

FI-R and JF04 0.5mm Connectors



FI-R Series Specifications: • Rated Current: 0.8A maximum per pin • Dielectric Withstanding Voltage: AC 500 Vr.m.s per minute • Insulation Resistance: 100MΩ minimum • Contact Resistance: 40mΩ maximum • Operating Temperature: -40°C ~ 80°C **Materials and Finishes:** • Contact: Copper Alloy/Contact area Gold, SMT Terminal area Tin plating • Insulator: Heat resistant plastic • Shell: Stainless steel **JF04 Series:** High speed serial transmission such as LVDS, TMDS (HDMI), PCI express are beginning to be widely used, not only in the personal computer market but also in various markets such as TV, consumer devices, PPC and medical device markets. At the same time in the expanding markets including LCD TV, there are strong demands for reasonably priced high speed transmission cables. JF04 is the connector harness just to answer those demands. **Features:** • 1 mm minimum transmission of serial signal of LVDS, TMDS etc. is possible • Matches with 100Ω differential characteristic impedance • Ground of the cable area is reinforced by the ground layer. **Specifications:** • Rated Current: FI-R type: AC, DC each 0.3 A/terminal • Contact resistance: 40 mΩ maximum • Insulation resistance: 100 MΩ minimum • Dielectric withstanding voltage: 250 VACr.m.s. (for 1 minute) • Operating temperature range: -40°C ~ 80°C • Impedance: Connector: 100Ω ±15%, FFC: 100Ω ±10%

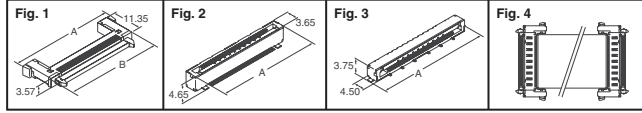


Fig.	No. of Positions	Dim. (mm)		Digi-Key Part No.	Price Each			JAE Part No.
		A	B		1	25	100	
1	21	24.95	21.25	670-1198-ND	5.12	2.91	2.73	FI-RE21HL
	31	29.95	26.25	670-1199-ND	5.42	3.08	2.90	FI-RE31HL
	41	34.95	31.25	670-1202-ND	4.83	3.29	2.90	FI-RE41HL
	51	39.95	36.25	670-1205-ND	5.08	3.46	3.05	FI-RE51HL
	21	20.35	—	670-1198-ND	3.62	2.11	1.93	FI-RE21S-VF
2	31	25.35	—	670-1201-ND	3.96	2.32	2.12	FI-RE31S-VF
	41	30.35	—	670-1204-ND	4.31	2.52	2.30	FI-RE41S-VF
	51	35.35	—	670-1207-ND	5.16	2.93	2.76	FI-RE51S-VF
	21	22.85	—	670-1197-ND	9.36	5.46	4.99	FI-RE21S-HF
	31	27.85	—	670-1200-ND	3.96	2.32	2.12	FI-RE31S-HF
3	41	32.85	—	670-1203-ND	4.31	2.52	2.30	FI-RE41S-HF
	51	37.85	—	670-1206-1-ND†	2.58	1.46	1.38	FI-RE51S-HF
	51	37.85	—	670-1206-2-ND‡	1739.19/1,500	—	—	FI-RE51S-HF
	Male, Crimp, Gold Plating 30 ~ 36 AWG		670-1194-1-ND†	20	.11	.09	—	FI-RC3-1A-1E-15000
			670-1194-2-ND‡	20	.11	.09	—	FI-RC3-1A-1E-15000
		670-1195-1-ND†	20	.11	.09	—	FI-RC3-1B-1E-15000	
		670-1195-2-ND‡	20	.11	.09	—	FI-RC3-1B-1E-15000	
Flat Cable Assemblies								
4	41	—	—	670-1698-ND	11.24	8.00	7.25	JF04R0R041025AA
	41	—	—	670-1699-ND	12.65	9.00	8.15	JF04R0R041035AA
	51	—	—	670-1700-ND	12.65	9.00	8.15	JF04R0R051025AA
	51	—	—	670-1701-ND	14.32	10.19	9.24	JF04R0R051035AA
	41	—	—	670-1702-1-ND†	2.15	1.32	1.15	FI-RE41S-HF-R1500
	41	—	—	670-1702-2-ND‡	1453.98/1,500	—	—	FI-RE41S-HF-R1500
			670-1702-2-ND‡	20	.11	.09	—	FI-RC3-1B-1E-15000

† Cut Tape ‡ Tape and Reel

FI-X and FI-E Series 1mm Connectors



FI-X Series Specifications: • Contact Spacing: 1mm • Applicable FPC: 0.14mm Wire 30 ~ 40 AWG • Current Rating: 1A per contact • Voltage Rating: 200A/DC per contact • Dielectric Withstanding Voltage: AC 500 Vr.m.s per minute • Insulation Resistance: 100MΩ minimum • Contact Resistance: 40mΩ maximum • Operating Temperature: -40°C ~ 80°C **Materials and Finishes:** • Contact: Copper alloy; Contact portion (connector mating part)/Gold plating over Nickel • Terminal portion: SnPb plating over nickel • Insulator: Thermal plasticity resin (UL94V-0) • Shell: Copper Alloy/Tin plating **FI-E Series Feature:** • Connector optimal for LVDS **Specifications:** • Contact Resistance: 40mΩ maximum • Withstanding Voltage: AC 500 Vr.m.s per minute • Operating Temperature: -40°C ~ 80°C • Rated Current: AC, DC each 1A per 1 position • Rated Voltage: AC, DC each 200V per 1 position • Insulation Resistance: 100MΩ minimum

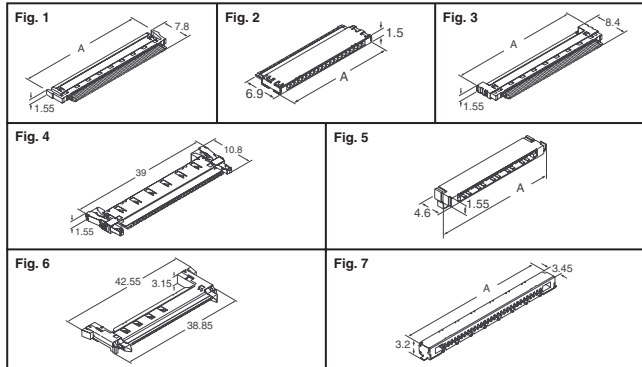


Fig.	No. of Positions	Dimension A (mm)		Digi-Key Part No.	Price Each			JAE Part No.
		1	25		100			
FI-X Series								
Coaxial Plug								
1	30	38.05	—	670-1213-ND	5.32	3.62	3.20	FI-X30C-NPB
Cable Plug								
2	30	33.3	—	670-1214-ND	2.49	1.43	1.21	FI-X30H
FPC Plug								
3	30	36.45	—	670-1216-ND	5.32	3.62	3.20	FI-X30M-NPB
				670-1217-ND	5.32	3.62	3.20	FI-X30MR-NPB
Cable Plug with Locking Levers								
4	30	—	—	670-1215-ND	1.86	1.06	.91	FI-X30HL
				670-1212-ND	2.13	1.22	1.04	FI-X30C2EL
SMD Receptacle								
5	30	40.05	—	670-1219-ND	9.29	5.95	5.58	FI-X30SSL-HF
Crimp Pins								
Gold 30 ~ 36 AWG		670-1222-1-ND†	—	.17	.08	.06	—	FI-XC3-1-15000
Gold 30 ~ 36 AWG		670-1222-2-ND‡	—	502.46/15,000	—	—	—	FI-XC3-1-15000

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

Free shipping on orders over £50! All prices are in British pound sterling and include duties.

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Fig.	No. of Positions	Dimension A (mm)		Digi-Key Part No.	Price Each			JAE Part No.
		1	25		100			
FI-E Series								
Cable Plug with Locking Lever								
6	30	—	—	670-1192-ND	4.56	3.10	2.74	FI-E30HL
SMD Receptacle								
7	30	38.2	—	670-1193-ND	6.05	4.11	3.63	FI-E30S
Tools								
Hand Tool for FI-X and FI-E Series		670-1187-ND	—	—	719.73	—	—	CT150-4C-FIX

† Cut Tape ‡ Tape and Reel

FI-J Series 0.4mm Connectors



Specifications: • Rated Current: AC, DC 0.3A per position • Rated Voltage: AC, DC 50V per position • Dielectric Withstanding Voltage: AC 250 Vr.m.s per minute • Insulation Resistance: 100MΩ minimum • Contact Resistance: 40mΩ maximum • Operating Temperature Range: -40°C ~ 85°C • Applicable Cable: AWG #42-44. **Materials and Finishes:** • (Receptacle) Contact/Hold Down: Copper Alloy, Gold plating over Nickel on contact area • Insulator: Heat resistant plastic, UL94V-0 • Absorption Insulator: Heat resistant plastic, UL94V-0 • (Plug) Contact: Copper Alloy, Gold plating over Nickel on contact area • Insulator: Heat resistant plastic, UL94V-0 • Shell: Stainless steel, Gold plating over Nickel

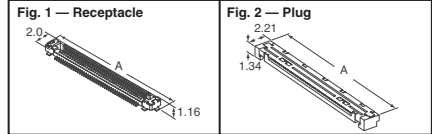


Fig.	No. of Positions	Dim. A (mm)		Digi-Key Part No.	Price Each			Tape & Reel Pricing† 10,000	JAE Part No.
		1	25		100				
1	20	7.6	—	670-1505-ND	2.74	1.80	1.60	—	FI-J20S-VF15N
	25	9.6	—	670-1508-ND	2.80	1.83	1.63	—	FI-J25S-VF15N
	35	13.6	—	670-1511-ND	2.69	1.77	1.57	—	FI-J35S-VF15N
	40	15.6	—	670-1514-ND	2.76	1.81	1.61	—	FI-J40S-VF15N
	20	13.7	—	670-1504-ND	1.47	.91	.77	—	FI-J20CS
2	25	15.7	—	670-1507-ND	1.51	.93	.79	—	FI-J25CS
	35	19.7	—	670-1510-ND	1.58	.98	.83	—	FI-J35CS
	40	21.7	—	670-1513-ND	1.63	1.01	.86	—	FI-J40CS
Covers for Plugs									
—	20	—	—	670-1503-1-NDΔ	.16	.10	.09	63.22/M	FI-J20C2-SH-D-10000
	25	—	—	670-1506-1-NDΔ	.16	.10	.09	63.56/M	FI-J25C2-SH-D-10000
	35	—	—	670-1509-1-NDΔ	.16	.10	.09	64.25/M	FI-J35C2-SH-D-10000
	40	—	—	670-1512-1-NDΔ	.16	.10	.09	64.59/M	FI-J40C2-SH-D-10000

† For Tape and Reel part number, change 1-ND to 2-ND. Δ Cut Tape

AA03 Series 0.4mm Connectors



Features: • Drop impact and vibration-resistant connectors • Stacking height 1.0mm, low profile connector. **Specifications:** • Rated Current: AC, DC 0.4 Amps per position • Rated Voltage: AC, DC 50V • Dielectric Withstanding Voltage: AC 250 Vr.m.s per minute • Insulation Resistance: 100MΩ minimum • Contact Resistance: 70mΩ maximum • Operating Temperature Range: -45°C ~ 85°C. **Materials and Finishes:** • Contact: Copper Alloy/Gold plating • Insulator: Heat resistant plastic/UL94V-0, Black • Hold-down: Plug: Copper Alloy/Gold plating (0.1um minimum) Receptacle: Copper Alloy/Tin type plating

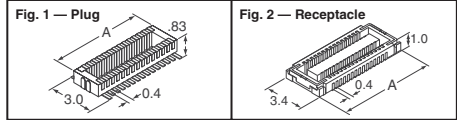


Fig.	No. of Positions	Dimension A (mm)	Digi-Key Part No.	Cut Tape Price Each			Tape & Reel Pricing† 6,000	JAE Part No.	
				1	25	100			
1	20	5.3	670-1169-1-ND	.73	.44	.39	314.35/M	AA03-P020VA2-R6000	
	22	5.7	670-1170-1-ND	2.29	1.38	1.22	990.99/M	AA03-P022VA2-R6000	
	24	6.1	670-1171-1-ND	2.61	1.57	1.39	1128.31/M	AA03-P024VA2-R6000	
	30	7.3	670-1172-1-ND	1.71	1.03	.92	743.54/M	AA03-P030VA2-R6000	
	40	9.3	670-1173-1-ND	2.16	1.30	1.16	936.74/M	AA03-P040VA2-R6000	
	50	11.3	670-1174-1-ND	3.40	1.99	1.82	1474.65/M	AA03-P050VA2-R6000	
	80	17.3	670-1175-1-ND	3.75	2.20	2.01	1827.54/M	AA03-P080VA2-R6000	
	2	20	6.3	670-1176-1-ND	.73	.44	.39	314.35/M	AA03-S020VA1-R6000
		22	6.7	670-1177-1-ND	2.62	1.58	1.40	1136.90/M	AA03-S022VA1-R6000
		24	7.1	670-1178-1-ND	2.66	1.60	1.42	1150.01/M	AA03-S024VA1-R6000
30		8.3	670-1179-1-ND	1.71	1.01	.92	743.54/M	AA03-S030VA1-R6000	
40		10.3	670-1180-1-ND	2.16	1.27	1.16	936.94/M	AA03-S040VA1-R6000	
50		12.3	670-1181-1-ND	3.40	1.99	1.82	1474.94/M	AA03-S050VA1-R6000	
80		18.3	670-1182-1-ND	4.27	2.42	2.28	1848.74/M	AA03-S080VA1-R6000	

† For Tape and Reel part number, change 1-ND to 2-ND.

WA6 Series 0.4mm Connectors



Features: • Compatible to JEDEC Standard, MO-260B and SO-004A • Enabling the industry's largest 214 contacts preventing connector distortion even though the compact pitch is a high density • Contacts for solder reinforcement are provided in each corner of the connector. **Specifications:** • Operating Temperature Range: -55°C ~ 85°C • Rated Current: AC, DC both 0.3A per pin • Contact Resistance: 70mΩ maximum • Dielectric Withstanding Voltage: AC 500 Vr.m.s per minute • Insulation Resistance: 100MΩ minimum **Materials and Finishes:** • Contact: Copper alloy/Contact area: Gold, Terminal area: Gold flash • Insulator: Heat Resistant plastic

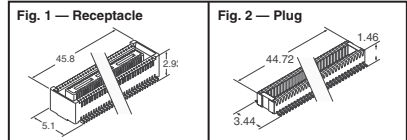


Fig.	No. of Positions	Digi-Key Part No.	Cut Tape Price Each			Tape and Reel Pricing† 500	JAE Part No.
			1	25	100		
1	214	670-1161-1-ND	8.99	6.39	5.79	2655.35	WA6214VA1TR500
		670-1162-1-ND	8.99	6.39	5.79	2655.35	WA6M214VA1TR500

† For Tape and Reel part number, change 1-ND to 2-ND.

WB3 Series 0.5mm Connectors



Feature:
Conforming to PCI Express Card Electrical Mechanical Specification

Specifications:

- Operating Temperature: -40°C ~ 85°C • Rated Current: 0.5A (per pin) • Contact Resistance: 50mΩ max. (initial), 60mΩ maximum (after various tests) • Dielectric Withstanding Voltage: 500 VACr.m.s per minute
- Insulation Resistance: 100MΩ minimum

Materials and Finishes:

- Contact: Copper Alloy/Contact: 0.76um min. Gold plating over Nickel, Terminal: Gold flash plating over Nickel
- Insulator: Thermoplastic resin UL 94V-0 black
- Shell: Receptacle/Copper Alloy: Tin plating, Plug/Stainless steel: Tin plating

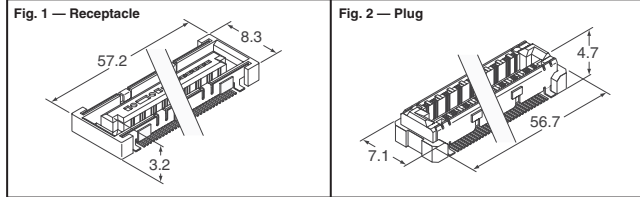


Fig.	No. of Positions	Digi-Key Part No.	Price Each			JAE Part No.
			1	25	100	
1	200	670-1164-ND	5.08	3.46	3.05	WB3F200VD1T
2		670-1166-ND	7.26	4.65	4.36	WB3M200VD1T

WM2 Series 0.5mm Connectors



Features:
• Compatible to SATA and USB 2.0 transmission • With shell compatible to EMI. The shells (ground portion) will connect first when mating.

Specifications:

- Contact Resistance: 50mΩ maximum • Dielectric Withstanding Voltage: AC250 per minute • Operating Temperature: -40°C ~ 85°C • Rated Current: 0.5A/per pin

Materials and Finishes:

Receptacle/Plug: • Contact: Copper Alloy • Insulator: Glass filled LCP • Stainless Steel Shell

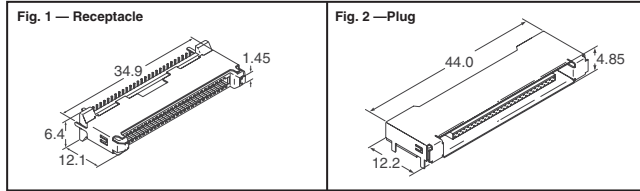


Fig.	No. of Positions	Digi-Key Part No.	Cut Tape Price Each			Tape & Reel Pricing†	JAE Part No.
			1	25	100		
1	54	670-1167-1-ND	3.93	2.23	2.10	549.41/300	WM2F054WPARG300
2		670-1168-1-ND	4.89	3.33	2.94	1642.66/600	WM2M054JPARG600

† For Tape and Reel Part Number, change 1-ND to 2-ND.

KX14 and KX15 Series 0.8mm Connectors



Specifications:
• Contact Spacing: 0.8mm • Current Rating: 0.5 Amps • Dielectric Withstanding Voltage: 500 VACr.m.s per minute • Insulation Resistance: 100MΩ minimum • Contact Resistance: 70mΩ maximum • Operating Temperature: -40°C ~ 85°C

Materials and Finishes:

- Insulator: KX14: Glass-filled LCP/Black, KX15 Straight: Glass-filled PPS/Black, KX15 Right Angle: Glass-filled LCP/Black
- Contact: Copper Alloy, Connecting Area: 0.1µm min. Gold Plating over Nickel, Terminal Area: Gold flash over Nickel or Tin-lead over Nickel
- Hold Down: Copper Alloy/Tin-lead over Nickel
- Hook Pin: Copper Alloy/Tin Plating • Hexagon Nut: Brass/Nickel Plating

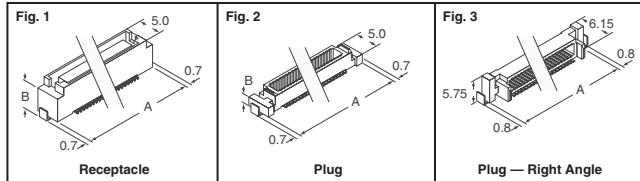


Fig.	No. of Positions	Dimensions (mm)		Digi-Key Part No.	Price Each			JAE Part No.
		A	B		1	25	100	
KX14 Series								
1	20	16	1.95	670-1243-ND	2.08	1.20	1.02	KX14-20K2DE
			4.95	670-1244-ND	2.16	1.24	1.05	KX14-20K5DE
			7.95	670-1245-ND	2.16	1.24	1.05	KX14-20K8DE
			10.95	670-1241-ND	2.08	1.20	1.02	KX14-20K11DE

Fig.	No. of Positions	Dimensions (mm)		Digi-Key Part No.	Price Each			JAE Part No.
		A	B		1	25	100	
1	30	20	1.95	670-1247-ND	2.52	1.44	1.23	KX14-30K2DE
			4.95	670-1248-ND	2.57	1.47	1.25	KX14-30K5DE
			7.95	670-1249-ND	2.44	1.47	1.31	KX14-30K8DE
	40	24	1.95	670-1251-ND	2.68	1.61	1.43	KX14-40K2D-RE
			4.95	670-1253-ND	2.74	1.61	1.47	KX14-40K5D-RE
			7.95	670-1254-ND	3.03	1.77	1.62	KX14-40K8DE
			10.95	670-1250-ND	3.11	1.82	1.67	KX14-40K11DE
	50	28	1.95	670-1257-ND	3.25	1.90	1.74	KX14-50K2D-RE
			4.95	670-1259-ND	5.30	3.61	3.18	KX14-50K5D-RE
			7.95	670-1261-ND	3.62	2.11	1.93	KX14-50K8DE
			10.95	670-1256-ND	3.31	1.94	1.77	KX14-50K11DE
	60	32	1.95	670-1269-ND	4.14	2.42	2.21	KX14-60K2FR
4.95			670-1270-ND	4.01	2.34	2.14	KX14-60K5DE	
10.95			670-1267-ND	3.83	2.24	2.05	KX14-60K11DE	
13.95			670-1268-ND	4.25	2.48	2.27	KX14-60K14DE	
1.95			670-1273-ND	4.75	2.70	2.54	KX14-70K2DE	
70	36	4.95	670-1274-ND	4.36	2.55	2.33	KX14-70K5DE	
		7.95	670-1275-ND	4.36	2.55	2.33	KX14-70K8DE	
		13.95	670-1272-ND	4.33	2.53	2.32	KX14-70K14DE	
		1.95	670-1278-ND	5.34	3.03	2.85	KX14-80K2DE	
80	40	1.95	670-1283-ND	5.01	2.84	2.68	KX14-80N2DE	
		4.95	670-1280-ND	5.40	3.07	2.89	KX14-80K5DE	
		7.95	670-1281-ND	5.40	3.07	2.89	KX14-80K8DE	
		1.95	670-1228-ND	4.68	3.19	2.81	KX14-100K2DE	
100	48	4.95	670-1229-ND	4.99	3.40	3.00	KX14-100K5DE	
		4.95	670-1232-ND	4.74	3.23	2.85	KX14-100N5DE	
		10.95	670-1226-ND	4.94	3.36	2.97	KX14-100K11DE	
		1.95	670-1233-ND	5.84	3.98	3.51	KX14-120K2DE	
120	56	4.95	670-1235-ND	5.58	3.79	3.35	KX14-120K5DE	
		1.95	670-1237-ND	6.75	4.60	4.06	KX14-140K2DE	
140	64	4.95	670-1238-ND	6.77	4.61	4.07	KX14-140K5DE	
		4.95	670-1239-ND	7.37	4.72	4.43	KX14-160K5DE	
			4.95	670-1240-ND	7.37	4.72	4.43	KX14-160N5DE
KX15 Series								
2	20	16	1.95	670-1302-ND	2.08	1.20	1.02	KX15-20K2DE
			2.95	670-1303-ND	1.91	1.09	.93	KX15-20K3DE
			3.95	670-1305-ND	2.16	1.24	1.05	KX15-20K4DE
	30	20	1.95	670-1308-ND	2.52	1.44	1.23	KX15-30K2DE
			3.95	670-1310-ND	2.44	1.47	1.31	KX15-30K4DE
	40	24	1.95	670-1313-ND	2.68	1.61	1.43	KX15-40K2D-RE
			2.95	670-1315-ND	3.03	1.77	1.62	KX15-40K3DE
			7.95	670-1318-ND	5.51	3.13	2.94	KX15-40K8DE
	50	28	1.95	670-1323-ND	3.55	2.08	1.90	KX15-50K2DE
			2.95	670-1325-ND	3.62	2.11	1.93	KX15-50K3DE
			3.95	670-1326-ND	5.40	3.07	2.89	KX15-50K4DE
			1.95	670-1332-ND	4.14	2.42	2.21	KX15-60K2DE
60	32	2.95	670-1333-ND	4.23	2.47	2.26	KX15-60K3DE	
		3.95	670-1334-ND	4.23	2.47	2.26	KX15-60K4DE	
		1.95	670-1336-ND	4.75	2.70	2.54	KX15-70K2DE	
70	36	2.95	670-1337-ND	4.81	2.73	2.57	KX15-70K3DE	
		3.95	670-1338-ND	4.81	2.73	2.57	KX15-70K4DE	
		1.95	670-1344-ND	5.34	3.03	2.85	KX15-80K2DE	
80	40	1.95	670-1352-ND	5.07	2.88	2.71	KX15-80N2DE	
		2.95	670-1346-ND	5.40	3.07	2.89	KX15-80K3DE	
		3.95	670-1348-ND	5.40	3.07	2.89	KX15-80K4DE	
100	48	1.95	670-1284-ND	5.43	3.70	3.26	KX15-100K2DE	
		2.95	670-1285-ND	5.21	3.55	3.13	KX15-100K3DE	
		3.95	670-1286-ND	5.21	3.55	3.13	KX15-100K4DE	
		3.95	670-1287-ND	5.21	3.55	3.13	KX15-100N4DE	
120	56	1.95	670-1290-ND	5.26	3.58	3.16	KX15-120K2DE	
		2.95	670-1291-ND	5.30	3.61	3.18	KX15-120K3DE	
		3.95	670-1293-ND	5.30	3.61	3.18	KX15-120K4DE	
140	64	1.95	670-1294-ND	6.05	4.11	3.63	KX15-140K2DE	
		2.95	670-1295-ND	6.39	4.35	3.84	KX15-140K3DE	
		3.95	670-1296-ND	5.52	3.76	3.32	KX15-140K4DE	
160	72	2.95	670-1299-ND	6.90	4.69	4.14	KX15-160K3DE	
		—	670-1306-ND	4.14	2.42	2.21	KX15-20KLDLE	
		—	670-1311-ND	2.35	1.42	1.26	KX15-30KLDLE	
3	40	24	—	670-1319-ND	2.98	1.75	1.60	KX15-40KLDLE
			—	670-1329-ND	3.57	2.09	1.91	KX15-50KLDLE
			—	670-1330-ND	3.57	2.09	1.91	KX15-50KLDLE
	60	32	—	670-1335-ND	4.20	2.46	2.25	KX15-60KLDLE
			—	670-1339-ND	4.79	2.72	2.56	KX15-70KLDLE
			—	670-1340-ND	4.79	2.72	2.56	KX15-70KLDLE
	80	48	—	670-1351-ND	5.42	3.08	2.90	KX15-80KLDLE
			—	670-1354-ND	5.40	3.07	2.89	KX15-80NLDLE
	140	72.5	—	670-1298-ND	7.59	4.86	4.56	KX15-140KLDLE
			—	670-1301-ND	8.60	5.51	5.17	KX15-160NLDLE

∅ Without hold down

Free shipping on orders over £50! All prices are in British pound sterling and include duties.