kulite®

Celebrating Fifty Years
1959~2009

INTRODUCTION

Innovation and Leadership in the Transducer Industry


World Headquarters, Leonia, NJ


Building Two, Leonia, NJ


Building Three, Leonia, NJ

Kulite Semiconductor Products, Inc. is a leading name in the transducer industry on a world wide level. Kulite is the first name in pressure transducers for scientists and engineers working at the cutting edge of research and design in their fields. Kulite has attained this high stature and recognition under the direction and guidance of its founder, Dr. Anthony David Kurtz. Since founding Kulite in 1959, Dr. Kurtz has been personally involved in working out creative and original solutions to the pressure measurement needs of his customers.

Over the last fifty years, Dr. Kurtz has assembled around him a team of talented engineers and scientists. Together, they have developed an unparalleled body of knowledge gained from meeting these challenges. They have also developed one breakthrough after another in the technologies underlying these pressure transducers. The fruits of their continuous research and development can be seen in the more than 200 patents which bear the name of Dr. Kurtz, his staff and his colleagues from the world of research.

The nerve center of all this scientific and engineering activity is the Kulite world headquarters, consisting of over 100,000 square feet, in three modern buildings, in the town of Leonia, New Jersey. These buildings house Kulite's research and manufacturing facilities as well as the administrative departments. From this center, Dr. Kurtz has established formal working ties with leading universities and research centers, both in the United States and overseas.

This extensive global network gives Kulite a unique opportunity to learn of, and to participate in, new research projects. These projects are not only in the field of sensing technology but in many of the fields in which Kulite transducers are used. When the research is complete and the time has come to apply it, commercial customers find that Kulite is already aware of new developments in their field and that Kulite has already developed precisely the product they need. And if the product requires industry certifications such as Intrinsic Safe Certification or FAA certification, Kulite can also provide these.

Please refer to our web site, www.kulite.com for the latest news, technology overview, technical papers and product specifications.

Kulite's Roots

The letter below is from a speech Mrs. Jacob Kurtz, mother of Dr. Anthony Kurtz, presented to the First International Sales Conference, March 31,1984 at the Hotel Algarve in Portugal.

Anthony Kurtz with parents Claire and Jacob

Greetings from America! As we complete nearly 25 years as a company, I am reminded that just over 35 years ago my husband and I organized the company that was to give birth to Kulite Semiconductor Products some ten years later.

My husband, Jacob Kurtz, a world-famous metallurgist had been one of the founders of Callite Tungsten Corporation of Union City, New Jersey. At that time he was Vice President and Director of Research and Development, a specialist in the field of powder metallurgy, and holder of over 30 patents.

When Callite ceased to operate, my husband and I decided to establish our own business. Although our capital was miniscule, he had many personal friends in the trade who encouraged him.

With my scanty typewriting skills, not used in over 25 years, and my knowledge of office procedure, I felt I could assist my husband in our new Venture.

My husband had a great many friends who admired and respected him enormously. One friend in particular I shall never forget was Dr. Sidney B. Wood, President of Wilbur B. Driver Co. of Newark, at that time one of the largest processors of Cobalt in the world. Dr. Wood allowed my husband to use the facilities of his company at no charge. It was here that some of the first reactor grade cobalt was developed by my husband.

Another friend, Mr. Capita, President of Ecco Corporation, allowed my husband to use his high frequency furnaces to produce some of the first tungsten alloys which he developed as a radioactive shielding material to be used in x-ray therapy.

Another friend and former vendor of Callite invited my husband to become a partner and consultant for the small tungsten cutting business he was then operating.

I remember our first order - $25.00 worth of tungsten wire for Oak Ridge National Laboratory. Since we had no coil winding machinery, and very little else, we were forced to be ingenious. We used an oatmeal box as a spool, rolled out the exact length, tied the wire into a coil and wrapped it up. My husband proudly took this package to the post office and I typed the invoice. Our first sale had been completed.

My husband began fabricating tungsten and its alloys in rented space nearby and even this additional space proved inadequate. In 1957 we purchased a building in Ridgefield and renovated it for our own use. This factory had a small loft which we were not using. It was this loft that our son, Dr. Anthony Kurtz, used for his factory when he established Kulite Semiconductor Products, Inc. nearly a quarter of a century ago.

When our son, Dr. Anthony Kurtz, approached us about setting up his own business, he assured us that the loft would be suitable to set up a laboratory and assembly area - after much discussion about the cost of equipment, salaries, etc., and with a limited capital - his enthusiasm overcame any doubts. His staff consisted of Charles Gravel and 3 assistants. Now we are bursting at the seams. Land has been purchased for a new building which I hope will serve Kulite Semiconductor Products with great success for many, many years.

Kulite Semiconductor Products, Inc.
Hoyt Ave., Ridgefield, NJ

Dr. Anthony D. Kurtz
General Manager and
Executive Vice-President

The historical information below is taken from the book -
"From Locomotives to Strain Gages" by Howard A. Nielsen, Jr.

The Birth of the Semiconductor Gage – 1959

In 1959, a new type of strain gage technology was emerging. This strain gage was based on semiconductor technology, which had electrical output up to one hundred times that of the typical metallic gage and didn't sacrifice any other parameters. A company called Kulite-Bytrex Inc., first introduced this technology to the market.

Kulite-Bytrex Corporation was established in the fall of 1959 as a jointly owned subsidiary of Bytrex Corporation of Newton, Massachusetts, and Kulite Semiconductor Products, Inc., of Ridgefield, New Jersey. The company was formed to take advantage of the background of Bytrex Corporation in the field of strain gages, strain gage devices, and associated instrumentation, and Kulite Semiconductor Products, Inc., in the field of solid state physics. The specific interests of the company lay in development of strain sensitive semiconductor gages and devices based on the basic patents of Bell Telephone Labs. The companies were first licensed under Western Electric's recent patent disclosing the piezoresistive characteristics of semiconductors. Kulite-Bytrex was the first company in the world to make commercially available a semiconductor strain gage with an output almost 100 times larger than conventional wire and foil gages.

BULLETIN K-102A
Supplement

K-B

NEW SEMICONDUCTOR STRAIN GAGES

- INCREASED OUTPUT
- SMALLER SIZE
- ZERO TEMPERATURE COEFFICIENT OF GAGE FACTOR
- EXCELLENT LINEARITY

Gage Type	Res. (ohms)	Gage Factor @70°F	Effective Gage Length (Inches)	Overall Length (Inches)	Width* (Inches)	Approximate decrease of gage factor with temp. %/100°F (unbonded)
DB-108	10,000	195	1/4	1/2	1/8	-23
DB-109	120	130	1/20	5/32	1/8	-13
DB-111	60	45	1/4	1/2	1/8	0
DB-112	120	58	1/4	1/2	1/8	2

*Minimum trim width all gages = .090".

Note: All gages packed 4 to the package.

Semiconductor strain gages to date have exhibited a high degree of temperature dependency. Since the advent of this new technology, Kulite-Bytrex has been working toward reducing this problem and is pleased to announce that gages are now available in which the temperature effect on gage factor is essentially reduced to zero. This has been accomplished without the use of "trick circuits", constant current sources, thermistors and other "brute force" methods for handling the sensitivity change of currently available gages. For transducer work, the change in gage factor with temperature has been adjusted to be equal and opposite that of the change in modulus of steel with temperature. This has been accomplished in conjunction with a significant improvement in linearity.

Other new additions to the line include the miniature DB-109 gage with effective gage length of 1/20" and the new DB-108 high resistance gage which makes possible an output in excess of 1 volt from a single gage.

TEMPERATURE CHARACTERISTICS There are three temperature coefficients which are of concern in any material used as a stain gage. These are the temperature coefficient of resistance, the temperature coefficient of expansion, and the temperature coefficient of gage factor. When a gage is used to measure strain by attaching it to a specimen, these three coefficients combine with the thermal coefficient of expansion of the specimen to produce an "apparent strain" or thermally induced resistance change in the gage. This resistance change is indistinguishable from the resistance change produced be deformation of the specimen. Although the temperature coefficient of gage factor generally plays a small part in the "apparent strain" characteristic, it has a significant and direct effect on the value of resistance change with strain at different temperatures.

Apparent strain in a good commercial metal gage varies between 6 and 10 microstrain per degree Fahrenheit. Some of the higher output Iso-elastic metal gages have apparent strains as high as 70 microstrain per degree Fahrenheit. Self-compensated metal gages combine wires of different temperature coefficients in the same grid to provide apparent strain as low as one microstrain per degree F.

Kulite-Bytrex semiconductor gages are now available with apparent strains 2 to 3 times better than the best metal gages. Dual grid compensated gages (MP Series) are available with apparent strains equal to the best self-compensated metal gages.

The DBN-102 gage has an apparent strain on steel of 3 microstrain per degree Fahrenheit. The DBN-103 and DBN-104 have apparent strains on aluminum of 2 microstrain per degree Fahrenheit. The MP Series self-compensated gages are available with apparent strains of 1 microstrain per degree Fahrenheit on various materials. In most instances, a strain gage can be wired into a bridge circuit with a "dummy or compensating" gage to provide good compensation for apparent strain.

The change in sensitivity of gage factor with temperature can prove to be a more difficult problem in many types of applications. *The new DB-111 and DB-112 gages described in this bulletin are the first high output semiconductor gages in which the problem of change in gage factor with temperature is eliminated.*

KULITE-BYTREX CORPORATION
50 HUNT STREET • NEWTON 58, MASSACHUSETTS • WAlnut 6-0360

SEMICONDUCTOR STRAIN GAGES
SEMICONDUCTOR STRAIN GAGE DEVICES

1960 Kulite-Bytrex Bulletin, on their semiconductor strain gages, developed by Dr. Kurtz

In the early 1960s, semiconductor technology saw two companies, Micro Systems, Inc. and Kulite-Bytrex as the two established sources in the semiconductor strain gage market. By contrast to the MSI operation, Kulite-Bytrex were strictly bootstrap, pay-as-you-go affairs where internal economics was paramount.

Another competitor in the market was Schaevitz, which was several times larger in sales volume than Kulite-Bytrex, with a commitment to more rapid growth by acquisition. Herman Schaevitz was a hard bargainer as was Tony Kurtz of Kulite Semiconductor, so while Schaevitz came to terms with Stan Charren of Bytrex for acquisition, he was not able to consummate a similar agreement with Kulite Semiconductor. As a result of this negotiation, Kulite-Bytrex died, Bytrex became Schaevitz-Bytrex, and Kulite marketing became independent. While Kulite continued to supply Schaevitz-Bytrex with semiconductor sensors for the transducers they had developed, Kulite was now free to go its own way promoting semiconductor strain gages and transducers.

In the mid 60s, The Boeing Company was aggressively pursuing development work on the Supersonic Transport. A vital part of their test work was engaged in studying how to keep shock waves out of the engines and tearing them apart, as the aircraft went through the sound barrier to supersonic speeds. In a wind tunnel with simulated engine nacelle, they had a needlelike projection in the engine nacelle center, which could be moved fore and aft. As the supersonic speed of air past the nacelle was varied, the adjustable needle projection was actuated, and the effects of the moving shock wave were measured with miniature pressure transducers furnished by Bytrex. The unit was .125" in diameter, in ranges from 2psi to 25psi, outputs to 125 millivolts and natural frequency better than 60 kilocycles. To get the size down and natural frequency up, the design incorporated a fabricated silicon column loaded in compression that measured the force produced by the pressure-collecting diaphragm. The thermal gradient characteristics of the design were excellent and Boeing bought them by the hundreds at $425 each and got good results – when they worked. Because of a "dirty" tunnel, particles would impinge on the diaphragm, and fracture the glass-like column. There were also reliability problems associated with the remote module containing bridge completion and compensation resistors, which the Bytrex unit required.

Around this time, Kulite was beginning to build diffused pressure diaphragms that were simply a silicon circular chip, with gages diffused or atomically bonded on the back side. Since the diffused pattern was a four-arm bridge, the diaphragm did not need a remote module, requiring only bonding to a tubular section and attachment of lead wires. It was intrinsically less expensive than competitors products, and there was some indication that an all-silicon diaphragm might be less susceptible to fracture from foreign particles than a metallic diaphragm loading an all-silicon column. The overall effect of the Kulite unit was less cost and higher reliability than anything else in the market.

The utilization of diffusion to build a four-arm strain gage bridge on an all-silicon mono-crystalline diaphragm, theoretically resulting in no creep or hysteresis because there was no grain boundaries, had a market appeal that could not be denied. It was just a matter of time before Kulite began picking up a major percentage of this business that had been going to Bytrex originally. There were problems with the diffuse diaphragm as well, such as the techniques of getting good edge bonding. The foreign particle problem finally had to be resolved with screen protectors over the diaphragm that would not materially affect dynamic response. But the end result produced as good or better data than before, at less cost.

Another benefit accrued by going to the diffused diaphragm in this application, which rapidly spread to other wind tunnel testing, was the possibility of smaller size. Kulite came out with 0.090" diameter diaphragms, and then 0.058" diameter diaphragms, still with diffused four-arm bridges. Bytrex sweat bullets coming up with a competitive column design 0.090" diameter, but had to give up on going smaller, thus leaving the market wide open for Kulite.

CQ-030 Series

Another area of interest at this time was for physiological pressure measurement, which introduced hospitals and laboratories that always needed miniature devices for making measurements on live creatures, including man. Making blood-pressure measurements on animals in the wild, and telemetering the information back, was a common one. The problem with these applications was that the quantities were usually quite low, and you had to spend an inordinate amount of time

KULITE SEMICONDUCTOR PRODUCTS, Inc.

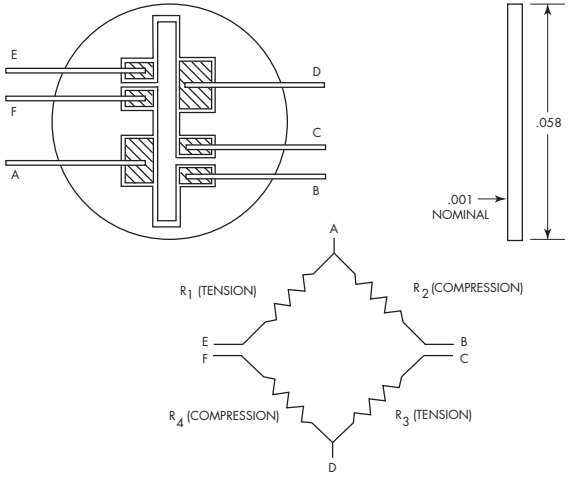
1030 Hoyt Avenue • Ridgefield, New Jersey • PHONE WH 5-3000

SEMICONDUCTOR STRAIN GAGES

SEMICONDUCTOR STRAIN GAGE DEVICES

DIFFUSED SILICON DIAPHRAGM **KS**

TYPE LD-21-750-058



SPECIFICATIONS

Rated Pressure	50 psi
Max. Pressure	100 psi
Sensitivity	40 mv / v at rated pressure
Change of Sensitivity with Temperature	
Constant Voltage Excitation	-8% / 100°F
Constant Current Excitation	-1% / 100°F
Gage Resistance	750 ohms, nom.
Change of no-load-output with Temperature	Less than 0.02% F.S. °F
Input Voltage (max.)	10 V DC or AC (RMS)

Kulite miniature (0.058" dia.) silicon pressure-sensitive diaphragm with full four-arm strain-gage bridge diffused on back side, available 1965.

educating to make one sale. To answer the question, as to whether there was a physiological pressure measurement that involved some substantial repetitive quantity, led to the formation of Electrometric Inc., in 1966, specializing in the marketing of monolithic (all silicon diaphragm) semiconductor pressure transducers.

The equal stockholders were, Barry Wolfe, who represented Kulite, Jim Bice, a transducer engineer at Rockedyne, Chet Smith, an experienced medical instrumentation rep, Anthony Kurtz and Howard Nielsen, Jr. At this time, Statham Instruments (which later became Gould) had a virtual monopoly on physiological pressure measurements in hospital intensive-care units and catheterization labs. With the advent of electronic patient monitoring, there would be a need for thousands of new pressure transducers to equip the percentage of 10,000 hospitals that might be going to electronic monitoring of patients, and there were a number of problems with the Statham units, many of which could be solved with semiconductor strain-gage technology.

Electrometric was able to design a unit that could be used in and around patient care units, laboratory facilities, catheterization labs, etc. Even though the market was intensive care, the product was relatively universal in application. A patent was applied for and ultimately received. The patent covered both the diffused diaphragm as well as a metallic diaphragm with bonded bulk semiconductor gages.

Anthony Kurtz of Kulite elected to drop out as one of the Electrometric stockholders, but continued as the supplier of semiconductor sensors.

His business and the company continued to grow. It was soon evident that with an increased staff he was too crowded to continue operating in the original loft. He built an addition in 1964 and in three years found he needed much more space. In February 1968, the company moved across the street to 1039 Hoyt Avenue, Ridgefield, to a facility occupying 25,000 sq. ft. which included fully equipped laboratories for the design, fabrication and evaluation of semiconductor transducers. In April 1977, Kulite leased another 10,000 sq. ft. for additional assembly and fabrication facilities, and soon after leased additional space for Accounting and Personnel. In 1987, the new World Headquarters was opened in Leonia and the entire company was once again located in one building. But Dr. Kurtz continued to grow the Company and the ground breaking for a second building across the street took place in May 1998. That second building was soon bursting at the seams due to the increase in business and a third building was leased down the street, followed by the purchase of a fourth building on 3 1/2 acres in 2009, bringing the total space to over 200,000 sq. ft.

400 Willow Tree Road - Purchased 2009

Two Willow Tree Road

Artist's Rendering Two Willow Tree Road

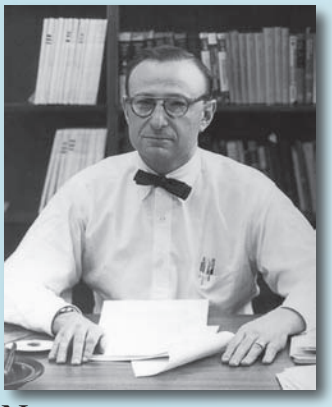
Artist's Rendering One Willow Tree Road

One Willow Tree Road - World Headquarters

Construction Site - One Willow Tree Road, Leonia, New Jersey 1986
Views left to right: Fort Lee Road, Willow Tree Road, Willow Tree towards Schor Ave. (400 Willow Tree in background)



Dr. Kurtz has always believed in an active and challenging lifestyle.



Dr. Anthony D. Kurtz and Kulite

"When I started Kulite, I wanted to create a high-tech company who in its own area would be known throughout the world as the very best in our chosen field. Because of all of you, we have succeeded beyond anyone's wildest expectations." These are the opening lines from Dr. Anthony D. Kurtz's speech at the 40th Anniversary of Kulite's founding.

Now, ten years later as Kulite celebrates its 50th Anniversary, Dr. Kurtz is the holder of more than 200 patents, including some of the earliest for tiny pressure sensors micro machined out of silicon. Dr. Anthony D. Kurtz, who received his undergraduate and doctoral degrees in physics at the Massachusetts Institute of Technology, continues to innovate. Dr. Kurtz, who worked in an MIT lab after college and later for Honeywell in Boston, moved home to North Jersey to start his own company in 1959. Inducted into the New Jersey Inventors Hall of fame in 1991, the Chief Scientist and CEO of Kulite Semiconductor Products, Inc, has filed 95 new patents since December, 2001, on subjects ranging from fuel cells to laser-based data storage. He is quick to point out that of the 200 plus patents he holds, about 75% of them were obtained since he met his wife, Nora, his best friend and constant advisor. "You know, in one way or another, in every little way, in every big way, in every small way she has been beside me and helped me, guided me, advised me, done so much for me and done so much for all of you. When I said she was the heart of the company, her heart cried out to all of you. In one way or another, every decision we made, Nora would say "but, how will it help the people, how will it help the people". Now I don't know, she helped me in so many ways, but she helped you too. And working together and being together is really the very best thing for all of us. You know, it's really sort of funny. Perhaps with Nora, I couldn't become a born again Jew or a born again Christian, but somehow I became a born again Scientist. Because during the time Nora and I have been together, of the 200 plus patents I obtained, 150 of them were while Nora and I have been together. So I guess not only did she help me feel, but she helped me think. And what more could you ask from your best friend and your dearest heart than that".

Tony and Nora 1986

A patent dating back to 1980, “Compensated Pressure Transducer Employing Digital Processing Techniques,” was the first to combine a micro mechanical sensor with electronic computation, and was among the most cited patents of the 1980’s. This was one of the major patents of the entire MEMS business. Professor Kenneth Farmer, director of New Jersey Institute of Technology’s Microelectronic Research Center and cofounder of the New Jersey MEMS Initiative, has recognized Dr. Kurtz as one of the founding fathers of the MEMS field.

Early on, Dr. Kurtz decided that Kulite would be the world’s greatest expert in semiconductor piezoresistance, the basic scientific principle that underlies all of its sensors. His father, Jacob Kurtz, always advised him to “Work smarter, not harder”, but as the world and competitive environment changed, Dr. Kurtz realized that the company had to work both smarter and harder. Today’s customers are always looking to save money, so they push companies to make their parts overseas where wages are lower. Dr. Kurtz’s response – “We are an American company making an American product by Americans. That is the only way we will do business and that is the only way we can give you a product that we will put our name on. Remember that the Kulite motto is “only the best is good enough”. However, again we must always be thinking of a better and cheaper way to produce what we sell”. Kulite has always been able to perform its own research and development, which led to Kulite being the world’s expert in its chosen fields. Dr. Kurtz decided to apply his expertise in silicon to a market making pressure sensors with performance advantages over competitor’s products. Silicon was the ideal choice for high temperature environments due to its very high melting point and strength. The small silicon sensor had the advantage over the competition because it could operate quicker, enabling it to detect very brief, small fluctuation in pressure. These advantages eventually paid off and Kulite was awarded contracts developing pressure sensors for fighter jets such as the F-14 and F-15, which were still being developed by the Defense Department. Kulite also supplied transducers to test the pressure of high explosives in nuclear missile silos and on the other end of the spectrum; the transducers were used in early medical catheters to test conditions inside human hearts.

From the beginning, Kulite was made up of a high percentage of trained scientists and engineers. In fact, when there were only ten people, there was Dr. Kurtz, Charles Gravel with an MS in Physics, Nate Katz with a BS in Physics and two engineering co-op students from a fine engineering school, as well as several bright young men who could be trained. Dr. Kurtz realized that the best path to success lay in offering jobs to the co-op students that Kulite had trained, and providing further education to them and to the bright young men without college education that were being trained on the job. So from the beginning of the company’s history, employees were encouraged to enroll in college courses for which the company would pay. This policy has continued to present time and countless employees have received BS degrees, MS degrees, Ph.D or other higher degrees.

Currently, Kulite employs almost 600 people who design, fabricate and assemble about 20,000 pressure transducers each month in the company’s recently expanded facilities. The company has had to grow to accommodate increased production and the ever-growing Kulite family. Dr. Kurtz has always believed in hiring for life, with the older employees imparting wisdom to the younger, while the younger could share vitality with the older. Over the years the company found that if one good person was hired, within a short time five or ten of their relatives might be working in the company, and after a while more than 50% of the people in the company had at least one relative in the workplace. There was often a mother, father, sons and daughters of a single family employed. This was a foundation of the company, in short, a company which

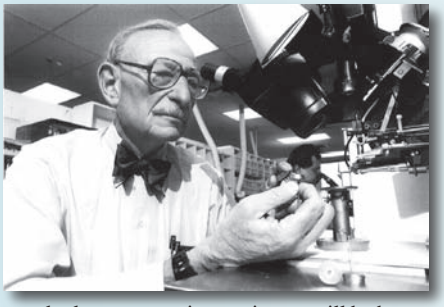
was an extended family where each family member felt that his or her advice was listened to and heeded. As a result, many of the employees have been with Kulite for 10, 20, 30 even 40 years, (over 100 employees have been here for over 20 years) yet Dr. Kurtz knows nearly every employee by name. Part of this intimacy is the way the company is structured. Kulite is a high-value, low volume business, and as such has allowed Dr. Kurtz to have true "hands on" approach to the business. A true believer in education, Dr. Kurtz has not only encouraged employees to enroll in college courses for which the company would pay, but has also instituted a scholarship program for employees children.

Because of this belief in the importance of education, Dr. Kurtz realized that to stay ahead technologically, Kulite would need to maintain a closer relationship with some of the outstanding colleges and universities. "Our first such undertaking was a joint program between MIT in Cambridge, Massachusetts and the Technion in Israel. This not only provided us with a window on some of the most current research in solid state physics but also enabled us to get close to some of the best scientists and engineers at these institutions. Because of the huge benefits to Kulite we formed a similar relationship first with Oxford University in England and later with Columbia University in New York and NJIT in Newark. In every case, the result was great for both sides. It was a truly win-win situation. Not only did we at Kulite learn from these great institutions of some of the latest research in solid state physics, we were also able to teach them some things about what we were doing on the cutting edge of our own technology and we were able to provide them with some instructions about how hi-tech companies can grow and prosper".

"As time went on and our contributions to these universities increased, it enabled Kulite to sponsor through research grants, particular projects that are of great importance to the company's future. In addition, by having a significant portion of the work done jointly at Kulite and at the institution, the knowledge we gain is spread to the maximum number of employees. We have had over the last few years three or four Ph.D. programs with these institutions. All of these efforts taken together have enabled us to maintain our world-wide leadership in our field, something of paramount importance to all of us".

"Some years ago we set up an endowed fund at MIT which is being used to - enhance American competitiveness in technology and manufacturing - and a few years ago we established another fund at Columbia to "provide seed money for innovative ideas in semiconductor sensors and other semiconductor and even biological devices".

Today Dr. Kurtz maintains a close relationship with Oxford University, Massachusetts Institute of Technology and Columbia University, where he is an adjunct professor and a member of the Dean's Engineering Council. He continues to take an active role in advising students, and funds research, having contributed over $1.75 million to Columbia and MIT.



Kulite is doing what it does best, building customized transducers to client's specifications. Dr. Kurtz has always enjoyed the challenge of developing a transducer to fit the customer's needs, unlike many other companies who only sell out of catalogs. Some recent developments have been flat pressure sensors that fit against turbine blades in jet engines, which enable the jet to save fuel by operating right at the edge of the engineered stall speed. Other new products include a miniaturized air speed indicator that may have applications in smaller versions of unmanned airplanes like the U.S. Air Force's Predator. Thanks to Kulite's pressure sensor that fits inside a spark plug, automotive engineers will be better able to understand pressure waves inside the cylinders of internal combustion engines.

"Every American airplane and rocket, military and civilian, conceived and developed in the past thirty years has used our pressure sensors and transducers during the design, test fabrication and build phases of these programs. We have become the world's largest supplier of transducers for aircraft, general aviation, commercial and military, jet and turbo engine, autosport, wind tunnel modeling, resource exploration and in fact, wherever quality and technology is required, Kulite is always the preferred choice. Throughout our country, and in fact in most of the world, Kulite is a synonym for – ultra miniature high accuracy pressure transducers. We have helped doctors measure heart sounds, detect R.E.M. (rapid eye movement)

and give feeling to artificial arms and legs. We have made: transducers to measure pressure and forces on roads when traffic passes over the road, transducers that measure and control all of the equipment on both naval and commercial ships, transducers that are used in oil exploration, in coal mining and in determining the height of weather balloons and transducers that measure the pressure in the tires of commercial aircraft like the 747 while the plane is flying. We are the world's largest supplier of aerospace transducers".

Wherever pressure or force is measured, we were usually the first one to come up with a good solution to the problem and to provide the best and most reliable method to make the measurement. Truly, we have earned our reputation as "Leader in Pressure Transducer Technology".