

BILMATIC

CONTROL Y AUTOMATISMOS, S.L.



CONECTORES INDUSTRIALES



SIBAS



Serie HA



Nº Polos	3+T	4+T	10+T	16+T (1-16)	32+T (17-32)
Macho tornillo	HA-003-M	HA-004-M	HA-010-M	HA-016-M	HA-032-M
Hembra tornillo	HA-003-F	HA-004-F	HA-010-F	HA-016-F	HA-032-F
Macho clema	HA-003-MS	HA-004-MS			
Hembra clema	HA-003-FS	HA-004-FS			
Voltaje (V)	250/400V	250/400V	250V	250V	250V
Corriente (A)	10	10A	10A	10A	10A
Tamaño	H3A	H3A	H10A	H16A/H32A	H32A

Conectores Industriales



Serie HD



Nº Polos	7+T	8+T	15+T	25+T (1-25)	50+T (26-50)	40+T (1-40)	64+T (1-64)	80+T (41-80)	128+T (65-128)
Macho crimp	HD-007-M	HD-008-M	HD-015-M	HD-025-M	HD-050-M	HD-040-M	HD-064-M	HD-080-M	HD-128-M
Hembra crimp	HD-007-F	HD-008-F	HD-015-F	HD-025-F	HD-050-F	HD-040-F	HD-064-F	HD-080-F	HD-128-F
Voltaje (V)	250V	50V	250V	250V	250V	250V	250V	250V	250V
Corriente (A)	10	10A	10A	10A	10A	10A	10A	10A	10A
Tamaño	H3A	H3A	H10A	H16A/H32A	H32A	H16B/H32B	H24B/H48B	H32B	H48B

Serie HDD



Nº Polos	24+T	42+T	72+T (1-72)	108+T (1-108)	144+T (73-144)	216+T (109-216)
Macho crimp	HDD-024-M	HDD-042-M	HDD-072-M	HDD-108-M	HDD-144-M	HDD-216-M
Hembra crimp	HDD-024-F	HDD-042-F	HDD-072-F	HDD-108-F	HDD-144-F	HDD-216-F
Voltaje (V)	250V	50V	250V	250V	250V	250V
Corriente (A)	10A	10A	10A	10A	10A	10A
Tamaño	H6B	H10B	H16B/H32B	H24B/H48B	H32B	H48B



CONECTORES INDUSTRIALES

La serie He se fabrica en tres sistemas de conexión del cable diferente, mediante tornillo, mediante clema cepo o mediante crimp.

La serie HEE se fabrica solamente mediante conexión crimp, aumentando la capacidad de pins en el mismo espacio y conservando las mismas características eléctricas 500V 16A.



Nº Polos	6+T	102+T	16+T (1-16)	24+T (1-24)	32+T (17-32)	48+T (25-48)
Macho tornillo	HE-006-M	HE-010-M	HE-016-M	HE-024-M	HE-032-M	HE-048-M
Hembra tornillo	HE-006-F	HE-010-F	HE-016-F	HE-024-F	HE-032-F	HE-048-F
Macho clema	HE-006-MS	HE-010-MS	HE-016-MS	HE-024-MS	HE-032-MS	HE-048-MS
Hembra clema	HE-006-FS	HE-010-FS	HE-016-FS	HE-024-FS	HE-032-FS	HE-048-FS
Macho crimp	HE-006-MC	HE-010-MC	HE-016-MC	HE-024-MC	HE-032-MC	HE-048-MC
Hembra crimp	HE-006-FC	HE-010-FC	HE-016-FC	HE-024-FC	HE-032-FC	HE-048-FC
Voltaje (V)	500V	500V	500V	500V	500V	500V
Corriente (A)	16A	16A	16A	16A	16A	16A
Tamaño	H6B	H10B	H16B/H32B	H24B/H48B	H32B	H48B



Conectores Industriales



Serie HEE

N° Polos	10+T	18+T	32+T (1-32)	46+T (1-46)	64+T (33-64)	92+T (47-92)
Macho crimp	HEE-010-M	HEE-018-M	HEE-032-M	HEE-046-M	HEE-064-M	HEE-092-M
Hembra crimp	HEE-010-F	HEE-018-F	HEE-032-F	HEE-046-F	HEE-064-F	HEE-092-F
Voltaje (V)	500V	500V	500V	500V	500V	500V
Corriente (A)	16A	16A	16A	16A	16A	16A
Tamaño	H6B	H10B	H16B/H32B	H24B/H48B	H32B	H48B

Serie HSB

N° Polos	6+T	12+T
Macho tornillo	HSB-006-M	HSB-012-M
Hembra tornillo	HSB-006-F	HSB-012-F
Voltaje (V)	690V	690V
Corriente (A)	35A	35A
Tamaño	H16B	H32B

Serie HQ

N° Polos	5+T	7+T	12+T
Macho crimp	HQ-005-M	HQ-007-M	HQ-012-M
Hembra crimp	HQ-005-F	HQ-007-F	HQ-012-F
Voltaje (V)	400V	400V	400V
Corriente (A)	16A	16A	16A
Tamaño	H3A	H3A	H3A

CONECTORES INDUSTRIALES

Serie HEAV

N° Polos	6+T IZQ	10+T IZQ	16+T IZQ	24+T IZQ	6+T DER	10+T DER	16+T DER	24+T DER
Macho tornillo	HEAV-006-ML	HEAV-010-ML	HEAV-016-ML	HEAV-024-ML	HEAV-006-MR	HEAV-010-MR	HEAV-016-MR	HEAV-024-MR
Hembra tornillo	HEAV-006-FL	HEAV-010-FL	HEAV-016-FL	HEAV-024-FL	HEAV-006-FR	HEAV-010-FR	HEAV-016-FR	HEAV-024-FR
Voltaje (V)	500V	500V	500V	500V	500V	500V	500V	500V
Corriente (A)	16A	16A	16A	16A	16A	16A	16A	16A
Tamaño	H6B	H10B	H16B	H24B	H6B	H10B	H16B	H24B

Serie HMN

N° Polos	2+T	2+T	2+T	2+T	3+T	4+T	6+T	8+T
Macho Axial	HMN-D2-M	HMN-D2-MD	HMN-S2-M	HMN-S2-MD				
Hembra Axial	HMN-D2-F	HMN-D2-FD	HMN-S2-F	HMN-S2-FD				
Macho crimp					HMN-003-M	HMN-004-M	HMN-006-M	HMN-008-M
Hembra crimp					HMN-003-F	HMN-004-F	HMN-006-F	HMN-008-F
Voltaje (V)	1000V	1000V	1000V	1000V	690V	830V	500V	400V
Corriente (A)	100A	100A	40A	40A	40A	40A	16A	16A
Sección (mm ²)	10-25	16-35	2,5-6	6-10	Según crimp	Según crimp	Según crimp	Según crimp



Serie HMN



Nº Polos	12+T	17+T	20+T	25+T	3 / 4+T	SUB-D9	RJ-45	QUINT
Macho crimp	HMN-012-M	HMN-017-M	HMN-020-M	HMN-025-MD	HMN-3/4-M	HMN-009-M		HMN-Q2-M
Hembra crimp	HMN-012-M	HMN-017-M	HMN-020-M	HMN-025-MD	HMN-3/4-M	HMN-009-M		HMN-Q2-M
Macho						HMN-004-M	HMN-RJ45-M	
hembra						HMN-004-F	HMN-RJ45-M	
Voltaje (V)	250V	160V	500V	50V	830V	50V		250V
Corriente (A)	10A	10A	16A	5A	40A/10A	5A		10A
Sección (mm²)	Crimp D	Crimp D	Crimp E	Crimp A	Crimps D / M	Crimp A		Crimp D



Módulo	CIEGO	Pneumatic 2P	Pneumatic 3P
	HMN-DM	HMN-PA2	HMN-PA3



Bastidores	2 MODULOS	3 MODULOS	4 MODULOS	6 MODULOS
	H6BN-T2	H10BN-T3	H16BN-T4	H24BN-T6



Crimps	Neumáticos (aire comprimido)			
Macho	PNEU-C-M1,6	PNEU-C-M3	PNEU-C-M4	PNEU-C-M6
Hembra	PNEU-C-F1,6	PNEU-C-F3	PNEU-C-F4	PNEU-C-F6
hembra valvula	PNEU-C-FW1,6	PNEU-C-FW3	PNEU-C-FW4	PNEU-C-FW6
Diametro int.	1,6mm	3mm	4mm	6mm
Para módulo	PA3	PA3	PA3	PA2



CONTACTOS	QUINT
Macho	PIN-Q2-M
Hembra	PIN-Q2-F
Nº Polos	4
Corriente (A)	10A
Crimps	PA3



Crimps tipo A	0,08 - 0,21mm²	0,13 - 0,33mm²	0,33 - 0,52mm²
Macho	CAM-08	CAM-13	CAM-33
Hembra	CAF-08	CAF-13	CAF-33
Corriente (A)	5A	5A	5A
Pelado cable	5mm	5mm	5mm



Crimps tipo M	2,5mm²	4mm²	6mm²	10mm²
Macho	CMM-2.5	CMM-4.0	CMM-6.0	CMM-10.0
Hembra	CMF-2.5	CMF-4.0	CMF-6.0	CMF-10.0
Corriente (A)	40A	40A	40A	40A
Pelado cable	8mm	8mm	8mm	8mm



Crimps tipo D	0,14mm²	0,50mm²	0,75mm²	1mm²	1,5mm²	2,5mm²
Macho	CDM-0.14	CDM-0.50	CDM-0.75	CDM-1.0	CDM-1.5	CDM-2.5
Hembra	CDF-0.14	CDF-0.50	CDF-0.75	CDF-1.0	CDF-1.5	CDF-2.5
Corriente (A)	10A	10A	10A	10A	10A	10A
Pelado cable	8mm	8mm	8mm	8mm	8mm	8mm



Herramienta crimpar
CRIMPBOX-0.5/4



Crimps tipo E	0,50mm²	0,75mm²	1mm²	1,5mm²	2,5mm²	4mm²
Macho	CEM-0.50	CEM-0.75	CEM-1.0	CEM-1.5	CEM-2.5	CEM-4.0
Hembra	CEF-0.50	CEF-0.75	CEF-1.0	CEF-1.5	CEF-2.5	CEF-4.0
Corriente (A)	16A	16A	16A	16A	16A	16A
Pelado cable	7,5mm	7,5mm	7,5mm	7,5mm	7,5mm	7,5mm



Herramienta sacar crimps D
REMOV-HDD



Herramienta sacar crimps E
REMOV-HEE



Serie HK



Nº Polos	8/24+T	4/0+T	4/2+T	6/12+T	12/2+T	6/36+T	4/8+T	6/6+T
Macho	HK-8/24-M	HK-4/0-M	HK-4/2-M	HK-6/12-M	HK-12/2-M	HK-6/36-M	HK-4/8-M	HK-6/6-M
Hembra	HK-8/24-F	HK-4/0-F	HK-4/2-F	HK-6/12-F	HK-12/2-F	HK-6/36-F	HK-4/8-F	HK-6/6-F
Tipo conexión	Crimp E / D	Tornillo	Tornillo	Axial	Crimp M / D	Crimp M / D	Tornillo	Axial
Voltaje (V)	400V / 250V	690V / 400V	690V / 400V	690V / 400V	690V / 250V	690V / 250V	690V / 400V	690V / 400V
Corriente (A)	16A / 10A	80A / 16A	80A / 16A	40A / 10A	40A / 10A	40A / 10A	80A / 16A	100A / 16A
Tamaño	H10B	H16B	H16B	H16B	H16B	H16B	H24B	H24B

CARCASAS Y BASES

Serie HA



	Carcasa recta	Carcasa codo	Base empotrar	Base emp. codo	Base superficie	Base aerea	Tapa base	Tapa carcasa
H3A	H3A-MTG-M20	H3A-MTS-M20	H3A-MAG	H3A-MAGS	H3A-MAGSV-M20	H3A-MTGVB-M20	H3A-KDB	H3A-KDT
H3A-PVC	H3A-TG-M20	H3A-TS-M20	H3A-AG	H3A-AGS	H3A-AGSV-M20	H3A-TGVB-M20	H3A-KDBP	H3A-KDTP



	Carcasa codo	Carcasa recta	Carcasa codo alta	Carcasa recta alta	Base empotrar	Base empotrar tapa	Base aerea
H10A	H10A-TS-M20	H10A-TG-M20			H10A-AG	H10A-AD	H10A-TBF-M20
	H10A-TS-M25	H10A-TG-M25	H10A-TSH-M25	H10A-TGH-M25			H10A-TBF-M25



	Base aerea alta	Base superficie	Base superficie alta	base superf. tapa	base sup. alta tapa	Tapa base	Tapa carcasa
H10A 1M		H10A-SGR-M20		H10A-SDR-M20			H10A-KDT
	H10A-TBFH-M25	H10A-SGR-M25		H10A-SDR-M25			
H10A 2M		H10A-SGR-2M20		H10A-SDR-2M20			
		H10A-SGR-2M25		H10A-SDR-2M25			



	Carcasa codo	Carcasa recta	Carcasa codo alta	Carcasa recta alta	Base empotrar	Base empotrar tapa	Base aerea
H16A	H16A-TS-M20	H16A-TG-M20			H16A-AG	H16A-AD	H16A-TBF-M20
	H16A-TS-M25	H16A-TG-M25	H16A-TSH-M25	H16A-TGH-M25			H16A-TBF-M25





Base aerea alta



Base superficie



base superf. tapa

base sup. alta tapa

Tapa base



Tapa carcasa

H16A 1M		H16A-SGR-M20		H16A-SDR-M20			H16A-KDT
	H16A-TBFH-M25	H16A-SGR-M25		H16A-SDR-M25			
H16A 2M		H16A-SGR-2M20		H16A-SDR-2M20			
		H16A-SGR-2M25		H16A-SDR-2M25			



Carcasa codo



Carcasa recta

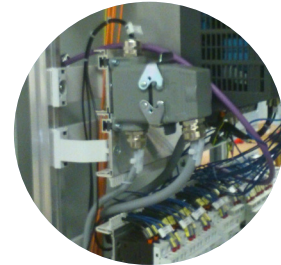


Base empotrar



base superficie

H32A 1M	H32-TS-M25	H32A-TG-M25	H32A-AG	H32A-SGR-M25
	H32-TS-M25	H32A-TG-M25		H32A-SGR-M32
	H32-TS-M25	H32A-TG-M25		
H32A 2M				H32A-SGR-2M25
				H32A-SGR-2M32



Serie HB de 1 enclavamiento



Base emp.



B. emp. tapa



Base superficie



Base superf. tapa



Base sup. alta



base sup. alta tapa

H6B 1M	H6B-AG	H6B-AD	H6B-SGR-M20	H6B-SDR-M20	H6B-SGRH-M25	H6B-SDRH-M25
			H6B-SGR-M25	H6B-SDR-M25	H6B-SGRH-M32	H6B-SDRH-M32
H6B 2M			H6B-SGR-2M20	H6B-SDR-2M20	H6B-SGRH-2M25	H6B-SDRH-2M25
			H6B-SGR-2M25	H6B-SDR-2M25	H6B-SGRH-2M32	H6B-SDRH-2M32
H10B 1M	H10B-AG-LB	H10B-AD-LB	H10B-SGR-LB-M20	H10B-SDR-LB-M20	H10B-SGRH-LB-M25	H10B-SDRH-LB-M25
			H10B-SGR-LB-M25	H10B-SDR-LB-M25	H10B-SGRH-LB-M32	H10B-SDRH-LB-M32
H10B 2M			H10B-SGR-LB-2M20	H10B-SDR-LB-2M20	H10B-SGRH-LB-2M25	H10B-SDRH-LB-2M25
			H10B-SGR-LB-2M25	H10B-SDR-LB-2M25	H10B-SGRH-LB-2M32	H10B-SDRH-LB-2M32
H16B 1M	H16B-AG-LB	H16B-AD-LB	H16B-SGR-LB-M20	H16B-SDR-LB-M20	H16B-SGRH-LB-M25	H16B-SDRH-LB-M25
			H16B-SGR-LB-M25	H16B-SDR-LB-M25	H16B-SGRH-LB-M32	H16B-SDRH-LB-M32
H16B 2M			H16B-SGR-LB-2M20	H16B-SDR-LB-2M20	H16B-SGRH-LB-2M25	H16B-SDRH-LB-2M25
			H16B-SGR-LB-2M25	H16B-SDR-LB-2M25	H16B-SGRH-LB-2M32	H16B-SDRH-LB-2M32
H24B 1M	H24B-AG-LB	H24B-AD-LB	H24B-SGR-LB-M20	H24B-SDR-LB-M20	H24B-SGRH-LB-M25	H24B-SDRH-LB-M25
			H24B-SGR-LB-M25	H24B-SDR-LB-M25	H24B-SGRH-LB-M32	H24B-SDRH-LB-M32
H24B 2M			H24B-SGR-LB-2M20	H24B-SDR-LB-2M20	H24B-SGRH-LB-2M25	H24B-SDRH-LB-2M25
			H24B-SGR-LB-2M25	H24B-SDR-LB-2M25	H24B-SGRH-LB-2M32	H24B-SDRH-LB-2M32
H32B 1M	H32B-AG-LB	H32B-AD-LB	H32B-SGR-LB-M32	H32B-SDR-LB-M32		
			H32B-SGR-LB-M40	H32B-SDR-LB-M40		
H32B 2M			H32B-SGR-LB-2M32	H32B-SDR-LB-2M32		
			H32B-SGR-LB-2M40	H32B-SDR-LB-2M40		
H48B 1M	H48B-AG	H48B-AD	H48B-SGR-M32	H48B-SDR-M32		
			H48B-SGR-M40	H48B-SDR-M40		
			H48B-SGR-M50	H48B-SDR-M50		
H48B 2M			H48B-SGR-2M32	H48B-SDR-2M32		
			H48B-SGR-2M40	H48B-SDR-2M40		
			H48B-SGR-2M50	H48B-SDR-2M50		



Base aerea



Carcasa recta



Carcasa codo



Carcasa recta alta



Carcasa codo alta



Tapa carcasa

H6B	H6B-TBF-M20	H6B-TG-M20	H6B-TS-M20	H6B-TGH-M25	H6B-TSH-M25	H6B-KDTP
	H6B-TBF-M25	H6B-TG-M25	H6B-TS-M25	H6B-TGH-M32	H6B-TS-M32	
H10B	H10B-TBF-LB-M20	H10B-TG-RO-M20	H10B-TS-RO-M20	H10B-TGH-RO-M25	H10B-TSH-RO-M25	H10B-KDTP-LB
	H10B-TBF-LB-M25	H10B-TG-RO-M25	H10B-TS-RO-M25	H10B-TGH-RO-M32	H10B-TSH-RO-M32	
H16B	H16B-TBF-LB-M25	H16B-TG-RO-M25	H16B-TS-RO-M25	H16B-TGH-RO-M32	H16B-TSH-RO-M32	H16B-KDTP-LB
	H16B-TBF-LB-M32	H16B-TG-RO-M32	H16B-TS-RO-M32	H16B-TGH-RO-M40	H16B-TSH-RO-M40	
H24B	H24B-TBF-LB-M25	H24B-TG-RO-M25	H24B-TS-RO-M25	H24B-TGH-RO-M32	H24B-TSH-RO-M32	H24B-KDTP-LB
	H24B-TBF-LB-M32	H24B-TG-RO-M32	H24B-TS-RO-M32	H24B-TGH-RO-M40	H24B-TSH-RO-M40	
H32B		H32B-TG-RO-M32	H32B-TS-RO-M32			
		H32B-TG-RO-M40	H32B-TS-RO-M40			
H48B		H48B-TG-M40	H48B-TS-M40			
		H48B-TG-M50	H48B-TS-M50			

Serie HB de 2 enclavamientos



Base emp.



Base aerea



Base superficie



Base superficie alta



Tapa para base

H10B 1M	H10B-AG	H10B-TBF-M20	H10B-SGR-M20	H10B-SGRH-M20	H10B-KDB
		H10B-TBF-M25	H10B-SGR-M25	H10B-SGRH-M25	
H10B 2M			H10B-SGR-2M20	H10B-SGRH-2M20	
			H10B-SGR-2M25	H10B-SGRH-2M25	
H16B 1M	H16B-AG	H16B-TBF-M25	H16B-SGR-M25	H16B-SGRH-M25	H16B-KDBP
		H16B-TBF-M32		H16B-SGRH-M32	
H16B 2M			H16B-SGR-2M25	H16B-SGRH-2M25	
				H16B-SGRH-2M32	
H24B 1M	H24B-AG	H24B-TBF-M25	H24B-SGR-M25	H24B-SGRH-M25	H24B-KDBP
		H24B-TBF-M32		H24B-SGRH-M32	
H24B 2M			H24B-SGR-2M25	H24B-SGRH-2M25	
				H24B-SGRH-2M32	
H32B 1M	H32B-AG	H32B-TBF-M32	H32B-SGR-M32		H32B-KDBP
		H32B-TBF-M40	H32B-SGR-M40		
H32B 2M			H32B-SGR-2M32		
			H32B-SGR-2M40		



Carcasa recta



Carcasa codo



Carcasa recta alta



Carcasa codo alta



Tapa carcasa

H10B	H10B-TG-M20	H10B-TS-M20	H10B-TGH-M25	H10B-TSH-M25	H10B-KDTP
	H10B-TG-M25	H10B-TS-M25	H10B-TGH-M32	H10B-TS-M32	
H16B	H16B-TG-M25	H16B-TS-M25	H16B-TGH-M32	H16B-TSH-M32	H16B-KDTP
	H16B-TG-M32	H16B-TS-M32	H16B-TGH-M40	H16B-TSH-M40	
H24B	H24B-TG-M25	H24B-TS-M25	H24B-TGH-M32	H24B-TSH-M32	H24B-KDTP
	H24B-TG-M32	H24B-TS-M32	H24B-TGH-M40	H24B-TSH-M40	
H32B	H32B-TG-M32	H32B-TS-M32			
	H32B-TG-M40	H32B-TS-M40			
	H32B-TG-M50	H32B-TS-M50			



Montaje en rail Din 35mm



Base H6/24B

HB-RAIL-BASE



Aereo H6B

H6B-RAIL-TOP



Aereo H10B

H10B-RAIL-TOP



Aereo H16B

H16B-RAIL-TOP



Aereo H24B

H24B-RAIL-TOP



M16

M20

M25



M32

M40

M50

M63

Presna IP68 plástico

DLX-16-PM

DLX-20-PM

DLX-25-PM

DLX-32-PM

DLX-40-PM

DLX-50-PM

DLX-63-PM

Presna IP68 metálico

DLX-16-M

DLX-20-M

DLX-25-M

DLX-32-M

DLX-40-M

DLX-50-M

DLX-63-M

CONECTORES CIRCULARES

RPC	-	M12	B	-	FS	-	5CON	-	PG9	-	SW
A		B	C		D		E		F		G

A	RPC: Conectores circulares
B	Rosca conector: M5, M8, M12
C	Codificación del conector; Omisión: A-coded, B: B-coded*, D: D-coded*
D	MS: macho recto, FS: hembra recto, MR: macho codo, FR: hembra codo,
E	Nº polos: 3, 4, 5, 8,
F	Presnaestopas salida: PG-7, PG-9, PG-11, PG-13, M12, M16
G	Tipo, M: estandard, SH: apantallado

* B-coded utilizado en Profibus y D-coded utilizado en Ethernet

* Conexión mediante tornillo

M8



M8

3 Polos

4 Polos

Macho Recto
hembra recto

RPC-M8-MS-3CON-PG7-M

RPC-M8-MS-4CON-PG7-M

RPC-FS-MS-3CON-PG7-M

RPC-F8-MS-4CON-PG7-M



M12



M12

3 Polos

4 Polos

5 Polos

8 Polos

Macho recto
Hembra recto
Macho codo
Hembra codo

RPC-M12-MS-3CON-PG9-M

RPC-M12-MS-4CON-PG9-M

RPC-M12-MS-5CON-PG9-M

RPC-M12-MS-8CON-PG9-M

RPC-M12-FS-3CON-PG9-M

RPC-M12-FS-4CON-PG9-M

RPC-M12-FS-5CON-PG9-M

RPC-M12-FS-8CON-PG9-M

RPC-M12-MR-3CON-PG9-M

RPC-M12-MR-4CON-PG9-M

RPC-M12-MR-5CON-PG9-M

RPC-M12-MR-8CON-PG9-M

RPC-M12-FR-3CON-PG9-M

RPC-M12-FR-4CON-PG9-M

RPC-M12-FR-5CON-PG9-M

RPC-M12-FR-8CON-PG9-M

B Macho recto SH

RPC-M12B-MS-3CON-PG9-SH

RPC-M12B-MS-4CON-PG9-SH

RPC-M12B-MS-5CON-PG9-SH

RPC-M12B-MS-8CON-PG9-SH

B Hembra recto SH

RPC-M12B-FS-3CON-PG9-SH

RPC-M12B-FS-4CON-PG9-SH

RPC-M12B-FS-5CON-PG9-SH

RPC-M12B-FS-8CON-PG9-SH