

## 2017 *Electronic Design*

# SALARY & CAREER REPORT:

## All About the Right Place, Right Time

**F**or electrical engineers today, productivity is power. Asked to do more than ever with fewer resources, engineers with a broad range of expertise can command higher salaries, compete for limited jobs, and carve out a place in an industry interwoven with outsourcing.

That was a major takeaway from 2,000 electrical engineers surveyed by *Electronic Design*. In general, engineers are in high spirits even though employers continue to tighten their belts. They still take satisfaction from the technical challenges of the profession, where it is increasingly hard to plant professional roots.

Not everything, however, is staying the same. Around 37% of survey respondents said that their companies plan to hire more engineers in the next year, up from 29.5% from last year. Separately, many engineers are skeptical that new hires will stick around long.

“We can’t get people to stay,” said one respondent. Others added that employers are hiring young engineers who earn lower salaries but need additional training. At the same time, they are looking for those with broad expertise in fields like analog and systems engineering—a scarce commodity these days.

As electrical engineering companies continue to merge and trim headcounts, it is not clear that more jobs are available. The Bureau of Labor Statistics says that there were 315,900 jobs for electrical engineers in 2015, and that the profession would see zero growth in the United States in the next seven years.

Nonetheless, companies are willing to pay well for the right engineering talent. This year, the average base salary for electrical engineers dipped to \$104,996 from

\$106,250 in 2016. That is still higher than the \$99,514 that engineers earned on average in 2015.

Yet as salaries continue to rebound from the economic recession, engineers are grappling with lukewarm attitudes from employers. This year, only 31.3% of respondents feel that their company is more focused on employee retention than last year, down from around 55% of engineers in 2011.

“My employer is hoping to improve their value proposition for young people,” said one engineer who filled out the survey. “But they need to update their benefits to better align with the shift from one employer over a career to multiple employers over one’s working life.”

Something is wrong somewhere, though. Around 49% of respondents said that their companies are having difficulty filling open positions. The most elusive engineers are in analog and software, which 38.7% and 41.1% of engineers said that their companies were struggling to hire, respectively.

At the same time, almost nine out of every 10 engineers would recommend the profession to young people. They say that a fulfilling career await talented engineers who survive an education system not geared for them, as well as the side effects of an imperfect work visa program in the United States.

Around 51% of respondents believe an engineering shortage exists, but others contend that employers are being too picky. And engineers—who work around 54 hours per week in and out of the office—are still strapped for time to learn new technologies, which is still the top concern for most engineers.

One manager echoed a common—and almost contradictory—observation about the job market: “We need generalists with lots of experience in just the right specialties.” ☐

# THE TYPICAL ENGINEER



## Average Age

Under 25	1.9%
25-29	3.4%
30-34	4.2%
35-39	4.3%
40-44	6.3%
45-49	9.5%
50-54	14.1%
55-59	20.3%
60 or older	36%

## AVERAGE COMPENSATION

**\$114,796**

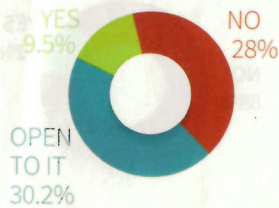


<b>AVG SALARY</b> \$104,996	<b>AVG BONUS</b> \$4,249	<b>AVG STOCK OPTIONS</b> \$2,809	<b>AVG OTHER SOURCES</b> \$2,742
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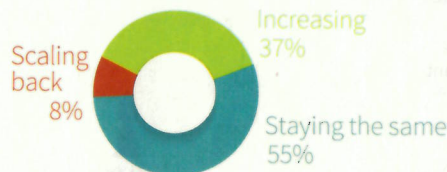
## ENGINEERS WHOSE SALARIES...

- Increased - 58.1%
- Decreased - 9.3%
- Equal - 32.6%

## Actively seeking a new position



## Your company's hiring status



## EMPLOYMENT OUTLOOK



## YEARS IN THE PROFESSION

Less than 1 year	2.2%
1-4 years	5.8%
5-9 years	5.9%
10-14 years	6.4%
15-19 years	8.7%
20-24 years	10.9%
25-29 years	13.5%
30-34 years	16.5%
35-39 years	12.6%
40 years or more	17.5%

## WORK LOCATION

California	19.0%
Massachusetts	6.1%
Illinois	5.1%
Texas	5.1%
Florida	4.8%
Michigan	4.2%
New York	3.7%
Maryland	3.2%
Ohio	3.1%
Arizona	3.1%

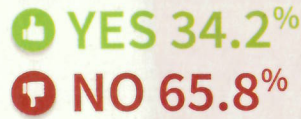
## YEARS AT PRESENT COMPANY

Currently unemployed	2.0%
Less than 1 year	8.3%
1-4 years	28.5%
5-9 years	19.6%
10-14 years	11.3%
15-19 years	10.4%
20-24 years	5.8%
25-29 years	4.7%
30-34 years	3.9%
35-39 years	2.0%
40 years or more	3.5%

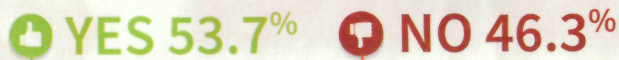
# WORK VISAS



DOES YOUR COMPANY HIRE EMPLOYEES ON H1-B VISAS?



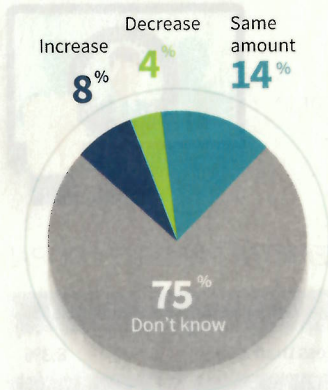
DOES H1-B HURT EMPLOYMENT OPPORTUNITIES FOR ELECTRICAL ENGINEERS IN THE UNITED STATES?



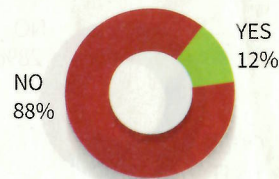
*"It reduces the incentive for companies to hire fresh engineers out of school with little experience. These junior engineers may not get a chance for that first job experience for a long-term career in electrical engineering."*

*"It can be abused but I do not think it generally is, in electrical engineering at least. Lots of international companies have approached me for jobs, highlighting the fact that engineering is a global profession. There are little to no national borders that the field respects."*

Will your company look to apply for more H1-B visas over the next year if the system remains the same?



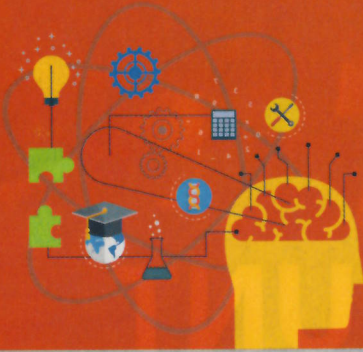
Do you personally feel threatened by H1-B visas?



Would you support measures from the Trump administration or Congress to reform how the H1-B system works?



# STEM AND EDUCATION



Should there be a stronger focus on STEM at an earlier age?

Are engineering students learning the right skills?



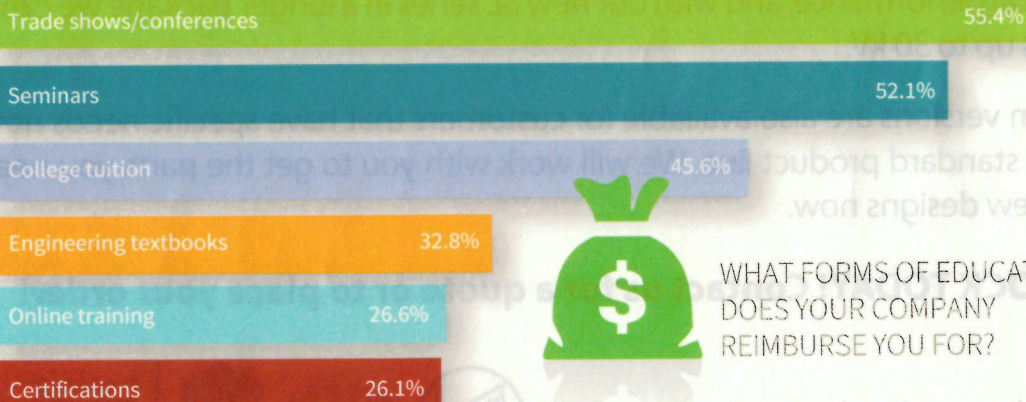
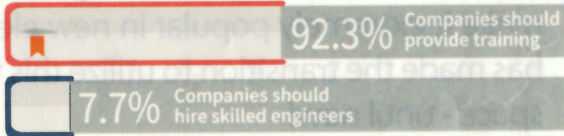
How do you continue your engineering education today?

Seminars	59.6%
Webcasts	69.1%
Engineering videos	59.5%
White papers	65.1%
Trade shows/conferences	46.3%
Engineering textbooks	49.7%
E-books	40.5%
Engineering/technology publications	66.4%
Engineering/technology publication websites	54.9%



Do you find workers right out of school are bringing new skills to your company?

SHOULD COMPANIES PROVIDE MORE TRAINING TO ENTRY-LEVEL ENGINEERS, OR ONLY HIRE ENGINEERS THAT HAVE LEARNED NECESSARY SKILLS?



WHAT FORMS OF EDUCATION DOES YOUR COMPANY REIMBURSE YOU FOR?

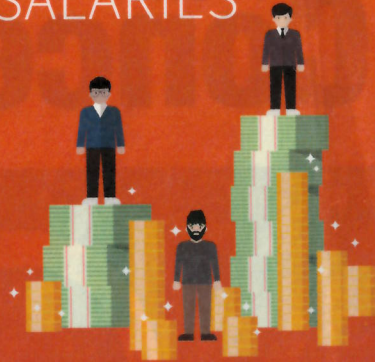
## Annual Salary & Career Report



### BY INDUSTRY

\$134,456	ICs and semiconductors
\$118,714	Components and subassemblies
\$118,714	Computer systems/boards/peripherals/software
\$117,917	Avionics/marine/space
\$117,889	Communications systems/equipment
\$112,871	Government/military
\$102,077	Research & development
\$101,965	Power design
\$101,135	Software
\$100,220	Consumer products
\$100,016	Test and measurement equipment
\$94,130	Industrial controls systems/equipment

## SALARIES



# HARWIN

## Higher Reliability smaller footprint

New **Screw-Lok** for tougher demands

- Metal back-shells for maximum strain relief and RF shielding
- Up to 45% smaller and up to 75% lighter than Micro-D
- Resists extremes of shock, vibration and temperature
- Excellent out-gassing properties

gecko **SL**

[www.harwin.com/gecko-sl](http://www.harwin.com/gecko-sl)

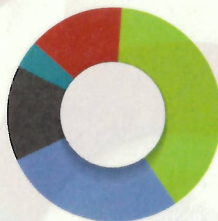
## BY LOCATION



## BY EXPERIENCE

40 years or more	\$102,629
35-39 years	\$122,383
30-34 years	\$111,786
25-29 years	\$116,202
20-24 years	\$105,741
15-19 years	\$101,974
10-14 years	\$91,439
5-9 years	\$81,563
1-4 years	\$75,479
Less than 1 year	\$66,537

## HOW DOES YOUR COMPENSATION PACKAGE COMPARE WITH OTHER ENGINEERING EMPLOYERS?



- MUCH MORE COMPETITIVE - 4.5%
- SOMEWHAT MORE COMPETITIVE - 14.4%
- EQUALLY COMPETITIVE - 39.1%
- SOMEWHAT LESS COMPETITIVE - 27.7%
- MUCH LESS COMPETITIVE - 14.2%



# High Voltage High Frequency Power MOSFETs and Drivers

## Optimized for high speed and high power applications

### Power MOSFETs:

High Power 100V to 1200V devices  
Low-Inductance DE-Series and industry-standard package styles

#### Optimized for:

- ISM band RF generators and amplifiers
- High voltage pulse generators and pulsed laser diode drivers
- Switched-mode and resonant-mode HF power supplies

### Gate Drivers:

Class D and E HF RF and other high speed switch applications  
Up to 30A peak current, ultra-fast rise times

### RF Power Modules:

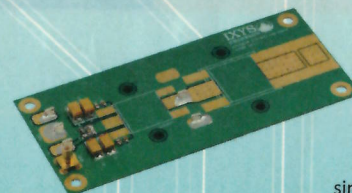
Integrated gate driver and MOSFET in a low-inductance package  
500V and 1000V configurations  
Designed for Class D, E, HF, and RF applications at up to 27 MHz

DE-Series

DE275X2-Series

TO-247

RF Power Modules



Evaluation boards to  
simplify your application  
design and development



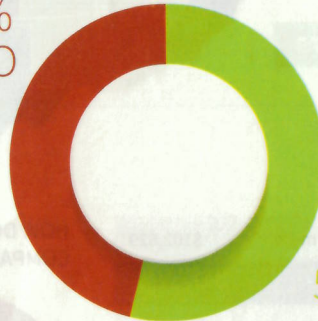
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# OUTSOURCING

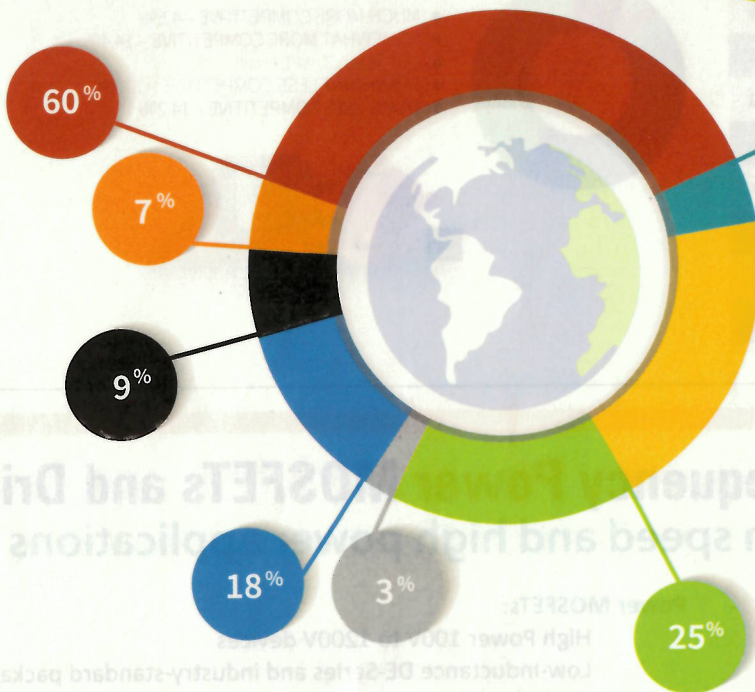


## DOES YOUR COMPANY OUTSOURCE?

46%  
NO



54%  
YES



## WHERE ARE JOBS GOING?

- UNITED STATES
- INDIA
- CANADA
- CHINA
- PACIFIC RIM
- MEXICO
- SOUTH AMERICA
- EUROPE

## REASONS FOR OUTSOURCING



## WORK BEING OUTSOURCED

Software engineering/development	49.4%
Design	37.5%
Manufacturing/assembly	35.1%
PCB layout	30.8%
CAD/CAE	22.6%
Software verification/test	21.4%
R&D	20.8%
Design verification	18.0%
Final test	13.6%
Drafting	10.3%
Incoming inspection	5.0%

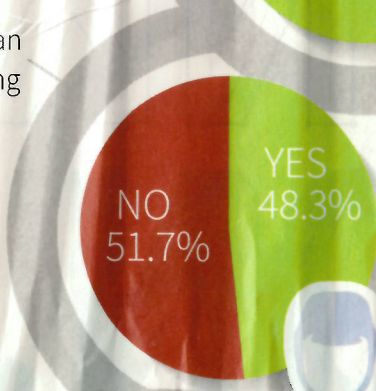
# ENGINEERING LABOR FORCE



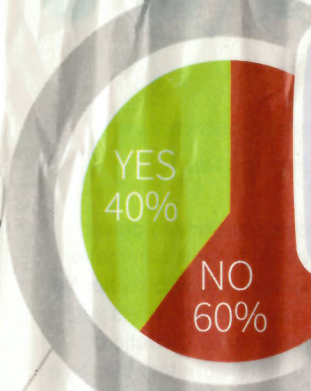
Is it important to have a diverse engineering workforce, with women and minority engineers?



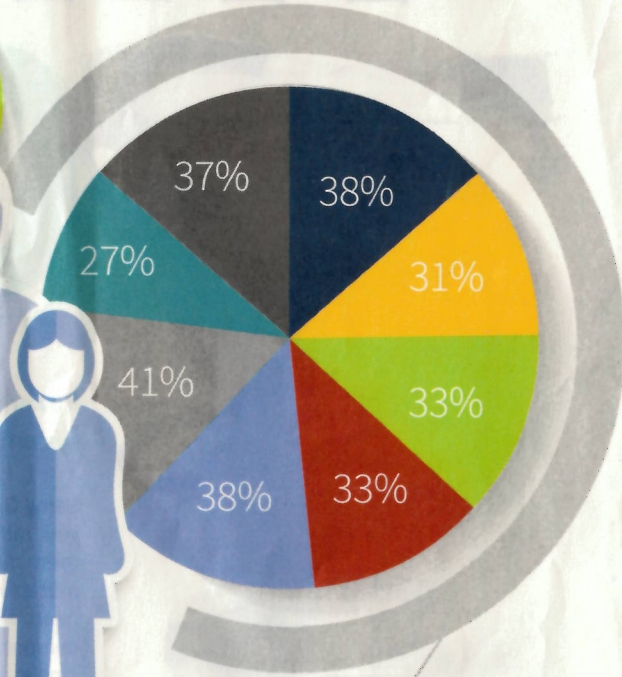
Is there an engineering shortage?



Does your company track employee diversity in either a public or internal report?



Is your organization having difficulty finding qualified candidates for open engineering positions?



For which engineering specialties are you having trouble hiring?

- ANALOG
- RF
- POWER
- DIGITAL
- EMBEDDED
- SOFTWARE
- MECHANICAL DESIGN
- SYSTEMS ENGINEERING



# JOB SATISFACTION



## HOW SATISFIED ARE YOU IN YOUR JOB?



## MOST IMPORTANT FACTORS IN JOB SATISFACTION



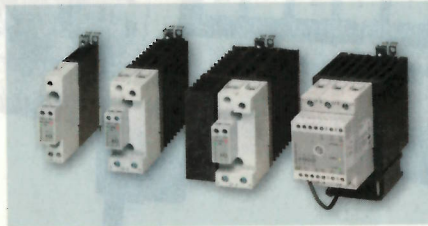
[Based on a scale of 1 to 10]

# Solid State Relays and Contactors

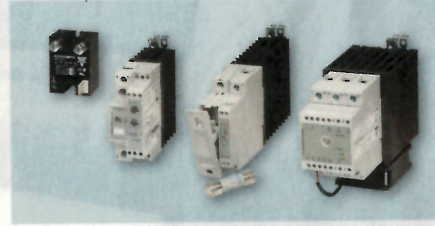
CARLO GAVAZZI



Chassis mount solid state relays (SSRs) available in one, two or three pole switching designs. Single phase types up to 125 amps, two pole types up to 75 amps and three phase types up to 75 amps. Also offered in our new slim-line design (up to 90 amps) and compact fast-on type (up to 25 amps).



DIN rail or chassis mount solid state contactors and SSRs which are UL508 rated for motor loads, and feature integrated heat sinks, fans and large load terminals. Designed for switching single phase loads up to 85 amps (15 Hp) and two or three pole types for switching up to 75 amps per phase (25 Hp).



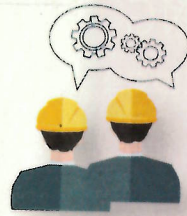
Specialty SSRs for your growing demands: System Monitoring SSR for line /load voltage and load current, fused SSRs provide more protection, and 1, 2 and 3 pole proportional controllers with several switching modes: phase angle, distributed burst (1, 4 or 16 cycle), or soft start.

**Carlo Gavazzi is one of the fastest growing SSR manufacturers worldwide!**  
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## REASONS ENGINEERS WOULD LEAVE THE PROFESSION

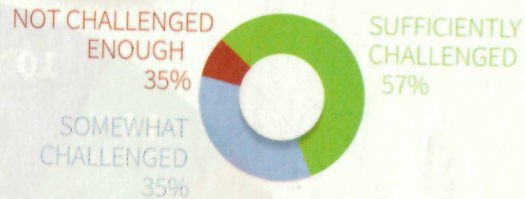
1. To make more money	31%
2. Pursue other interests or opportunities	27%
3. Ready to retire	23%
4. Cut back on long hours	23%
5. Try something different	23%
6. Have more freedom/free time	21%
7. Start a business	19%
8. Do something more fulfilling or satisfying	19%
9. Do something less stressful	15%
10. Burnout	15%
11. Poor job outlook for engineers	10%
12. No further chance for advancement	8%
13. Switch to teaching	6%



Would You Recommend Engineering?



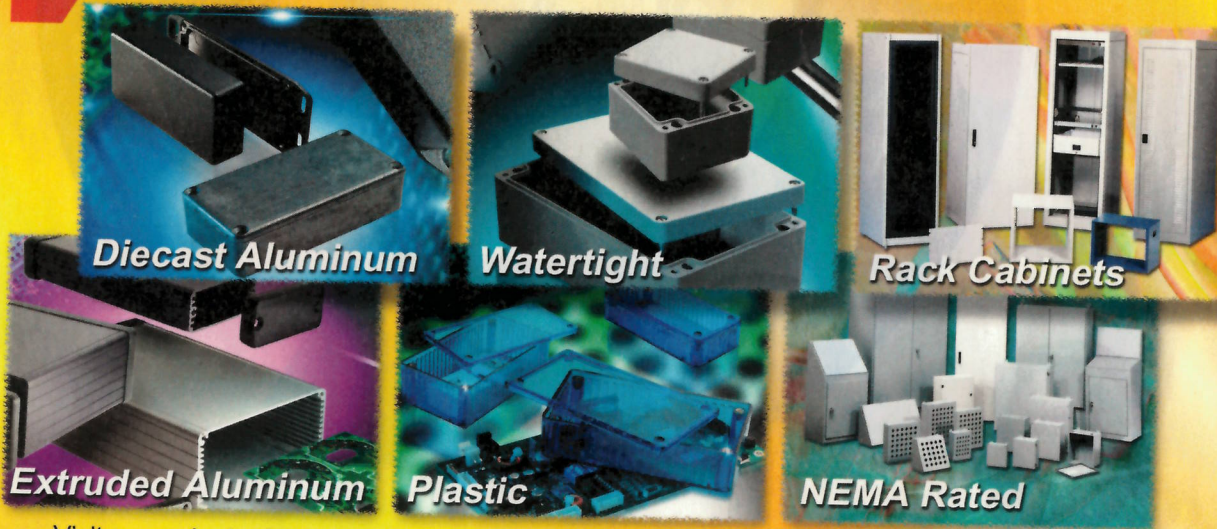
Do You Feel Intellectually Challenged?



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Diecast Aluminum

Watertight

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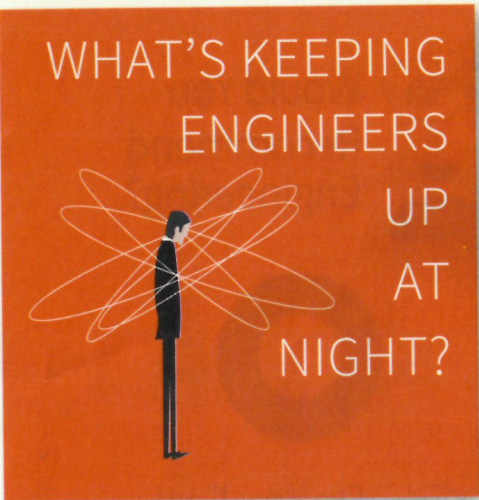
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Plastic

NEMA Rated

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## TOP CONCERN

**38%**

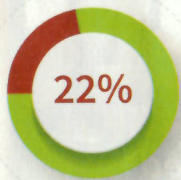
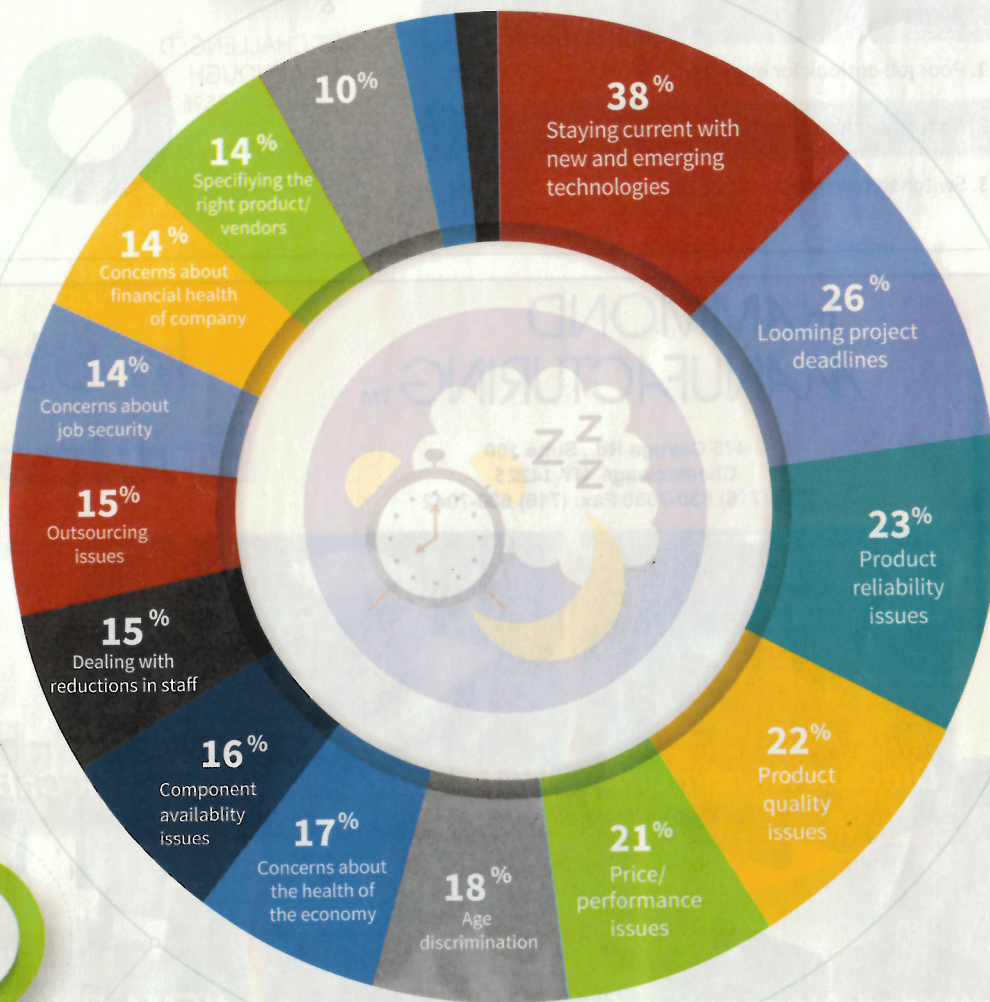
Staying current with new and emerging technologies



**6%** Documenting ROI on engineering expenditures

**3%** Concerns about financial health of suppliers

Outsourcing issues



Nothing keeps me up at night