Johanson
Capability Guide

Q-FLEX
www.q-flex.fi info@q-flex.fi
+358 2 4894 500

knowles
DLI•JohansonMFG•Novacap•Syfer•Voltronics

Electronic Accura
Through Mech

Knowles Capacitors is the result of the merging of some of the world's leading speciality capacitor manufacturers. With a combined history exceeding 175 years, Dielectric Laboratories (DLI), Johanson MFG, Novacap, Syfer and Voltronics have come together in a single organisation, with one team of great people sharing a common vision.

With facilities located worldwide, Knowles Capacitors is an outstanding, environmentally conscious global supplier. Knowles is proud to be certified to ISO 9001:2008. State-of-the-art technology and equipment in pristine facilities enable Knowles to control the product from design through manufacturing.

Knowles Capacitors is a world-class supplier of Trimmer Capacitors and microwave Tuning Elements. We offer a wide variety of variable capacitors for RF and microwave applications. Giga-Trim® capacitors

cy -
anical Precision.

are miniature capacitors designed for high resolution tuning of RF power circuits. Knowles Air Capacitors are available in a variety of sizes and mounting configurations incorporating a one piece, self-locking, constant torque drive mechanism. Ceramic Trimmer Capacitors are available in surface mount, strip-line and through hole lead styles. Microwave Tuning Elements are an economical means of tuning waveguides, cavities and other microwave structures.

Please see our website at www.johansonmfg.com

Johanson components

- Tuning Elements
- Non-magnetic Trimmer Caps
- Thin-Trim
- Cera-Trim
- Seal-Trim
- Giga-Trim
- Air Trimmer Capacitors
- Non-magnetic Variable Inductors

knowles®

DLI•JohansonMFG•Novacap•Syfer•Voltronics

Tuning Elements

Typical Applications
- Microwave Filter Positioning
- Fiber Optic Alignment
- Metering Valve Adjustment
- X Y Z Stage Positioning
- Self Locking Fastener
- Limit Switch/Sensor Positioning

Other Products Available
- Posi-Torque®
- Taps
- Tuning Rotors
- DynaTrim / Tuners
- Comb Line Filters

Features
- One handed adjusting/tuning
- Self-Locking/Constant torque mechanism
- Eliminates need for "jam" nuts
- Produced with fine-pitched threads for high resolution zero back lash positioning from 24 TPI to 108 TPI
- Basic thread diameters available from 0.060" to 1.00", SI and US customary threads
- Excellent electrical conduction (Contact resistance <0.01 Ω)
- Capable of re-tuning/re-positioning
- Available with Gold, Silver, Nickel Plating and Chromate Finish
- Can be assembled with other materials, (Ceramic, Ferrites, Sapphire, Glass, etc.)
- Available as a set, to provide a positive stop or extended travel range
- Available in copper or ferrous alloys
- Custom torque designs available

Non-magnetic trimmer Caps

Working Voltage	Cap. Range	Series	Q
5000 VDC	1 to 7.5 pF	5610	>1000 @100MHz
1250 VDC	1.5 to 10 pF	52H	>1400 @195MHz
1000 VDC	1.5 to 19 pF	55H	>1000 @175MHz
	1 to 25 pF	59H	>1000 @175MHz
	2 to 30 pF	56H	>1000 @175MHz
250 VDC	0.4 to 3.5 pF	5860	>10000 @100MHz
	0.6 to 6.0 pF	5760	>10000 @100MHz
	0.8 to 10 pF	5240	>4000 @100MHz
	1 to 30 pF	5640	>800 @100MHz

Characteristics
- Working Voltage: From 250 VDC to 5000 VDC
- Long Rotational life
- Insulation Resistance: > 106 MΩ
- Temperature range: -65°C to +125°C
- RoHS Compliant parts available

Specifications (53H18NM)
- Capacity Range: 3.0pF to 55pF (>17 Turns)
- Working Voltage: 1000 VDC (Test Volt. 2000 VDC)
- Q @ 175 MHz - >800
- Insulation Resistance: >10^6 MEGOHMS
- Temperature Range: -65°C to +125°C
- Tuning Torque: 1.0 to 6.0 OZ. IN

Unit Construction

Non-magnetic structure with PTFE dielectric
- Brass Structure
- Glazed Alumina Insulation
- 574°F Solder Used in Assembly
- Gold, Silver and Chromate Finish
- Vertical Mount Version also Available

Thin-Trim

Series	Disk Size	Capacitance	Tuning Resolution
9401	0.140" (3.56 mm)	0.25 to 4.0 pF	90°
9402	0.125" (3.18 mm)	0.5 to 25 pF	180°
9410	0.200" (5.08 mm)	1 to 50 pF	180°

Cera-Trim

Characteristics
- Working Voltage: 250 VDC (500 VDC Test)
- Insulation Resistance: > 104 MΩ
- Temperature Range: -55°C to +125°C
- Tuning Tool: 4192
- RoHS Compliant parts available
- Non-Magnetic

Applications
- RF amplifier
- LC Filters and Networks
- Broadband Wireless LAN
- Medical Devices
- Cordless and Cellular phones
- DR/Crystal Oscillator
- Microstrip line filters

Seal-Trim

Series	Disk Size	Capacitance	Tuning Resolution
9610/9810	0.270" (6.86 mm)	1 to 50 pF	180°
9620/9820	0.180" (4.57 mm)	0.5 to 25 pF	180°

Applications
- RF amplifier
- LC Filters and Networks
- Broadband Wireless LAN
- Medical Devices
- Cordless and Cellular phones
- DR/Crystal Oscillator
- Microstrip line filters

Characteristics
- Working Voltage: 250 VDC (500 VDC Test)
- Long Rotational life
- Insulation Resistance: > 104 MΩ
- Temperature Range: -55°C to +125°C
- RoHS Compliant parts available
- Non-Magnetic

Giga-Trim

Capacitance	Series	Q @ 250 MHz
0.3 to 1.2 pF	27260	> 5000
0.4 to 2.5 pF	27280	> 4000
	47280	> 4000
0.3 to 2.3 pF	47480	> 2000
0.6 to 4.5 pF	17270	> 2000
	27270	> 3000
	47270	> 3000
	57280	> 1000
0.8 to 8.0 pF	27290	> 3000
	57270	> 1000
2.0 to 6.0 pF	47470	> 1500

Applications
- RF amplifier
- Impedance matching
- Crystal trimming
- Interstage coupling
- Filter tuning

Characteristics
- Working Voltage: 500 VDC (1000 VDC Test)
- Long rotational life
- Insulation resistance: > 106 MΩ
- Temperature range: -65°C to +125°C
- RoHS Compliant parts available

Air Trimmer Capacitors

Applications
- RF amplifier and oscillators
- Impedance matching
- Interstage coupling
- Filter tuning
- Crystal trimming

Capacitance	Series	Q @ 250 MHz
0.35 to 3.5 pF	5800	> 10000
0.5 to 5 pF	5850	> 7500
0.6 to 6 pF	5700	> 10000
1.0 to 10 pF	1500	> 4000 @195MHz
0.8 to 10 pF	5200	> 5000
0.8 to 10 pF	5750	> 7500
1 to 10 pF	5300	> 2000
1 to 14 pF	5400	> 3000
1 to 16 pF	5450	> 3000
1 to 20 pF	5500	> 1500
1 to 30 pF	5600	> 800

Characteristics
- Working Voltage: 250 VDC (500 VDC Test)
- Long Rotational life
- Insulation resistance: > 106 MΩ
- Temperature range: -65°C to +125°C
- RoHS Compliant parts available

Non-magnetic variable inductors

Applications

- MRI / NMR Systems
- Radios / Jammers
- Power Amplifiers
- Radar
- Avionics Instrumentation
- Test Equipment

Characteristics

- Patent pending, precision machined design
- 7mm high in SMD, Vertical SMD and thru-hole versions
- Nominal values of 32 to 118nH, 2 to 7 turns
- Q as high at 121 @ 100MHz, SRF 0.7 – 1.5 GHz
- Superb shock, vibration and thermal tolerances
- -40ºC to +85ºC
- Customized version requests welcomed

	Part No.	L(nH) Q				(@ 100MHz)	SRF (GHz)	Turns	Thread (mm)
		Min	Nom	Max	No Core				
Surface Mount - Horizontal	JLC02E030TRSM	32	33	34	39	90	1.2	2	6
	JLC03E048TRSM	46	49	52	59	95	1	3	6
	JLC04E065TRSM	60	64	68	78	101	0.9	4	6
	JLC05E088TRSM	74	81	87	99	114	0.9	5	8
	JLC06E110TRSM	94	107	119	123	119	0.7	6	8
	JLC07E130TRSM	104	118	133	142	121	0.7	7	10
	JLC09E160TRSM	122	130	170	191	162	0.58	9	13
	JLC13E250TRSM	185	219	270	294	199	0.43	13	18
	JLC19E375TRSM	281	345	436	457	171	0.31	19	25
	Part No.	L(nH) Q				(@ 100MHz)	SRF (GHz)	Turns	Thread (mm)
		Min	Nom	Max	No Core				
Surface Mount - Vertical	JLC02E030TRSM	32	33	34	39	90	1.2	2	6
	JLC03E048TRSM	46	49	52	59	95	1	3	6
	JLC04E065TRSM	60	64	68	78	101	0.9	4	6
	JLC05E088TRSM	74	81	87	99	114	0.9	5	8
	JLC06E110TRSM	94	107	119	123	119	0.7	6	8
	JLC07E130TRSM	104	118	133	142	121	0.7	7	10
	Part No.	L(nH) Q				(@ 100MHz)	SRF (GHz)	Turns	Thread (mm)
		Min	Nom	Max	No Core				
Thru Hole Mount - Vertical	JLC02E030TRSM	32	33	34	39	90	1.2	2	6
	JLC03E048TRSM	46	49	52	59	95	1	3	6
	JLC04E065TRSM	60	64	68	78	101	0.9	4	6
	JLC05E088TRSM	74	81	87	99	114	0.9	5	8
	JLC06E110TRSM	94	107	119	123	119	0.7	6	8
	JLC07E130TRSM	104	118	133	142	121	0.7	7	10

knowles®

DLI•JohansonMFG•Novacap•Syfer•Voltronics

www.knowlescapacitors.com

knowles

DLI•JohansonMFG•Novacap•Syfer•Voltronics

Knowles Capacitors designs, manufactures and sells special electronic components. Our products are used in military, space, telecom infrastructure, medical and industrial applications where function and reliability are crucial.

DIELECTRIC LABORATORIES

Knowles (Cazenovia)
2777 Route 20 East, Cazenovia,
NY 13035 USA

Phone: +1 315 655 8710
Fax: +1 315 655 0445
KCCSales@knowles.com

Johanson

Knowles (Cazenovia)
2777 Route 20 East, Cazenovia,
NY 13035 USA

Phone: +1 315 655 8710
Fax: +1 315 655 0445
KCCSales@knowles.com

NOVACAP

Knowles (Valencia)
25111 Anza Drive, Valencia,
CA 91355 USA

Phone: +1 661 295 5920
Fax: +1 661 295 5928
NovacapSales@knowles.com

SYFER

Knowles (UK) Ltd
Hethel Engineering Centre, Chapman Way,
Hethel, Norwich, Norfolk NR14 8FB

Phone: +44 1603 723300
Fax: +44 1603 723301
SyferSales@knowles.com

Voltronics

Knowles (Cazenovia)
2777 Route 20 East, Cazenovia,
NY 13035 USA

Phone: +1 315 655 8710
Fax: +1 315 655 0445
VoltronicsSales@knowles.com

10335/17

© Copyright Knowles Capacitors, 2017 - design: creations@panpublicity.co.uk