

Purpose-built fridge
Question and Answers - November 2004

Question 1	If there is a small quantity of vaccines being stored do water bottles need to be added to empty space to add thermal mass
Arcus	No, all refrigerators have fan forced air circulation for quick temperature recovery.
ICS Pacific	No, as cooling is fan forced
Rollex	No – the fan forcing is adequate
Sanyo	No. The pharmacy fridges have air circulation and high temperature stability on both light and heavy loads.
Thermoline	Adding thermal mass is not required, but the refrigeration will run more often without the bottles of water to assist in cabinet stabilisation.
Quirks	No
Question 2	How long will the fridge temperature be maintained in the event of a power black out at an ambient temperature of 25°C
Arcus	This would depend on the internal thermal mass.
ICS Pacific	30mins
Rollex	This depends on many factors – amount of product – temperature before the outage etc however we have recorded at least 2 hours at 25°
Sanyo	In the event of a power blackout the temperature will rise approx. 10° per hour
Thermoline	Depends on the amount of supplies in the fridge. The more supplies inside, the slower the cabinet will gain heat. The overall time is unknown because there is no Australian standard set in place to give suggested appropriate times which the equipment must comply.
Quirks	It's hard to say because it depends on a number of points. 1.How much stock is in the cabinet (the more stock the longer it will hold temp). 2.The ambient temperature in the area the unit is being kept.(the higher the temp the shorter the time it will hold temp) 3.If the unit temp was at 7 degrees when the power failed it would not take long for it to go over 8 degrees but if temp was 3 degrees it would hold within range for a lot longer.
Question 3	On installation is the alarm set to alarm at air temperature or the lagged temperature? Does the purchaser need to request what the alarm is linked to?
Arcus	Set to air temperature No, links to internal/external monitoring systems can be connected by others
ICS Pacific	Always set to air temperature
Rollex	The alarm can be triggered by a number of criteria, some are based on product temperature, others on air temperature
Sanyo	All units are supplied with the QS1000 monitoring & alarm module which is linked to a lagged temperature probe.
Thermoline	Thermoline sensor probes are lagged and are set to alarm outside the range of +2°C to +8°C. This is set prior to delivery, so customers don't need to concern themselves over it.
Quirks	Air Temp.
Question 4	Can you store vaccines in their packaging in enclosed containers eg Tupperware, polystyrene containers, solid plastic open container or trays with air flow?
Arcus	The vaccines can be stored in their normal packaging, the less packaging the better
ICS Pacific	Yes
Rollex	Product is best stored in trays that allow air circulation.
Sanyo	Most combinations are possible from a general storage perspective, however the type of container the product is stored in will determine its temperature variation and recovery characteristics from door openings etc. The specific effect is too varied to be discussed in this note with out further specific user information
Thermoline	We believe containers that allow some air flow to the product would be the best. Closed containers will slow cooling of the vaccines held inside.
Quirks	Trays with air flow.

**Purpose-built fridge
Question and Answers - November 2004**

Question 5	Can vaccines be stored on the floor of your fridge?								
Arcus	Yes vaccines can be stored on the floor of the fridge.								
ICS Pacific	Yes								
Rollex	If required								
Sanyo	Yes								
Thermoline	Storing supplies on the floor of the fridge would inhibit airflow of the cabinet, and thus possibly degrading the products at the bottom of the fridge.								
Quirks	No.								
Question 6	Can you describe quantitatively the temperature spatial differentials from side to side, front to back and top to bottom in your fridge?								
Arcus	Our vaccine refrigerators have been tested and certified by the QCPP.								
ICS Pacific	Sides the same. 1°C difference between top and bottom								
Rollex	At the factory testing laboratory there are 16 different probes placed inside the fridge to test the consistency of temperature								
Sanyo	Minimal, but generally not more than $\pm 1^\circ$ throughout the chamber								
Thermoline	Throughout the entire cabinet, there is a maximum temperature spatial difference of $\pm 1^\circ\text{C}$.								
Quirks	5 Degrees.								
Question 7	Is there a rental scheme available, if so what options are available on rental plan?								
Arcus	No rental plans available outside the Perth Metro Area.								
ICS Pacific	Yes, can be arranged via another company. Minimum 2 years and \$2,000.00								
Rollex	Yes. Contact the company for details								
Sanyo	No scheme available as yet, however depending on the demand and specific user requirements, we may be able investigate this option further.								
Thermoline	Yes, there are rental schemes available. We can provide different rental services to cater for individual needs.								
Quirks	No								
Question 8	Product list and costs								
Arcus	<p>Models: - AUD1PV – 220litre single door Vaccine Fridge Price: \$3470.00 plus \$347.00 GST</p> <p>AUD1SV – 400litre single door Vaccine Fridge Price: \$3660.00 plus \$366.00 GST</p> <p>AUD1V – 560litre single door Vaccine Fridge Price: \$3950.00 plus \$395.00 GST</p> <p>AUD2V – 980litre double door Vaccine Fridge Price: \$4550.00 plus \$455.00 GST</p> <p>All prices F.I.S Brisbane Metropolitan Area only.</p> <p>Freight costs for cabinets required to be delivered outside the Brisbane Metropolitan Area would be given on a specific request only. It is Impossible to price F.I.S to unknown destinations – remoteness being a huge issue.</p> <p>For deliveries off bituminised roads we recommend that the unit be crated. Prices for crates as an optional extra are as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">AUD1PV crate</td> <td>\$190.00 plus \$19.00 GST</td> </tr> <tr> <td>AUD1SV crate</td> <td>\$216.00 plus \$21.60 GST</td> </tr> <tr> <td>AUD1V crate</td> <td>\$284.00 plus \$28.40 GST</td> </tr> <tr> <td>AUD2V crate</td> <td>\$332.00 plus \$33.20 GST</td> </tr> </table>	AUD1PV crate	\$190.00 plus \$19.00 GST	AUD1SV crate	\$216.00 plus \$21.60 GST	AUD1V crate	\$284.00 plus \$28.40 GST	AUD2V crate	\$332.00 plus \$33.20 GST
AUD1PV crate	\$190.00 plus \$19.00 GST								
AUD1SV crate	\$216.00 plus \$21.60 GST								
AUD1V crate	\$284.00 plus \$28.40 GST								
AUD2V crate	\$332.00 plus \$33.20 GST								

**Purpose-built fridge
Question and Answers - November 2004**

ICS Pacific	G130L \$1,325.50 + GST. Includes delivery
Rollex	Contact the company for information
Sanyo	Contact the company for information.
Thermoline	Contact the company for information.
Quirks	FKG 410 : \$3200 FKG 311 : \$3000 SLC 125 : \$2800 \$200 DISCOUNT AVAILABLE FOR PEOPLE ATTENDING G.P WORK SHOP.
Question 9	What quality standards does your product and the manufacturer meet?
Arcus	Arcus Australia manufactures the above range of vaccine fridges in Perth, Western Australia and they meet the standards set by the QCPP group.
ICS Pacific	Fully compliant with the Quality Care Pharmacy Program (QCPP) Cold Chain Standards
Rollex	As the LEC range is sold throughout the world, all relevant international standards
Sanyo	Locally our company conforms to the ISO 2000:9001 standards while Sanyo Japan conform to the ISO 9001
Thermoline	Our products are manufactured to meet the Australian Standard ISO9001-2000 and the Pharmacy Guild Quality Assurance Accreditation. If any changes occur with the standards, we will comply to change and meet the new set standards.
Quirks	No response given
Question 10	What space do I require for a purpose-built vaccine refrigerator eg as well as fridge size, how much area is needed for adequate ventilation?
Arcus	50mm all round the fridge is required for adequate ventilation.
ICS Pacific	50mm all around
Rollex	This depends on the room. The most important issue is to have room at the top rear of the fridge, if there is plenty of room then the sides can be closed.
Sanyo	We would usually recommend approx six inches at the rear with and approx 30 to 50 cm's above the unit for the air to move.
Thermoline	What space is required is dependent on the dimensions of the fridge. Generally, a consideration of ten centimetres (4 inches) between the back of the fridge and the wall is needed to allow adequate ventilation of the refrigerator.
Quirks	100mm around cabinet.
Question 11	Is the refrigerator tested in-house prior to delivery?
Arcus	All Arcus Australia Vaccine fridges are tested prior to leaving the factory.
ICS Pacific	Yes it is unpacked, checked, tested, cleaned and temperature set
Rollex	Yes, and Rollex also do a follow up test when the fridge is loaded with a datalogger as part of our service.
Sanyo	Yes
Thermoline	Yes.
Quirks	Yes and electrically logged
Question 12	Does the purpose-built vaccine refrigerator have a built in power filter? (A power filter protects against power surges)
Arcus	We call them an under/over voltage protection relay and these are available as an optional extra at a cost \$222.00 plus \$22.20 GST. The relay protects the fridge from power surges and fluctuating power.
ICS Pacific	No
Rollex	We suggest a Belcon surge protector be installed on all fridges. They are available from Rollex
Sanyo	Yes, Varistor protection on mains input
Thermoline	The power filter can be purchased as an additional item to protect the fridge against power surges.
Quirks	No

**Purpose-built fridge
Question and Answers - November 2004**

Question 13	What is the life span of the purpose-built vaccine refrigerator?
Arcus	Correctly maintained, life span should be minimum 10 years
ICS Pacific	8 – 10 years or even longer. Depends on the circumstances
Rollex	Approx 15 years
Sanyo	approx 10 years
Thermoline	The expected life span of the refrigerator is around 10 years
Quirks	15 years +
Question 14	If there is a power failure, is there an audible alarm and/or option for notification to an offsite facility/contact?
Arcus	Fridge has audible and visual alarm, there is also power free contacts available for connection to services provided by others.
ICS Pacific	No
Rollex	Optional
Sanyo	Yes
Thermoline	No audible alarm but the voltage free alarm contacts will provide notification to an offsite facility/contact. The Thermoscan1000 can be purchased as an additional upgrade which sounds an alarm and notify (if connected to an offsite facility) in the event of a power failure since it is battery backed-up
Quirks	Auto dialler
Question 15	Is there an alarm feature if the refrigerator goes outside the 2° to 8°C range and/or an option for notification to an offsite facility/contact?
Arcus	Yes,
ICS Pacific	Yes, refrigerator is alarmed but does not have off site facility
Rollex	Yes
Sanyo	Yes
Thermoline	The fridge will sound an alarm outside the range and voltage free alarm contacts will provide notification to an offsite facility/contact
Quirks	Auto dialler
	Under normal conditions, can you guarantee that the fridge temperature will not go outside the 2° to 8°C range?
Arcus	Yes
ICS Pacific	Yes
Rollex	We cannot guarantee what people do with fridges, however if the door is closed the temperature will stay between 2°C - 8°C
Sanyo	Yes
Quirks	Yes
Question 16	Are the shelves able to be removed easily and resist hypochlorite and other recommended cleaning solutions?
Arcus	Shelves are easily removable and can be cleaned by warm soapy water.
ICS Pacific	Yes
Rollex	Yes.
Sanyo	Yes.
Thermoline	Yes, the shelving is easily removed and the polyester coating on the shelves adds resistance to basic cleaning solutions.
Quirks	Yes
	Can extra shelves be purchased. If so what is the approx. cost
Arcus	The cost for additional shelves would be \$85.00 plus \$8.50 GST each with 4 shelf clips.
ICS Pacific	Yes \$24.59 + GST + freight
Rollex	Extra shelves be purchased for approx \$65

**Purpose-built fridge
Question and Answers - November 2004**

Sanyo	Yes
Quirks	Yes
Question 17	Are the surfaces smooth and durable, with minimal projections and easy to clean grooves?
Arcus	Yes, white colourbond sides with slots for the shelf clips.
ICS Pacific	Yes
Rollex	Yes
Sanyo	Yes
Thermoline	Our economy range has moulded plastic interior with curved corners and the standard range has minimal projections to allow simplistic cleaning maintenance.
Quirks	Yes
Question 18	Does the refrigerator have automatic defrost capabilities?
Arcus	The fridge has cyclic defrost
ICS Pacific	Yes
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. all Thermoline Vaccine Refrigerators are classed as cyclic defrost refrigerators. This means the refrigeration unit cycles on and off periodically and, during the off phase, any water condensation on the internal refrigeration coil surface will drip into drain tray. The drain tray then leads the water into a heated pan where the water is evaporated to the atmosphere.
Quirks	Yes.
Question 19	Will the refrigerator tolerate environmental air temperature fluctuations from 0° (or even -3°C) to 42°C?
Arcus	Yes
ICS Pacific	Normal working environment +2°C to +8°C at 30°C ambient temperature. Will tolerate fluctuations.
Rollex	Yes
Sanyo	Ambient temperature operation is stated at -10 to +35 degrees. However Sanyo have also indicate that temperatures in excess of 40 degrees Celsius can be tolerated.
Thermoline	The entire refrigerator is designed to withstand temperature fluctuations up to +32°C while maintaining cabinet temperature suitable for vaccines
Quirks	Yes.
Question 20	Does the unit have a built-in chart/temperature recorder (automatic recording device), with battery backup to automatically record the refrigerator temperature?
Arcus	No, optional extra.
ICS Pacific	Only records high and low temperature memory to last record
Rollex	No – this is old technology – we use dataloggers
Sanyo	Yes (with QS1000 system)
Thermoline	Chart/Temperature recorder is battery backed-up that is sold as an additional option and is built-into the fridge if ordered together with the refrigerator.
Quirks	Yes- computer date logger
Question 21	Are the temperature chart recorder sensors easily accessible and tolerate movement to allow manual checks for yearly calibration verification?
Arcus	Yes, when chart recorder is fitted.
ICS Pacific	No response
Rollex	N/A
Sanyo	Yes
Thermoline	Yes. A demonstration can be shown to staff, if requested, on how to access the chart recorder for calibration.

**Purpose-built fridge
Question and Answers - November 2004**

Quirks	Yes
Question 22	Does the refrigerator have a display of the cabinet air temperature independent of the chart/temperature recorder that is visible at all times?
Arcus	Yes, when chart recorder is fitted
ICS Pacific	Internal cabinet temperature displayed at all times. Push button temperature record function.
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. The sensor for the chart recorder and the cabinet display are independent of each other. The display of the cabinet air temperature is visible from the front of the refrigerator.
Quirks	Yes
Question 23	Does the refrigerator provide voltage free contacts (voltage free contacts allow the refrigerator to be easily and safely wired into the security or alarm system. Drilling new holes presents a risk of damaging insulation, electrical wiring or refrigeration pipes) to allow the alarm conditions to be monitored?
Arcus	Yes they are situated at the back of the unit and can be setup as either a closed or open circuit.
ICS Pacific	No
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. There are voltage free contacts at the back of the refrigerator that would allow personnel to connect the fridge to security or a central monitoring facility.
Quirks	No – but can be arranged.
Question 24	Does the refrigerator have an access port or contacts (an access port is a sealed small hole that will enable a probe to be installed without drilling. This also avoids having cables running under door seals which increases the wear on the seals. The contacts enable connection to electrical devices such as loggers without drilling new holes) to accommodate external monitoring of the fridge cabinet temperature to be continually monitored via a remote system/data logger? This may be important if you're planning to use auto diallers.
Arcus	No, there are no portholes in the units although they can be added at an additional charge prior delivery, if requested
ICS Pacific	Does not, but could do so if required
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. All our cabinets have an external point of entry to allow access of independent monitoring devices for logging the temperature inside the cabinet.
Quirks	Not needed as ports already in unit.
Question 25	Are there adjustable swivel castors to allow mobility and lock the unit into a secure operating position?
Arcus	Yes and the front two castors are lockable.
ICS Pacific	No, adjustable feet only
Rollex	On some models
Sanyo	Rear castors to allow easy moving with front rubber feet to lock in position.
Thermoline	Yes. All our purpose-built vaccine refrigerators have lockable swivel castors to reduce work place health and safety risks involved with mobility of the cabinet.
Quirks	No- Twin roller system with adjustable legs.
Question 26	Are the doors constructed of double-glaze, non-condensing clear safety glass?

**Purpose-built fridge
Question and Answers - November 2004**

Arcus	The doors on all Arcus Australia fridges are made of double glazing
ICS Pacific	Double glazed safety glass
Rollex	We have a full range of solid and glass doors
Sanyo	Yes
Thermoline	Yes. Our glass doors are double-glazed to assist in the insulation of the cabinet and effectively reduce condensation on the door.
Quirks	Yes
	Do glass doors even when double glazed allow light through into the fridge?
Arcus	Yes
ICS Pacific	Yes
Rollex	Yes
Sanyo	Yes
Quirks	Yes
Question 27	Does the refrigerator have keyed door locks?
Arcus	No, but are available as an optional extra
ICS Pacific	Yes
Rollex	Yes
Sanyo	Yes
Thermoline	Yes.
Quirks	Yes
Question 28	If the refrigerator door is ajar is there an alarm/indicator?
Arcus	No, the alarm will sound once the temperature has gone outside the 2° to 8° settings after 30 minutes but on the start up, the alarm will not initiate for 20mins to allow the fridge to cool down first then the 30mins will kick in.
ICS Pacific	Audible alarm will be heard if temperature goes above 8°C or below 2°C
Rollex	Optional
Sanyo	Yes
Thermoline	Alarm/Indicator for leaving the door ajar can be sold as an additional device
Quirks	Only when the temperature rises.
Question 29	Does the refrigerator have doors that close automatically ?
Arcus	Yes
ICS Pacific	Yes
Rollex	Yes
Sanyo	No
Thermoline	Yes. All our purpose-built vaccine refrigerators are manufactured with hinged or spring doors that have the capability to close automatically.
Quirks	Yes
Question 30	Does the refrigerator have an external light switch suitably identified and fitted in an accessible location so products can be identified before opening the door?
Arcus	Yes the light switch is at the top of the unit and is easily accessible. The light can be turned off if not required by the light switch at the top of the unit.
ICS Pacific	Yes, external position
Rollex	Yes
Sanyo	Yes. External switch
Thermoline	The refrigerator has a light switch that is accessible inside the storage cabinet.
Quirks	Yes
	Can the light be turned off if it is not wanted (eg in the case of light sensitive vaccines).
Arcus	The light can be turned off if not required by the light switch at the top of the unit.
ICS Pacific	Yes

**Purpose-built fridge
Question and Answers - November 2004**

Rollex	Yes
Sanyo	Yes
Quirks	Yes
Question 31	Is there a High/Low temperature alarm test facility to allow staff or a service technician to automatically test the alarm sensors and alarms?
Arcus	No, the fridge doesn't have that facility
ICS Pacific	No
Rollex	Optional
Sanyo	Yes
Thermoline	Only the ThermoScan 1000 (sold as an additional device) has the capability to allow staff or a service technician to test the alarm sensors and alarms.
Quirks	Service technician only.
Question 32	Are there any special requirements in the practice/clinic I need for a purpose-built vaccine refrigerator?
Arcus	A 10amp G.P.O power supply is required to run the vaccine fridge
ICS Pacific	Adequate ventilation
Rollex	No
Sanyo	Not generally. Any reasonable lab environment should be OK
Thermoline	No, our refrigerators are built for clinical and laboratory use.
Quirks	Only if auto dialler is required - dedicated phone line
Question 33	Are chart recorders and temperature dials easy to access and to read?
Arcus	Chart recorder – when optioned is easily accessed to read, Temperature display at the top of the unit and easily readable.
ICS Pacific	Digital display
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. On the other hand, if assistance is required in learning to access and read, we will gladly help out.
Quirks	Yes – on computer or by high low reading on outside or cabinet.
Question 34	Does the warranty include installation?
Arcus	No, there is no installation required, only positioning the refrigerator and plugging the power cord in.
ICS Pacific	No
Rollex	Yes
Sanyo	Local installation, remote phone support
Thermoline	Within the Brisbane metro area we include the installation.
Quirks	Yes for people at the workshop in the metro area.
Question 35	Does the warranty cover defects in materials and workmanship for a period of 12 months from the date of acceptance of the equipment (warranty should include renewal or replacement of any parts including software, that are or become defective during the warranty period)?
Arcus	Yes
ICS Pacific	36 months warranty, parts and labour
Rollex	Yes
Sanyo	5 year warranty
Thermoline	Yes. The warranty covers parts and labour for 12 months from the date of acceptance.
Quirks	Yes. 12 months parts and Labour.
Question 36	Does installation include the devices or systems that require assembly on site?
Arcus	There is no assembly required.

**Purpose-built fridge
Question and Answers - November 2004**

ICS Pacific	Not applicable
Rollex	Yes
Sanyo	No
Thermoline	Additional devices (eg chart recorder, ThermoScan 1000) that are ordered along with the cabinet will be installed and fitted while the cabinet is being manufactured and tested in Brisbane.
Quirks	Unit turns up complete ready to plug in and software is supplied
Question 37	Will software upgrades that become available during the warranty period be provided and fitted free of charge?
Arcus	No.
ICS Pacific	Not applicable
Rollex	Yes
Sanyo	Not applicable
Thermoline	Thermoline vaccine cabinets will not need software upgrades during the life of the cabinet, if additional options like the ThermoScan 1000 are purchased and software upgrades become available during the warranty period these will be provide free of charge.
Quirks	If upgrade comes through it will be supplied no charge.
Question 38	Will a service report be provided each time service is undertaken on the vaccine purpose-built refrigerator?
Arcus	Yes.
ICS Pacific	Can be supplied if requested
Rollex	Yes
Sanyo	Yes
Thermoline	A service report will be provided each time a service is carried out.
Quirks	Yes
Question 39	What are the service charges outside the warranty period?
Arcus	Normal rates
ICS Pacific	At the moment – the technician service charge plus 50% admin fee.
Rollex	This depends on what is required, however because LEC fridges are more based on domestic rather than commercial platforms, they are generally cheaper to service
Sanyo	\$95 per hour for refrigeration, \$155 per hour electronic/scientific work (ex-GST)
Thermoline	Generally, a call out for a service is \$75 and then \$60/hr thereafter on the point of arrival at site.
Quirks	\$50 call out. \$50 per hr. 9am-5pm Monday to Friday.
Question 40	Am I able to negotiate a service/maintenance contract?
Arcus	Yes.
ICS Pacific	Does not require maintenance but a contract can be arranged if required
Rollex	Yes
Sanyo	Yes
Thermoline	Yes. We can negotiate a contract that will benefit the parties involved.
Quirks	Yes
Question 41	Will I be able to obtain service/maintenance if I am in a remote area?
Arcus	Yes.
ICS Pacific	Yes
Rollex	Yes – we have over 3000 vaccine fridges installed all over Australia and New Zealand
Sanyo	Yes, but will need to be negotiated
Thermoline	Yes, though it's subject to availability and urgency.
Quirks	Yes Australian Main Land

**Purpose-built fridge
Question and Answers - November 2004**

Question 42	Does the refrigerator have to be moved or taken away for servicing?
Arcus	Depends on the type of repair to be carried out
ICS Pacific	No, normally on site
Rollex	Usually
Sanyo	Depends on the fault, but generally not
Thermoline	No, all servicing can be carried out onsite
Quirks	No- only if it is to be replaced under warranty
Question 43	Is suitable on-site training available for clinical users at the time of installation?
Arcus	Comprehensive written instructions are provided with 24hour customer care phone service available. Onsite training would also be available depending on location of refrigerator and could involve a cost.
ICS Pacific	Instruction sheet and extensive phone support
Rollex	Yes – part of our service is to train staff on the correct functioning of the fridge, as well as going through all the cold chain issues
Sanyo	Local install yes. Remote install by phone or other agreement
Thermoline	At the time of installation, we can demonstrate/train you on the procedures and protocols of the refrigerator (Brisbane metropolitan areas only). A small cost maybe included outside Brisbane metro.
Question 44	Is the refrigerator suitable for use in the clinical environment ie. not just in a laboratory?
Arcus	The Arcus vaccine refrigerator range can be used in all areas where vaccines are being stored, whether it is in a pharmacy, hospital or a laboratory.
ICS Pacific	Yes
Rollex	We have them installed in all types of environments from hospitals to retail pharmacy.
Sanyo	Yes
Thermoline	Yes
Question 45	How often is calibration of the fridge recommended?
Arcus	The fridge must be calibrated by a certified calibration instrument and can be completed as often as the customer feels the need to.
ICS Pacific	Not applicable
Rollex	Not required.
Sanyo	Each 12 months

This question and answer sheet was collated by Queensland Health. Queensland Health does not endorse any particular manufacturer of purpose-built fridges. You will need to choose the fridge that best suits your needs and price range. The answers are as provided by the manufacturers without appraisal by Queensland Health.

One question that was not included in the above list but is worth asking the manufacturer is:

- Does temperature probe have an appropriate temperature lagging device?

Lag

When a substance is heated on one side, it takes time for the heat to travel through the substance. This time is called heat lag. Lagging is the process of using specific materials and thickness of materials so that heat lag takes a certain time. Temperature probes may be lagged so they don't respond to short term fluctuations (eg. when the refrigerator door is open).