

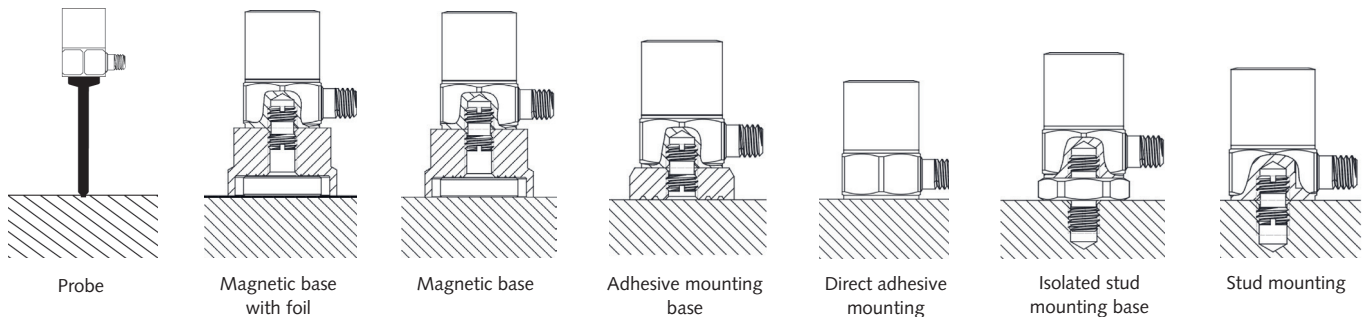
Mounting accessories

Type 84..., 85...

For acceleration sensors

The most important consideration when installing an accelerometer on a test structure is to have a quality mounting surface for attachment. The primary goal is to achieve a maximum useable frequency response for performing a vibration measurement. Since the mounting surface conditions affect transmissibility, a variety of adhesive mounting pads, clips, magnetic bases, studs and triaxial cubes with accurately prepared mounting surfaces

are available for use in a wide range of applications. When frequencies higher than 2 ... 3 kHz are considered, each accelerometer instruction manual provides specific recommendations for surface quality, sensor orientation and mounting torque. Frequency response considerations are detailed in [1]. Note: All unit measurements are provided in mm [in], unless otherwise noted.



Mounting method	Accessory Type	Advantages	Disadvantages	Remarks
Probe		Quick measurement	Lower accuracy	
Magnetic base	8450A, 8452A, 8456, KIG4662Bx, 8458, 8466K03, ...	Easy & quick installation	Adds considerably to mass loading, lowers resonant frequency	Limited to ferromagnetic materials
Adhesive mounting base	8440K0x, 8466K01, 8434, 8436, 8438, ...	Allows stud mounting, provides electrical isolation	Lowers resonant frequency	Pads are usually exposed to test specimen
Adhesive wax	8432 Petrowax, bees wax	Ideal for lightweight units	Limited temperature range; not suitable for larger sensors	Fast & clean
Adhesive cement	Adhesive, Permabond (cyanoacrylate), hot melt, Epoxy	Good, strong coupling of sensor to specimen; higher temperature capability than wax	Difficult to remove sensor; requires solvents, removal tool and/or heat	Suited for more permanent applications & high frequency measurements
Isolated mounting stud	8400K0x	Allows both strong coupling & ground isolation	Requires threaded hole in specimen; base slightly lower resonance frequency	Control mounting torque; use Silicone grease
Mounting stud	8402, 8404, 8406, 8410, 8411, 8416, 8418, 8421, 8451, 8453	Best coupling of sensor to test specimen for highest frequency response	Requires threaded hole in specimen	Control mounting torque; use Silicone grease

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Mounting stud & stud converter

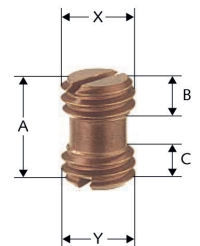
Many accelerometers are specifically designed for stud mounting. The studs on many types are removable allowing both stud and adhesive mounting. Stud mounting is the preferred mounting of an accelerometer to test a structure. With properly prepared mounting surfaces and mounting torque correctly observed, it yields the broadest useable frequency range. Recommended mounting torque is provided in each particular sensor datasheet or instruction manual. In addition to each accelerometer instruction manual, a specific technical paper [1] outlines all the important features for mounting accelerometers.

Types 8402 ... 8453 are used to form a rigid connection between the accelerometer and the test object and are machined from Beryllium Copper or Stainless Steel for high strength and high modulus of elasticity coupled with high elastic limits. They are available in different thread sizes; with English and Metric threads at opposite ends or as a thread converting insert.

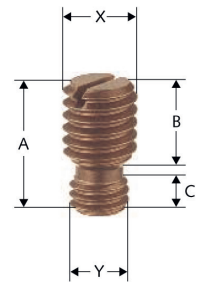
Caution: Always ensure that the stud does not contact the bottom of the threaded hole. Always follow the recommended mounting torque provided for each accelerometer in its corresponding instruction manual to prevent any damage to the sensor base.

Mounting studs

Type	A	B	C	THD. X	THD. Y	Material	Recommended sensor Types
8402	7.1 [0.28]	2.5 [0.10]	2.5 [0.10]	10-32	10-32	BeCu	8290, 8002K, 8202, 8702, 8704, 8703, 8705, 8784, 8786, 8396, 8762, 8770
8404	7.1 [0.28]	2.5 [0.10]	2.5 [0.10]	10-32	10-32	17-4 PH	8044
8406	5.8 [0.23]	2.0 [0.08]	2.0 [0.08]	10-32	10-32	BeCu	8076K, 8080

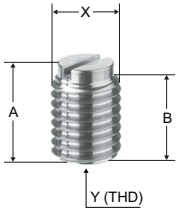


Type	A	B	C	THD. X	THD. Y	Material	Recommended sensor Types
8410	6.4 [0.25]	3.2 [0.13]	2.0 [0.08]	¼-28	10-32	BeCu	8076K, 8203, 8712, 8784, 8786, 8080
8411	10.4 [0.41]	6.6 [0.26]	2.8 [0.11]	M6	10-32	BeCu	8290, 8202, 8702, 8704, 8703, 8705, 8784, 8786, 8762, 8770, 8002K
8416	6.6 [0.26]	3.2 [0.13]	2.3 [0.09]	10-32	5-40	316 St. Stl.	8763, 8766A250/500/1K0
8416K01	7.1 [0.28]	3.2 [0.12]	2.5 [0.10]	5-40	M3	303 St. Stl.	–
8418	7.0 [0.28]	3.8 [0.15]	2.3 [0.09]	M6	5-40	316 St. Stl.	8763, 8766A250/500/1K0
8421	12.3 [0.48]	7.5 [0.30]	3.3 [0.13]	M8	¼-28	BeCu	8203, 8712, 8080
8430K03	6.9 [0.27]	3.6 [0.14]	2.3 [0.09]	10-32	6-32	BeCu	8766A50, 8766A050/100
8451	8.8 [0.34]	5.0 [0.20]	2.8 [0.11]	M5	10-32	BeCu	8688, 8290, 8202, 8702, 8704, 8703, 8705, 8762, 8784, 8786, 8770, 8002K
8453	9.8 [0.38]	3.7 [0.15]	5.1 [0.20]	¼-28	M5	BeCu	8712

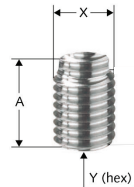


Stud converters

Type	A	B	THD. X	THD. Y	Material	Recommended sensor Types
8414	8.9 [0.35]	7.1 [0.28]	¼–28	10–32	17-4 PH St. Stl	8076K, 8080
8484	5.5 [0.21]	3.4 [0.13]	10–32	5–40	17-4 PH St. Stl	
8486	5.5 [0.21]	3.4 [0.13]	10–32	M3	17-4 PH St. Stl	



Type	A	THD. X	THD. Y	Material	Recommended sensor Types
8412	9.5 [0.37]	¼–28	Hex	18-8 St. Stl	8712, 8076K, 8080
8420	6.3 [0.25]	5–40	0.062 Hex	18-8 St. Stl	8763



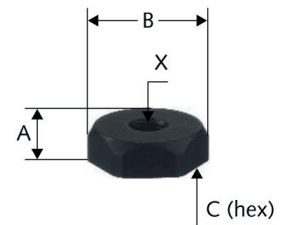
VascoMax 300 is a registered trademark of Teledyne Vasco.

Isolated mounting pad

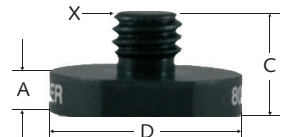
Mounting pads provide ground isolation for the accelerometer. They are attached to the test surface with adhesive or with a screw or stud on surfaces less than ideal for direct mounting of the accelerometer. Pads are often used in applications where

multiple locations are to be measured using only one accelerometer. Recommended mounting torque is provided in each particular sensor datasheet or instruction manual.

Type	A	B	C	THD. X	Material	Recommended sensor Types
8434	4.8 [0.19]	12.4 [0.49]	11.1 [0.44]	5-40	Al. Anod.	8730, 8763
8436	4.8 [0.19]	15.7 [0.62]	14.2 [0.56]	10-32	Al. Anod.	8202, 8203, 8274, 8702, 8703, 8704, 8705, 8774, 8784, 8786, 8766
8438	7.9 [0.31]	21.0 [0.83]	19.1 [0.75]	¼-28	Al. Anod.	8076K
8436M02	3.0 [0.12]	9.0 [0.35]	8.0 [0.31]	5-40	Al. Anod.	8730
8442	9.5 [0.37]	18.3 [0.72]	–	¼-28	Al. Anod.	–
8462K01	4.8 [0.19]	20.5 [0.81]	19.0 [0.75]	4-40	Al. Anod.	8764, 8765, 8715
8462K02	4.8 [0.19]	20.5 [0.81]	19.0 [0.75]	M2.5	Al. Anod.	8764, 8765, 8715

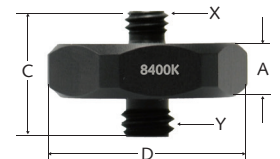


Type	A	C	D	THD. X	Material	Recommended sensor Types
800M157	2.5 [0.10]	6.4 [0.25]	11.1 [0.44]	10-32	Al. Anod.	8688
800M158	2.5 [0.10]	5.1 [0.20]	9.4 [0.37]	5-40	Al. Anod.	8640
8440K01	5.2 [0.20]	8.0 [0.31]	12.7 Hex [0.50 Hex]	5-40	Al. Anod.	8763A, 8766A250/500/1K0
8440K02	5.7 [0.22]	9.0 [0.35]	19.1 Hex [0.75 Hex]	6-32	Al. Anod.	8766A50
8440K03	5.0 [0.19]	8.3 [0.32]	14.3 Hex [0.56 Hex]	10-32	Al. Anod.	8702, 8703, 8704, 8705
8440K04	5.0 [0.19]	8.3 [0.32]	14.3 Hex [0.56 Hex]	6-32	Al. Anod.	8766A050/100
8466K01	6.4 [0.25]	10.2 [0.40]	22.2 Hex [0.87 Hex]	10-32	Al. Anod.	8396



Isolated mounting pad (continued...)

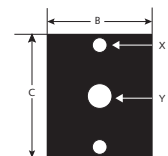
Type	A	C	D	THD. X	THD. Y	Material	Recommended sensor Types
8400K01	3.4 [0.13]	11.6 [0.46]	12.7 Hex [0.50 Hex]	10-32	10-32	Al. Anod.	8702, 8703, 8704, 8705, 8784, 8786
8400K02	6.0 [0.24]	12.4 [0.49]	19.1 Hex [0.75 Hex]	10-32	6-32	Al. Anod.	8766A50
8400K03	5.5 [0.22]	12.8 [0.50]	19.1 Hex [0.75 Hex]	10-32	M6	Al. Anod.	8688, 8702, 8703, 8704, 8705, 8784, 8786
8400K04	5.2 [0.20]	12.3 [0.48]	12.7 Hex [0.50 Hex]	5-40	M6	Al. Anod.	8766A250/500/1K0, 8763
8400K05	5.9 [0.23]	13.3 [0.52]	19.1 Hex [0.75 Hex]	6-32	M6	Al. Anod.	8766A50
8400K06	5.3 [0.21]	11.4 [0.45]	12.7 Hex [0.50 Hex]	10-32	5-40	Al. Anod.	8766A250/A500/1K0, 8763
8400K07	5.1 [0.20]	13.2 [0.52]	22.2 Hex [0.87 Hex]	10-32	10-32	Al. Anod.	8762



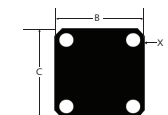
Type	A	C	D	THD. X	THD. Y	Material	Recommended sensor Types
8466K02	6.4 [0.25]	10.2 [0.40]	22.2 Hex [0.87 Hex]	10-32	10-32	Al. Anod.	8396
8466K06	6.4 [0.25]	10.2 [0.40]	9.53 Hex [0.37 Hex]	10-32	10-32	Al. Anod.	8742, 8743
8466K07	5.1 [0.20]	7.6 [0.30]	8.89 Hex [0.35 Hex]	5-40	5-40	Al. Anod.	8730



Type	A (thickness)	B	C	THD. X	THD. Y	Material	Recommended sensor Types
8464K01	7.6 [0.30]	21.6 [0.85]	25.4 [1.0]	4-40	-	Al. Anod.	8316
8464K02	7.6 [0.30]	21.6 [0.85]	25.4 [1.0]	4-40	10-32	Al. Anod.	8316



Type	A (thickness)	B	C	Diam. X	Material	Recommended sensor Types
800M144	4.8 [0.19]	15.9 [0.63]	15.9 [0.63]	4-40	Al. Anod.	8793, 8794 (adhesive mount)
800M154	4.8 [0.19]	15.9 [0.63]	15.9 [0.63]	hole	Al. Anod.	8793, 8794 screw mount 4 x 8446AE4 or 4 x 8446AM4 isolated screw kits to be ordered separately



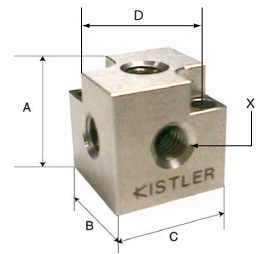
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Triaxial mounting cubes

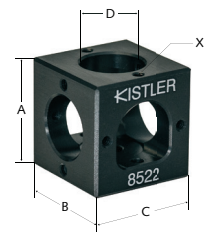
Allows for two or three single-axis accelerometers to be precisely mounted to perform biaxial or triaxial acceleration measurements.

Cube attachment to the test surface can either be by stud or adhesive for some types. Accelerometer attachment to the cube can be in a similar manner.

Type	A	B	C	D	THD. X	Weight (grams)	Material	Recommended sensor Types
8502	25.4 [1.00]	25.4 [1.00]	25.4 [1.00]	25.4 [1.00]	10-32	117	303 St. Stl.	8202, 8702, 8703, 8704, 8705, 8002K
8504	14.5 [0.57]	14.5 [0.57]	14.5 [0.57]	14.2 [0.56]	10-32	20	303 St. Stl.	8044, 8742, 8743
8510	14.3 [0.57]	14.3 [0.57]	14.3 [0.57]	14.2 [0.56]	5-40	19	316 St. Stl.	8730
8514	17.3 [0.68]	17.3 [0.68]	17.3 [0.68]	18.4 [0.72]	10-32	35	303 St. Stl.	8202, 8702, 8704, 8774
8524	11.1 [0.44]	11.1 [0.44]	11.1 [0.44]	-	10-32	2.8	Al. Anod.	8774, 8274 (stud mount)

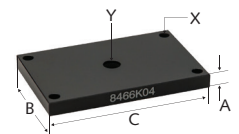


Type	A	B	C	D	THD. X	Weight (grams)	Mounting screws	Material	Recommended sensor Types
8522	27.0 [1.06]	27.0 [1.06]	27.0 [1.06]	15.1 [0.59]	4-40	28	4-40 x 7/16" 10-32 x 1/2"	Al. Anod.	8316

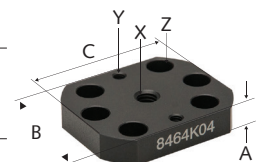


Interface adapter plate

Type	A (thickness)	B	C	Diam. X	Diam. Y	Material	Recommended sensor Types
8466K04	4.6 [0.18]	31.7 [1.25]	49.3 [1.94]	3.2 [0.125]	5.2 [0.203]	Al. Anod.	Adapt 8396 to old Type 8393 mounting hole pattern



Type	A (thickness)	B	C	THD. X	THD. Y	Diam. Z	Material	Recommended sensor Types
8464K04	5.7 [0.22]	27.0 [1.06]	31.7 [1.25]	10-32	4-40	3.2 [0.12]	Al. Anod.	Adapt 8316 to old Types 8305/8310/8312 mounting pattern with 10-32 stud

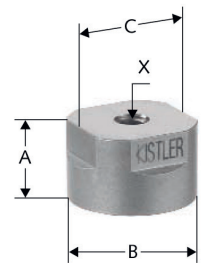


Magnetic mounting base

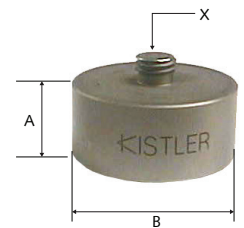
These offer a convenient, temporary attachment to a ferromagnetic test structure. A notched mounting unit is available for mounting on curved surfaces. Magnetic bases find use in applications requiring vibration monitoring of large rotating machinery. Note that usage of some mounting bases can add consider-

able mass and reduce high frequency response. High care should be taken while usage of magnetic mounting bases in order to avoid shock during ferromagnetic surface approach. This could lead to irreversible damaged to the sensor.

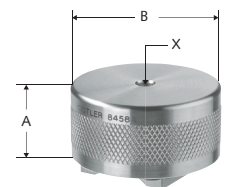
Type	A	B	C	THD. X	Holding force N [lbf]	Weight (grams)	Max. temp. °C [°F]	Material	Recommended sensor Types
8450A	7.6 [0.30]	12.7 [0.50]	11.1 [0.44]	5-40	26.7 [6]	1.25	170 [340]	17-4 St. Stl.	8763, 8730
8452A	11.2 [0.44]	17.8 [0.70]	15.9 [0.62]	10-32	55 [12]	19	260 [500]	17-4 St. Stl.	8274, 8702, 8703, 8704, 8705, 8774, 8784, 8763, 8202, 8786, 8290, 8766
KIG4662 B-4	10.9 [0.43]	18.0 [0.71]	12.7 [0.50]	10-32	55 [12]	17	80 [175]	St. Stl.	
KIG4662 B-1	10.9 [0.43]	18.0 [0.71]	12.7 [0.50]	6-32	55 [12]	17	80 [175]	St. Stl.	
KIG4662 B-5	9.9 [0.39]	11.9 [0.47]	9.9 [0.39]	M2.5	55 [12]	8	80 [175]	St. Stl.	8765, 8705, 8764
KIG4662 B-6	5.8 [0.23]	9.4 [0.37]	7.1 [0.28]	5-40	20 [5]	8	80 [175]	St. Stl.	8730, 8640



Type	A	B	THD. X	Holding force N [lbf]	Weight (grams)	Max. temp. °C [°F]	Material	Recommended sensor Types
8456	11.3 [0.44]	25.0 [0.98]	¼-28	135 [30]	57	170 [340]	17-4 PH St. Stl.	8203
KIG4662 B-3	14.0 [0.55]	18.0 [0.71]	10-32	50 [11]	16	80 [180]	St. Stl.	8702, 8705
KIG4662 B-2	14.0 [0.55]	18.0 [0.71]	¼-28	50 [11]	16	80 [180]	St. Stl.	–

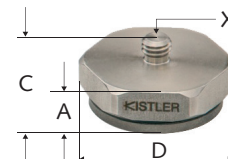


Type	A	B	THD. X	Holding force N [lbf]	Weight (grams)	Material	Recommended sensor Types
8458A	28.0 [1.10]	47.0 [1.85]	¼-28	40	102	17-4 PH St. Stl.	8203, 8712

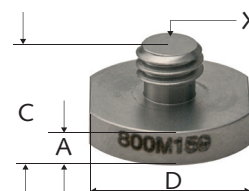


Magnetic mounting base (continued...)

Type	A	C	D	THD. X	Holding force N [lbf]	Material	Recommended sensor Types
8466K03	5.08 [0.20]	8.9 [0.35]	22.2 Hex [0.88 Hex]	10-32	100 [22]	303 St. Stl.	8396



Type	A	C	D	THD. X	Holding force N [lbf]	Material	Recommended sensor Types
800M159	2.5 [0.10]	6.3 [0.25]	11.1 [0.44]	10-32	40 [9]	17-4 PH St. Stl.	8688
800M160	2.5 [0.10]	5.1 [0.20]	9.4 [0.37]	5-40	30 [7]	17-4 PH St. Stl.	8640



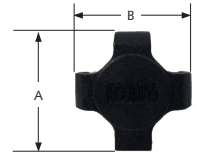
Type	A (thickness)	B	C	THD.X	Holding force N [lbf]	Material	Recommended sensor Types
8464K03	7.6 [0.30]	21.6 [0.85]	25.4 [1.00]	4-40	100 [22]	17-4 PH St. Stl.	8316



Mounting clips

Provide a convenient way to install single-axis, cube shaped accelerometers on a test structure. Attached using adhesive, they find use in large multichannel modal measurements.

Type	A	B	Material	Recommended sensor Types
800M156	16.3 [0.64]	16.0 [0.63]	Polycarbonate	8640
800M155	20.1 [0.79]	19.8 [0.78]	Polycarbonate	8688



Direct adhesive mounting

Some Kistler accelerometers are specifically designed for adhesive mounting (Types 8278, 8776...) and require no special mounting adapters. Units furnished with stud holes can also be used with adhesives.

Mounting petrowax

Bee's wax has been used as a mounting agent for many years. The recommended Petro-Wax (Type 8432) is a good replacement for bee's wax since it has been formulated to provide improved frequency response. Wax is a good mounting agent for lightweight sensors in temporary installations where near room temperatures are encountered.

Other adhesives available on the market

Hot glue: Hot glue can be used on rough surfaces or when higher frequencies are not of primary concern. This is ideal for quick assembling with or without mounting adapters (plastic clip technique). Removal and cleaning is very simple. Hot glues are often applied in structural analysis, where many sensors will to be applied to a structure. Hot glue guns are commercially available (line or battery powered). There are a number of different hot glues available; some of them can be used at elevated temperature ranges. For polymer or plastic surfaces, low temperature hot glues are available with sufficient sticking properties.

Cyanoacrylate, super glue's:

Liquid, low viscosity: These work best on smooth, flat and non-porous surfaces.

Gels: These can be used on rough and porous surfaces, like castings. The high viscosity prevents these adhesives from migrating. Operating temperatures range between -80°C and 100°C [-110°F and 210°F].

Two-component epoxy resin: These are used for permanent installations. A wide variety is available for different applications and materials. Epoxies are cured or hardened with time, light and/or elevated temperature. Kistler can provide a base, clip or mechanical adapter that can be permanently installed on a structure. These have a threaded hole for attaching the accelerometer, allowing it to be unscrewed as needed. Epoxies are available up to 260°C [500°F].

WARNING : High care should be taken while removing a lower g sensor that has been directly adhesive mounted. Use solvent or heat and avoid direct shock onto the sensor or adhesive crack that could lead to irreversible damage to the sensor electronic.

Direct adhesive mounting (continued...)

Adhesives	Mounting area		Ambient temperature		Availability		Solvent
	smooth, polished	rough	Room Temp.	Temperature Range	Manufacturer	Kistler	
Temporary/removeable							
Synthetic wax/Petro wax	■	■	■			■	not required
Double-sided glue tape	■	■	■		3M (Type 465, 924)		-
One-sided aluminum glue tape	■	■	■		3M (Type 433, 431)		-
Thermo-setting plastic glue tape (www.nittousa.com)				up to 150°C [310°F]	Nitto Denko (USA), P-224AMB		
High tensile silicone flash masking tape (www.nittousa.com)				up to 180°C [360°F]	Nitto Denko (USA), PS-1		

Fixed/removeable/permanent

Super glue, liquid	■			refer to manufacturer instructions	Adhesive, Henkel Teroson, UHU GmbH		MEK (1)
Super glue, gel	■	■		refer to manufacturer instructions	Adhesive, Henkel Teroson, UHU GmbH		MEK (1)
Hot glue (w/ hot glue gun)	■	■		up to 65°C [150°F] approx.	Adhesive, Henkel Teroson, UHU GmbH		

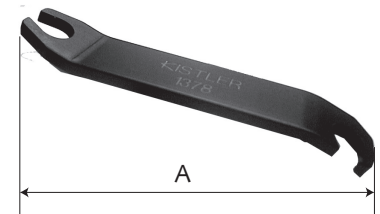
Permanent

Epoxy resin, 2 components	■	■		up to 120°C [250°F] approx.	Adhesive, Henkel Teroson, UHU GmbH		
325 Speed Bonder	■	■		-55 ... 180°C [-65 ... 350°F]	Adhesive, Henkel Teroson		

(1): MEK is the abbreviation for methyl-ethyl-ketone. In order to ensure safe usage, please refer to the "safety" data sheet mentioned in [2].

Removal wrench for miniature accelerometer

Type	A (length)	Recommended sensor Type
1378	60.2 [2.37]	8778, 8278



Literature

[1] IMAC-XXXIV, "Acceleration Measurement Optimization: Mounting Considerations and Sensor Mass Effect", Marine Dumont, Norton Kinsley, Kistler Instrument Corp.

[2] Safety data sheet according to Regulation (EC) No. 1907/2006, www.merckmillipore.com