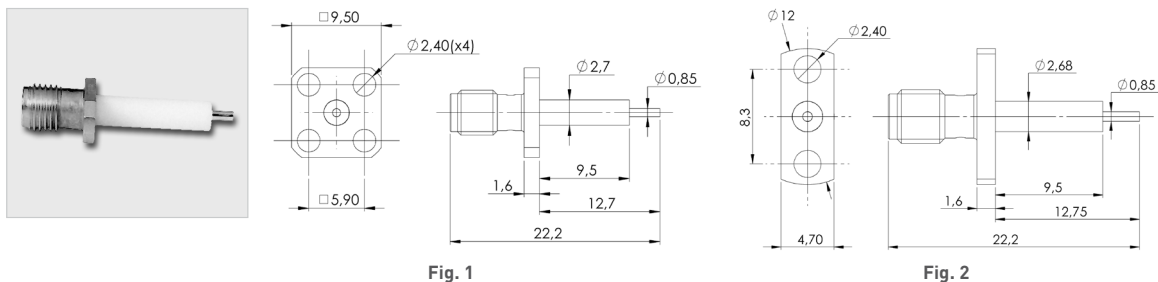
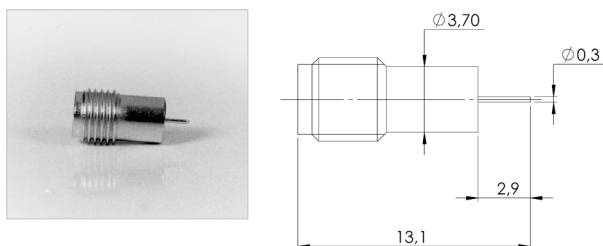


Fig. 1

Fig. 2

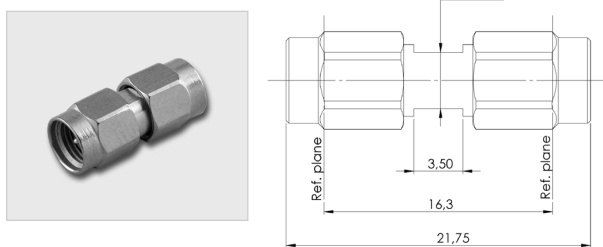
Part number (Gold)	Fig.	Captive center contact	Panel drilling	Note
R121 414 000	1	yes (epoxy)	NEW	Square flange
R121 464 000	2			Narrow flange

HERMETIC FEMALE RECEPTACLE



Part number (gold)	Captive center contact	Contact type	Note
R121 630 003	yes	Cylindrical	Solder in type

IN SERIES ADAPTERS



Part number (Gold)	Part number (Passivated)	Captive center contact	Finish	Note
R121 703 000	R121 705 001	yes	Nickel	male-male adapter
			Gold	female-female adapter

Introduction

**GENERAL**

- DC - 12 GHz
- Impedance 50Ω
- Snap-on coupling
- Microminiature connectors
- Very low weight and size

APPLICATIONS

- Civil and military telecommunications
- Video equipment

APPLICABLE STANDARDS

- MIL-STD-348A
- IEC 169-19
- MIL-PRF-39012

SSMB is a small size version of SMB, developed in 1995.

Characteristics

Test / Characteristics	Values / Remarks
------------------------	------------------

GENERAL

Impedance	50Ω
Frequency range	DC - 12.4 GHz
Temperature range	-65°C to + 165°C

ELECTRICAL CHARACTERISTICS

Insertion loss in dB	0.3Vf (GHz)	
RF leakage	≤ -55 dB at 1 GHz	
VSWR	RG 178 cable: 1.25 + 0.02F (GHz)	
Contact resistance	Center contact: 5mΩ max. Outer contact: 1mΩ max.	
Insulation resistance	1000MΩ	
Voltage in VRMS	Dielectric withstanding voltage	Working voltage
• At sea level	≥ 500V	≤ 250V
• At 70,000 ft	100V	60V

MECHANICAL CHARACTERISTICS

Cable retention force	RG 174 : 50 N - RD 316 : 100 N
Mating endurance	500
Center contact retention force	≥ 8 N
• Force to engage	≤ 27 N
• Force to disengage	≥ 8 N

ENVIRONMENTAL CHARACTERISTICS

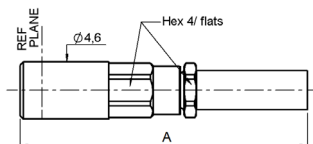
Vibration	CEI60 169-19/68-2-6 (10g-10 to 500 Hz)
Shock	MIL-STD-202, Method 213, Condition B, 75g-6ms 1/2 sinus
Corrosion (salt mist)	MIL-STD-202, Method 101, Condition B (48h)

MATERIALS AND PLATING

	Material	Plating
Body	Brass	Gold
Contacts	Beryllium copper	Gold
Insulators	PTFE	

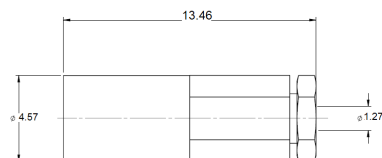
Plugs

STRAIGHT PLUGS CRIMP TYPE FOR FLEXIBLE CABLES



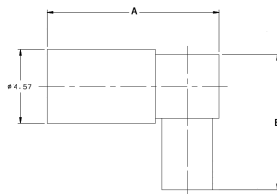
Cable group	Cable group dia.	Part number	Dimensions A (mm)	Captive center contact	Finish
RG178 / RG196	2/50S	7202-1572-002	17.8	yes	Gold
RG174 / RG316 / RG179	2.6/50S	7202-1572-003			
RD316	2.6/50D	7202-1572-019			
RG178 / RG196	2/50/S	R203 073 000	23.3		
RG174 / RG316	2.6/50/S	R203 075 000			

STRAIGHT PLUGS, SOLDER TYPE FOR SEMI-RIGID CABLES



Cable group	Cable group dia.	Part number	Captive center contact	Finish
RG405	.085"	7202-1542-010	yes	Gold
M17 / 151	.047"	7202-1542-011		

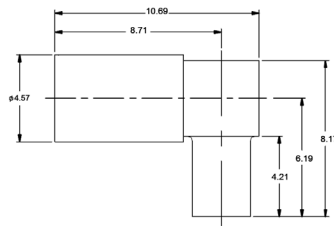
RIGHT ANGLE PLUGS, CRIMP TYPE FOR FLEXIBLE CABLES



Cable group	Cable group dia.	Part number	Dimensions (mm)		Captive center contact	Finish	Note
			A	B			
RG178 / RG196	2/50S	7405-1521-002	10.7	8.4	yes	Gold	
RG174 / RG316	2.6/50S	7405-1521-003					
RD178	2/50D	7405-1521-005					
RD316	2.6/50D	7405-1521-019					
RG178 / RG196	2/50S	7405-2521-002				Gold + Nickel	
		R203 173 000	18.1	12.2		Gold	Heatshrink sleeve
		R203 173 080	10.7	9.4			Low profile
RG316	2.6/50+75	R203 175 000	12.2	13.6			

Plugs, jacks and receptacles

RIGHT ANGLE PLUGS, SOLDER TYPE FOR SEMI RIGID CABLES



Cable group	Cable group dia.	Part number	Captive center contact	Finish
RG405	.085"	7405-1561-010	yes	Gold
M17 / 151	.047"	7405-1561-011		

STRAIGHT AND RIGHT ANGLE BULKHEAD JACKS CRIMP TYPE FOR FLEXIBLE CABLE

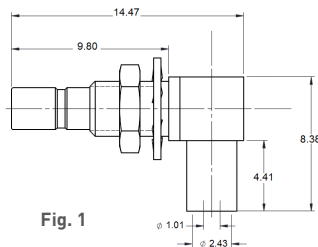
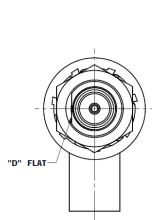


Fig. 1

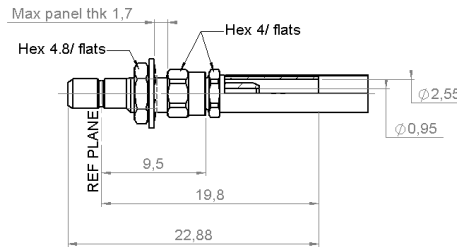
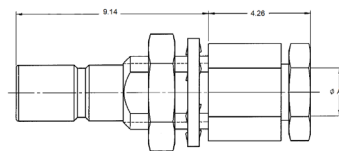


Fig. 2

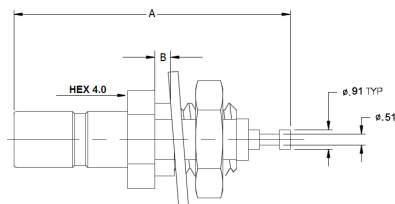
Cable group	Cable group dia.	Part number	Fig.	Captive center contact	Panel drilling	Finish	Note
RG178 / RG196	2/50S	7406-1521-002	1	yes	P01	Gold	Right angle Rear mount
RG174 / RG316	2.6/50S	7406-1521-003					
RD178	2/50D	7406-1521-005					
RG178 / RG196	2/50/S	R203 313 000	2				Straight rear mount

STRAIGHT BULKHEAD JACK SOLDER TYPE FOR SEMI-RIGID CABLE

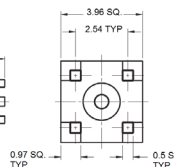
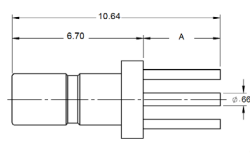


Cable group	Cable group dia.	Part number	Dimensions A (mm)	Captive center contact	Panel drilling	Finish
RG405	.085"	7203-1541-010	2.26	yes	P01	Gold
M17 / 151	.045"	7203-1541-011	1.27			

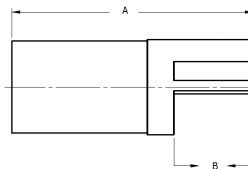
STRAIGHT BULKHEAD RECEPTACLES (male center contact)



Part Number	Captive center contact	Dimensions (mm)		Panel drilling	Finish	Note
A	B					
7204-1511-000	yes	13.0	2.0	P01	Gold	Rear mount
7219-1511-000		13.3	1.7			Front mount
R203 553 00						



Technical drawing of a stepped shaft. Dimension A indicates the total length of the shaft. Dimension B indicates the length of the last step (the rightmost section).



Visit www.radiall.com and enter the part number.

Receptacles

RIGHT ANGLE PCB RECEPTACLES (male center contact)

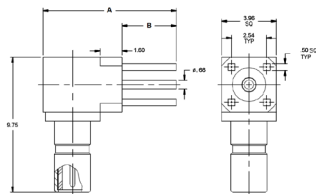
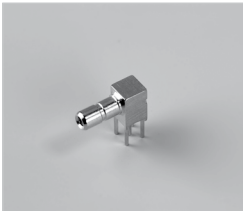


Fig. 1

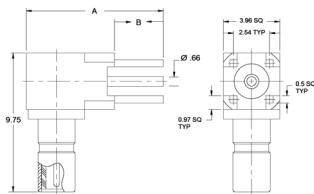
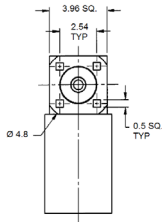
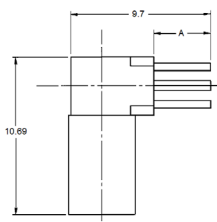


Fig. 2

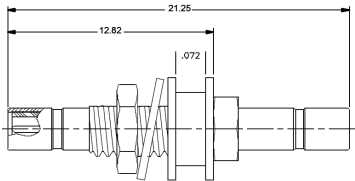
Part number	Fig.	Captive center contact	Dimensions (mm)		Panel drilling	Finish	Note
			A	B			
7210-1511-000	1	yes	9.65	3.93	P02	Gold	No stand off
7210-1511-012			6.27	0.0			Pretinned legs, no stand off
7210-1511-015			8.17	2.46			SMT version, no stand off
7210-1511-019							No standoff
7210-1511-040	2		9.65	3.42	P02		Pretinned legs
7210-1511-050							
R203 665 000			8.9	3.2			Body 3.5 □

RIGHT ANGLE PCB RECEPTACLES (female center contact)



Part number	Captive center contact	Dimensions (mm)	Panel drilling	Finish	Note
		A			
7242-1511-000	yes	3.93	P02	Gold	
7242-1511-012					Pretinned legs
7242-1511-050		3.43			Stand off legs

IN SERIES ADAPTERS



Part number	Captive center contact	Panel drilling	Finish	Note
7222-1501-600	yes	P01	Gold	Bulkhead male - male

Introduction

SSMC connectors are about a third smaller than SMC. They are mainly used in avionics, missiles, and any limited-space applications that require the security of a threaded coupling.

GENERAL

- DC - 12 GHz
- Impedance 50Ω
- Screw-on coupling
- Microminiature connectors
- Very low weight and small size

APPLICATIONS

- Civil avionics
- Military aerospace, missiles

APPLICABLE STANDARDS

- MIL STD 348A
- IEC 60169-20
- MIL-PRF-39012

Characteristics

Test / Characteristics	Values / Remarks
------------------------	------------------

GENERAL

Impedance	50Ω
Frequency range	DC - 12.4 GHz
Temperature range	-65°C to + 165°C

ELECTRICAL CHARACTERISTICS

Insertion loss in dB	0.3Vf (GHz)
RF leakage	≤ -55 dB at 1 GHz
VSWR max up to 4GHz	RG 178 cable: 1.20 + 0.02F (GHz)
Contact resistance (inner contact)	Center contact: 5mΩ max. Outer contact: 1mΩ max.
Insulation resistance	1000MΩ
Voltage in VRMS • At sea level • At 70,000 ft	Dielectric withstanding voltage ≥ 500V 100V
	Working voltage ≤ 250V 60V

MECHANICAL CHARACTERISTICS

Cable retention force	RG174: 50N - RG316: 100N
Mating endurance	500
Center contact retention force	≥ 8N

ENVIRONMENTAL CHARACTERISTICS

Vibration	MIL-STD-202, Method 204, Condition D (20g)
Shock	MIL-STD-202, Method 213, Condition B, 75g-6ms 1/2 sinus
Corrosion (salt mist)	MIL-STD-202, Method 101, Condition B (48h)

MATERIALS AND PLATING

	Material	Plating
Body	Brass	Gold
Contacts	Beryllium copper	Gold
Insulators	PTFE	

Plugs

STRAIGHT PLUGS FOR FLEXIBLE AND SEMI-RIGID CABLES

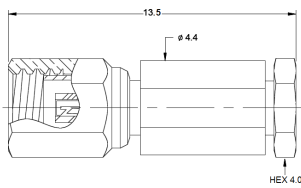


Fig. 1

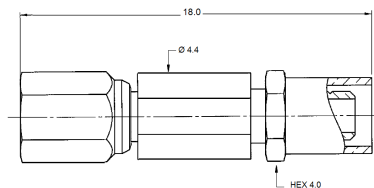
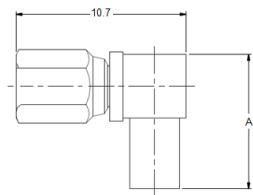


Fig. 2

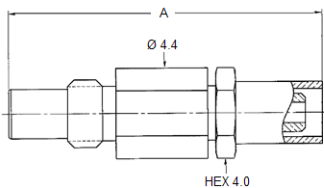
Cable group	Part number	Fig.	Note	Finish
RG405	7002-1542-010	1	Solder type	Gold
M17 / 151	7002-1542-011			
RG178 / RG196	7002-1572-002	2	Crimp type	
RG174 / RG316	7002-1572-003			
RD316	7002-1572-019			
RG178 / RG196	7002-1571-002			
RG178 / RG196	7002-1571-003			
RD316	7002-1571-019			

RIGHT ANGLE PLUGS FOR FLEXIBLE AND SEMI-RIGID CABLES



Cable group	Cable group dia.	Part number	Dimensions (mm) A	Note
RG178 / RG196	2/50S	7105-1521-002	8.4	Crimp type
RG174 / RG316	2.6/50S	7105-1521-003		
RD316	2/50D	7105-1521-019		
RG405	.085"	7105-1561-010	8.2	Solder type
M17 / 151	.047"	7105-1561-011		

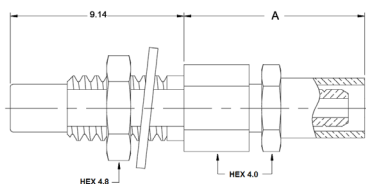
STRAIGHT JACKS FOR FLEXIBLE AND SEMI-RIGID CABLES



Cable group	Cable group dia.	Part number	Dimensions (mm) A	Note
RG178 / RG196	2/50S	7101-1571-002	16.0	Crimp type
RG405	.085"	7101-1541-010	8.8	Solder type

Jacks, receptacles and adapters

BULKHEAD STRAIGHT AND RIGHT ANGLE JACKS FOR FLEXIBLE AND SEMI-RIGID CABLES



Cable group	Cable group dia.	Part number	Dimensions A(mm)	Panel drilling	Finish	Note
RG178 / RG196	2/50S	7003-1572-002	9.7	P01	Gold	Crimp type
RG174 / RG316	2.6/50S	7003-1572-003	9.7			Solder type
M17 / 151	.047"	7003-1542-011	4.8			

PCB RECEPTACLES

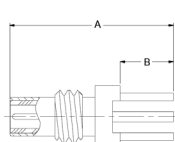


Fig. 1

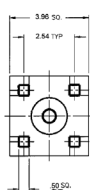


Fig. 2

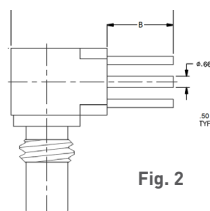
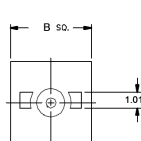
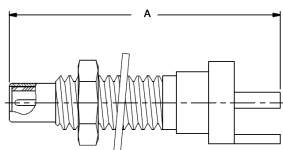


Fig. 3

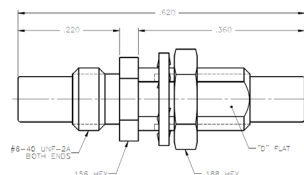
Part number	Fig.	Dimensions (mm)		Panel drilling	Finish	Note	
		A	B				
7009-1511-000	1	10.6	4.0	P02	Gold	No stand off	
7009-1511-050		10.6	3.42			Stand off legs	
7009-1511-004		7.34	0			Stand off legs, SMT version	
7010-1511-000	2	9.65	4.0	P02		No stand off	
7010-1511-041			3.42		Gold, pre-tinned legs	Stand off legs	
7010-1511-050					Gold		
7042-1511-040	3				9.65	4.0	P02
7110-1511-000	2	3.42	Gold	No stand off, bulkhead			
7110-1511-050				Stand off legs, bulkhead			

END LAUNCH BULKHEAD RECEPTACLES



Part number	Dimensions (mm)		Finish
	A	B	
7029-1511-031	17.52	5.25	Gold
7029-1513-005	14.85	6.35	
7029-1513-004		3.96	

IN SERIES ADAPTERS

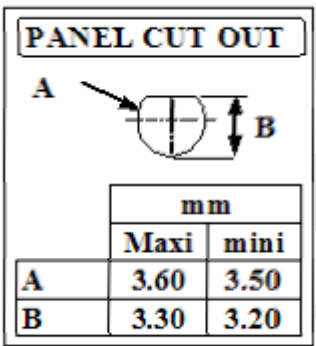


Part number	Captive center contact	Panel drilling	Finish	Note
7122-1502-000	yes	P01	Gold	Bulkhead male-male

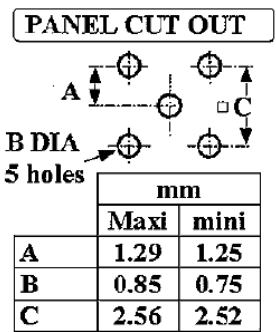
Panel drilling

PANEL DRILLING SSMB/SSMC

P01



P02



SSMB / SSMC