

The Circuit

07 July 2004 Volume 14, Issue 1

Summer Shutdown???

As summer begins remember that shut-downs begin in the manufacturing sector. ShawFlex **does not** shutdown for the summer, however, many of our suppliers do. So if you know of a larger order that may need unusual requirements through the months of July and August, please try to give as much advance notice as you can. We will thank you and so will your customer when the delivery time that is needed is met.



LEAD TIMES

MAKE SURE TO CHECK ALL LEAD TIMES AT TIME OF ORDER PLACEMENT. CURRENT TIMES ARE 6-7 WEEKS BUT MAY CHANGE.

ENSURE YOU ARE NOT TAKEN BY SURPRISE!

Inside This Issue

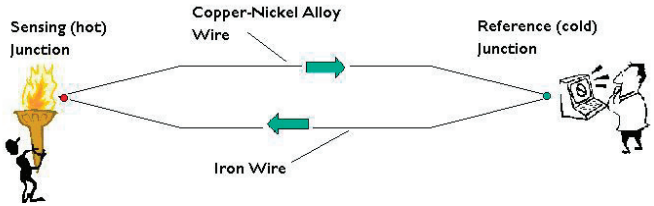
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Thermocouple 101

Greg Passler/Steve Hawkins

Thermocouple cables have always been a bit of an unknown cable as far as usage, types and even why they are needed. Hopefully over the next few issues we can address some of your questions on this mysterious cable. We will address the "Theory of Operation", "Section", "Types of Alloys" and give you some "Application Examples".

So let's start with "What Is a Thermocouple?" A thermocouple is a device that provides a means of temperature measurement involving two dissimilar metals. They are based on the Seebeck effect. The Seebeck effect results in a voltage being produced at the cold end of the circuit (reference junction) due to the presence of heat at the hot end of the circuit (sensing junction). This voltage can be measured with instrumentation and the temperature of the sensing junction can then be determined.



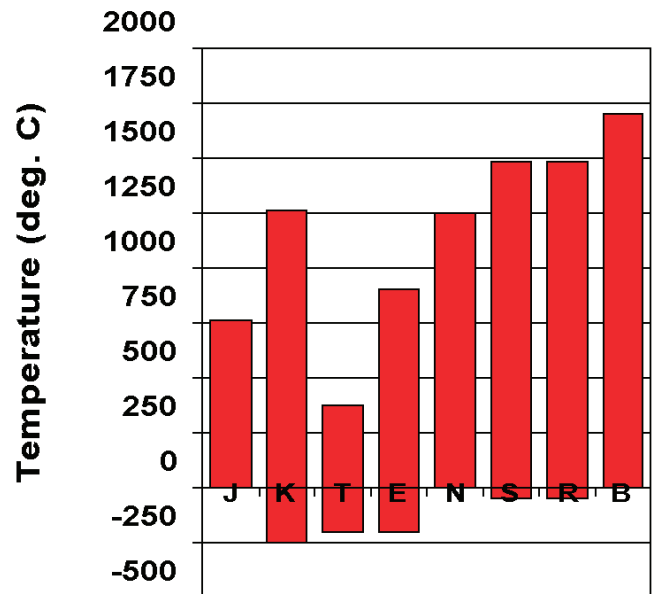
There are other methods of temperature measurement but thermocouples are among the easiest temperature sensors to use and obtain. They are widely used in science and industry. Thermocouples are used most commonly due to the fact they are inexpensive, easy to make, accurate for most applications, durable and have a wide temperature range. (Continued on page 2).

Thermocouple 101 continued



The connection to and sensing of the voltage produced by the thermocouple is relatively easy. The selection, installation details and the conditions of use play a big role in obtaining a measurement that is accurate and reliable. Some environmental considerations that need to be addressed are temperature, vacuum, irradiation, reducing (low oxygen, high hydrogen, carbon monoxide) and oxidizing (oxygen and water vapour) conditions.

The above requirements now move us into the **"Selection of the Thermocouple Type."** Thermocouples are chosen based on their alloy make-up which in turn affects the operating temperature range.



The above chart shows the operating temperature ranges of the more common thermocouples. In the next issue we will delve into the alloys that make up each thermocouple and applications for each.

Mensa Brain Teaser from Volume 13

It occurs once in a minute, twice in a week and once in a year.
What is it?

Answer: the letter "E"

Correct answers were received from Bryan LeGallais, Vince Antilope, Kevin Ward and John Vescio, all of Anixter Toronto; Bryce Bell, Westburne Edmonton; Greg Menzies, Noramco Burnaby; Darcy Robinson, Westburne Lloydminster; Jan McIlveen, Anixter Calgary; Brian Arsenaull, Anixter Dartmouth; Bill Lahey, Anixter St. John's; Patricia Decarie, Philippe Lamoureux, Denise Lavoie and JC Herbert, all of Anixter Montreal

New Challenge

What was Woody Woodpecker's hometown?



News From Across the Country

Western Droppings

Everyone knows that the Oil Sands in Alberta hold 174 billion barrels of reserves, second only to Saudi Arabia, however, in order for Canada to become the 4th largest oil producer in the world costs of capital expenditures for these mega projects need to come under control according to a new study by Peters and Co. Limited. It is estimated that if the costs come under control it is possible that 100 billion will be spent between 1996 and 2012.

Peters & Co. is estimating that three operators will have lower operating costs per barrel in 2004, and that Sunco will continue to have the lowest costs, at \$16.52 per barrel, while Syncrude's cost per barrel will be \$23.06 and AOSP's costs will amount to \$21.78.

Central Crumbs

New legislation from the Ontario government has created the Ontario Power Authority (OPA). This new independent body will assume responsibility for the province's future power needs. It will have the power to contract with private electricity suppliers to get the power Ontario needs at the best possible price. It will also have a conservation arm, headed by a new chief energy conservation officer to plan and coordinate efforts to contain growth in demand. In the next 16 years, \$25 billion to \$40 billion will be needed to rebuild or replace 80% of our generating capacity. The OPA will be in charge of this very important task.

Eastern Tidbits

Much has been written over the past few months concerning the development of large projects in Quebec. Over the past year, two high profile projects have run into serious cost overruns. The Montreal Metro extension into the city of Laval has gone from \$178 million in 1998 to close to \$800 million this year. The now infamous Gaspesia paper mill has gone from \$385 million to \$790 million. Even the Alouette 2 project in Sept-Iles is being affected by cost overruns.

The role of the government in these projects is also under scrutiny as the financial aspects are often poorly evaluated.

Another aspect is the involvement of labour unions and their inability to provide self guidance and productivity on the site.

This situation could eventually encourage investors looking to build industrial facilities in Quebec to look elsewhere.

Where is Your Sales Rep?

Do you recognize this Canadian landmark? If you do, then you will know where your sales rep was.

