THALES Cryogenics

IRCameras

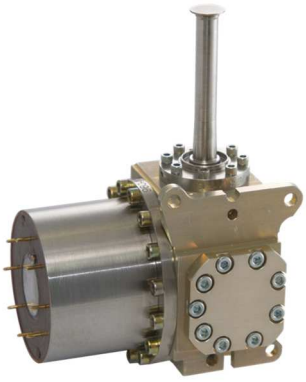
Rotary Monobloc Coolers

Small reliable coolers for regular & HOT detectors

RM2

RM3

RM4



IDCA ROTARY COOLER FAMILY

Since 1989, Thales Cryogenics has manufactured and delivered more than 50 000 cryo-coolers around the world. The RM series of rotary Stirling coolers is one of the most quiet rotary Stirling design on the market. Such coolers offer excellent efficiency for IDCA applications where size, efficiency, price and reliability are key.

RESTRICTIONS FREE
RE-EXPORTATION
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Thales Cryogenics

- More than 40 years experience
- World leader in Stirling Coolers
- Annual production > 10 000 coolers
- Worldwide maintenance centers for cooler replacement
- Lean manufacturing
- ISO 9001 & 14001 certified

February 2016

THALES CRYOGENICS - TOGETHER, SAFER, EVERYWHERE
PO box 6034 NL - Hooge zijde 14 - 5600 HA Eindhoven The Netherlands
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THALES Cryogenics

IRCameras

Rotary Monobloc Coolers

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IDCA Rotary coolers tailored for your needs

	RM2	RM3	RM4
Typical Cooling power @ 68°F	500 mW @ 77 K	600 mW @ 77 K	850 mW @ 77 K
Weight :	275 g	450 g	480 g
Typ. Cool Down Time @ 68°F	< 5 min w/ dewar 150 J @ 77 K	< 4,5 min w/ dewar 356 J @ 77K	3,5 min w/ dewar 250 J @ 77 K
Max input power	9 Watt	13 Watt	19 Watt
Typ. Steady state input power @ 68°F	2,9 W@ 130 mW, 77K	5 W@ 180 mW, 77K	3,4 W@ 130 mW, 77K
MTTF	> 15 000 hrs (spec)	> 10 000 hrs (spec) > 20 000 hrs (110K)	24 000 hrs (spec)
Max. dimensions (inch)	3,7 x 3,2 x 1,8	4,6 x 2,7 x 2,2	3,8 x 2,7 x 1,7
Cold finger Ø	1/4" IDCA	*0,3'' IDCA*	1/4" IDCA
Operational temperature range	-40°F to +158°F	-50,8°F to +185°F	-50,8°F to +185°F
Electronic drive	separate	fully digital, embedded	separate

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IRCameras

Rotary Monobloc Cooler RM2

Small reliable cooler for regular & HOT detectors

- MTTF > 15 000 hours
- Less than 0,2% field return
- Small, light, very low vibration
- 30 000 delivered over 10 years
- Low consumption
- 24v & 12v versions

IDCA ROTARY COOLER FAMILY

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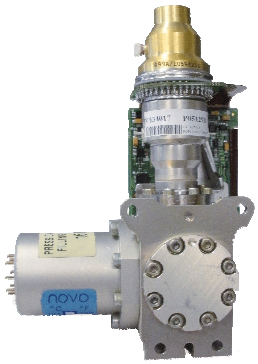
Rotary Monobloc Cooler RM2

Thales Cryogénie SAS best seller, which combines compactness, efficiency and **very low vibration thanks to improved definition**, with over **30 000 units sold**. Equipped with remote digital or analogical driver electronic, it becomes a **worldwide reference** for hand-held camera applications.

Technical Data	
Typical Cooling power @ 68°F	500 mW @ 68°F / 77 K
Weight:	275 g
Standard Input voltage:	34 Vdc
Typ. Cool Down Time @ 68°F	< 5 min @ w/ dewar 150 J
Typ. Steady state input power @ 68°F	2,9 W @ 130 mW, 77 K
MTTF	15 000 hrs
MTTF design goal	24 000 hrs
Max. Compressor dimensions (inch)	3,7 x 3,2 x 1,8
Cold finger Ø	1/4" IDCA
Operating Temperature	-40°F to +158°F
Electronic drive:	Separate, available on demand



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THALES Cryogenics

IRCameras

Rotary Monobloc Cooler RM3

Compatible to main applications

- Field proven MTTF > 22 000 hours on 24/7 application
- Fully digital drive electronic for easy set up
- 24v & 12v versions
- Compact & lightweight
- IDCA with 0,3'' Ø cold-finger

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Rotary Monobloc Cooler RM3

Released in 2012 with nearly **8000 units already delivered**, RM3 has an embarked fully digital drive electronics delivering simplifying integration operations with easy set up, and possible on line monitoring. Typically used in surveillance and instrument applications, it has shown strong reliability in **24/7 operations** on a park of more than 250 operating units.

Technical Data	
Typical Cooling power @ 68°F	600 mW @ 68°F / 77 K
Weight	450 g
Standard Input voltage	18-28 Vdc // 9-12 Vdc
Typ. Cool Down Time @ 68°F	< 4,5 min w/ dewar 356 J
Typ. Steady state input power @ 68°F	4 W @ 180 mW, 77 K
MTTF Specification	> 10 000 hrs
MTTF Field proven 24/7 application	> 20 000 hrs (110K)
Max. dimensions (inch)	4,6 x 2,7 x 2,2
Cold finger Ø	0,3'' IDCA
Operating Temperature	-50,8°F to +185°F
Electronic drive	embedded, fully digital & programmable

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THALES Cryogenics

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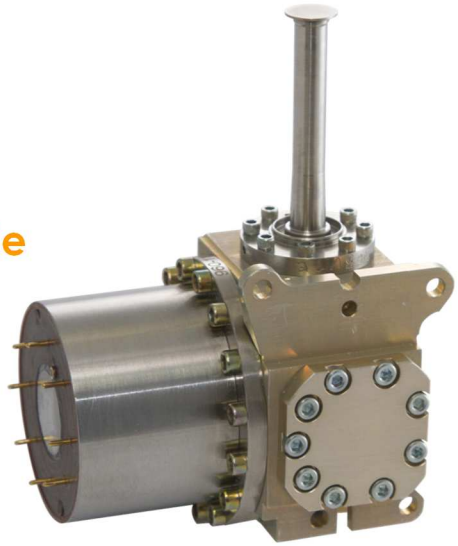
Rotary Monobloc Cooler RM4

Power & robustness for demanding applications

- MTTF > 24 000 hours
- Very short cool down time
- **Reduced vibration version soon available**
- Designed to fit with severe climatic profiles



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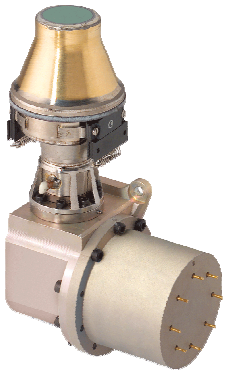
Rotary Monobloc Cooler RM4

Thales Cryogénie SAS' most powerful Rotary cooler, the RM4 is used for its **very short cool down time** on applications exposed to severe conditions. Quick for QWIP, it can also be used to cool down various semiconductor and filter components.

Technical Data	
Typical Cooling power @ 68°F	850 mW @ 68°F/ 77 K
Weight	480 g
Standard Input voltage	34 Vdc
Typ. Cool Down Time @ 68°F	3,5 min w/ dewar 250 J
Typ. Steady state input power @ 68°F	3,4 W @ 130 mW, 77 K
MTTF	24 000 hrs
Max. Compressor dimensions (inch)	3,8 x 2,7 x 1,7
Cold finger Ø	1/4" IDCA
Operating Temperature	-50,8°F to +185°F
Electronic drive	Separate, available on demand



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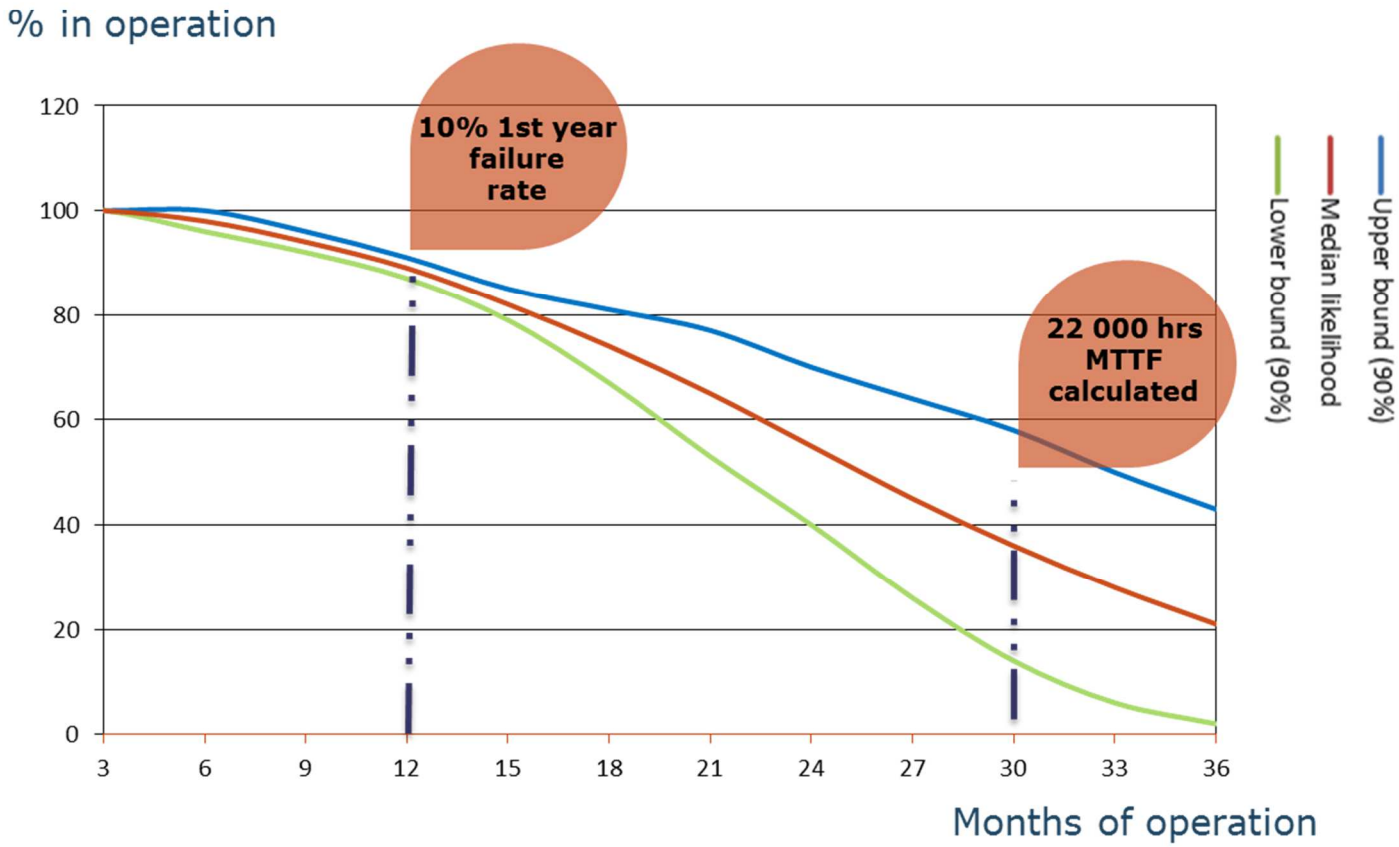
RM3 field feedbacks on 24/7 application with US based customer

- In operation since 2013
- Database of more than 200 operating coolers
- No detected failures before 4000 hours
- Likelihood failure rate @ 1 year of use (8800 hours) = 10%
- Likelihood MTTF (63% failure rate) = 22 000 hours



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