AGEMA – pioneers in thermography

AGEMA Infrared Systems AB has more than 30 years' experience in the development and manufacture of medical infrared equipment.

Today's products comprise radiometric imaging systems, line scanners and radiometers for use in medical diagnosis, research and development, and industrial thermography.

AGEMA is also a world leader in developing products and systems for the rapidly growing market of industrial and paramilitary rescue and surveillance.

AGEMA's global network of representatives and agents provide custom-made solutions, training and service.

Your local representative:

Calibration room. All cameras are individually calibrated.

Climatic chamber. Control of measurement stability.

AGEMA Infrared Systems

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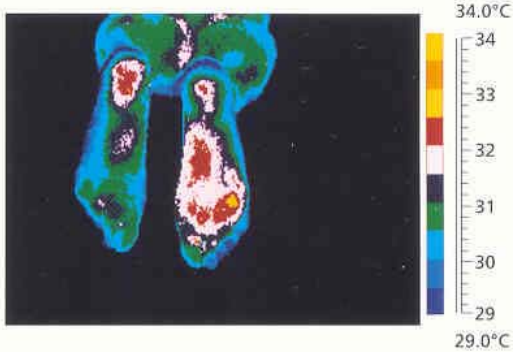
Publ No 557 330 Ed 1 Eng © AGEMA Infrared Systems AB 1998 TarCom/Pangea design

How does Medical Thermography work?

Skin blood flow is under the control of the sympathetic nervous system. In normal people there is a symmetrical dermal pattern which is consistent and reproducible for any individual.

The neurothermography application of IRT measures the somatic component of the sympathetic nervous system by assessing dermal blood flow. The sympathetic nervous system is closely related anatomically to the somatic sensory nervous system whereby painful sensory responses in proximal nerve roots (e.g., radiculopathy due to disc prolapse), in peripheral nerves (compression neuropathy) or in locally painful tissues stimulates the sympathetic nervous system.

The sympathetic nervous system is stimulated at the same anatomical location as its sensory counterpart and produces a "somato sympathetic response". The somato sympathetic response appears on IRT as a cold area with reduced temperature, with specific features for each anatomical lesion. The mean temperature reduction in peripheral nerve injury is 1.55°C and in sympathetic dystrophy ranges from 0.5°C to 10.0°C depending on severity. By contrast rheumatological processes generally appear as "hot areas" with increased temperature patterns as the pathology is generally an inflammatory process – that is, synovitis of joints and tendon sheaths, epicondylitis, capsular and muscle injuries, etc. However, both "hot and cold responses" may co-exist if the pain associated with an inflammatory focus excites a somato sympathetic response. Also, vascular conditions are readily demonstrated by IRT, such as Raynaud's, vasculitis, limb ischemia and migraine.



Indication of "Insensitive Feet" disease – right foot.

Indication of unilateral varicosis – left leg.

Medical Thermography

Thermography is unique in its capability to show physiological change and metabolic processes, rather than strictly anatomical details.

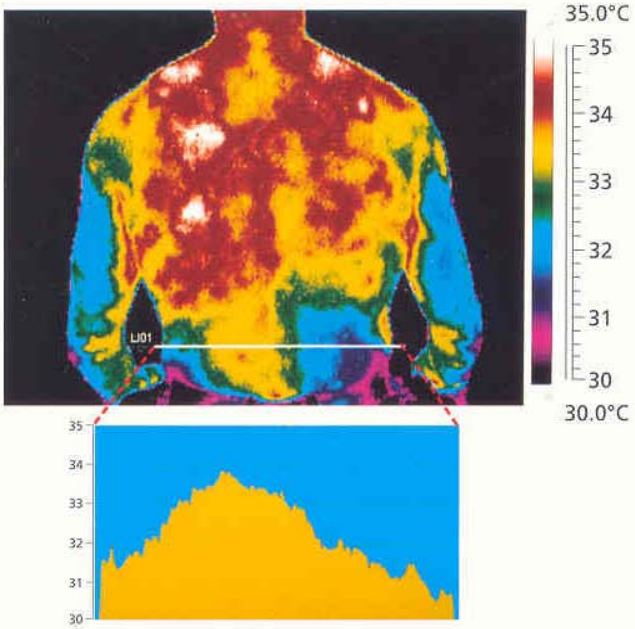
Thermography can visualise the very subjective feeling of pain. It does this by objectively displaying the changes in skin surface temperature that accompany pain.

Medical thermography can show a combined effect of the autonomic nervous system and the vascular system, down to capillary dysfunctions. The effects of these changes show up as asymmetries in temperature distribution on the surface of the body.

Infrared Thermography (IRT) has become a way to monitor thermal abnormalities present in a number of diseases and physical injuries. It is used as an aid to diagnosis, prognosis and therapy follow-up within the fields of neurology, orthopedics, rheumatology and oncology. In neuro-muscular disorders, thermography is used to graphically illustrate soft tissue injury and nerve root involvement.

Results obtained using the latest generation of computer-assisted thermographic systems are totally objective and show excellent correlation with other diagnostic tests – e.g., EMG, C-T and MRI scanning and myelography in the assessment of nerve root and peripheral nerve dysfunction, and three-phase isotopic bone scanning in the assessment of inflammatory arthritis, epicondylitis, musculo-skeletal injury and Raynaud's syndrome.

Thermography utilizes spontaneous infrared radiation to measure the thermal behaviour of the skin. It is absolutely passive and non-invasive. The technique is invaluable as a diagnostic aid in advanced clinical practice, with an extensive database of over 10,000 published medical papers establishing clinical application.



Indication of nerve root irritation, level T10-T12 right side, with related temperature curve.

ISO 9001

AGEMA Infrared Systems

It has never been easier!

The latest achievements in infrared technology have made it possible to develop an uncooled camera with excellent image quality and a thermal resolution better than 0.1°C at room temperature, thanks to arrays with as many as 78,800 sensitive detectors.

Camera functions can be operated using only four buttons, which means it is easy and fast to learn. Built-in automatic functions such as "best image adjustment" simplify operation even further.

Up to 3,000 images can be recorded on a PC card. With an optional voice recording microphone, comments (such as patient identification) can be stored digitally together with each image for reliable documentation.

From the removable PC card the images are transferred to a computer from which they can be retrieved and analysed, printed or just kept as a record.

Indication of epicondylitis left arm.

The image shows lower blood circulation in the four fingers of the right hand.