

## case study

customer:



location:

**Manufacturing HQ  
Mantes-Buchelay  
Paris, France**

the brief:

12,400 sqm hub for high precision mechanics activities, including the design, manufacture and assembly of hydromechanical components and accessories for oil and fuel systems for helicopter engines, as well as the manufacture of hydromechanical components for military aircraft engines. This new site houses a 320-strong workforce in administration and production, with scope to accommodate more staff in the future.

market:

Commercial

products:

**TERA®**

"We are confident that our vision of a world-class, future-proof manufacturing site has been realised and we know that this investment in the highest performing copper cabling system will support the business to excel well into the future."

**Selim Caluwaerts**

IT Manager,  
Mantes-Buchelay  
Safran Turbomeca

# Sky High Performance



**What do helicopters and cable have in common? Nothing? On one level that's true, but they both have to perform faultlessly for smooth operation that you can rely on. So, when world-leading French helicopter engine manufacturer Turbomeca equipped its new manufacturing plant near Paris, it had sky high expectations for the cabling infrastructure that would underpin its business operation.**

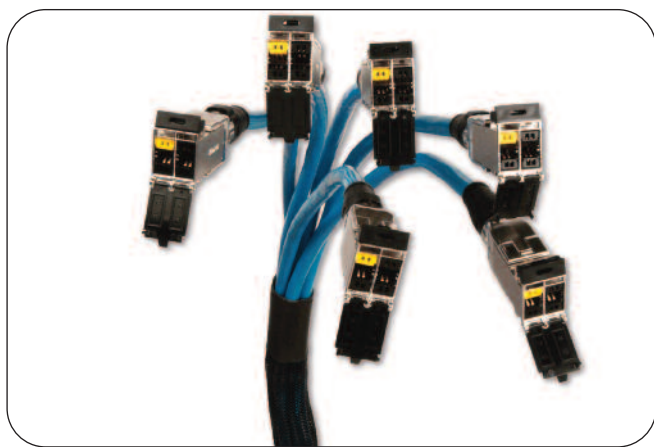
Headquartered in Bordes, France and part of the Safran group, Turbomeca is a leader in civil and parapublic helicopters, offering the broadest range of helicopter engines worldwide. With operations on five continents, the company has built strong relationships with the world's leading helicopter manufacturers including Eurocopter and Sikorsky.

Until recently, engine design, development and production was centred in Bordes, Tarnos and the company's original site in Mézières sur Seine which has already served for more than 70 years of continuous production. However, continuous business growth pushed Turbomeca's production to capacity. With no room for further expansion and plans to implement manufacturing synergies with other parts of the Safran group, additional space was imperative. The decision to build a new manufacturing plant became essential and so a search was mounted for a suitable location, ultimately leading Turbomeca to Mantes-Buchelay near Paris; a

greenfield site only 14km from the original plant which identified as best for the 12,400sqm build.

### Turbomeca's New Base

Mantes-Buchelay was to become Turbomeca's hub for high precision mechanics activities, housing the design, manufacture and assembly of hydromechanical components and accessories for oil and fuel systems for helicopter engines, as well as the manufacture of hydromechanical components for military aircraft engines. As 2 the new industrial competence centre, implementing industrial synergies between Safran Group companies, the site needed to be able to accommodate further growth and provide capacity for business expansion.



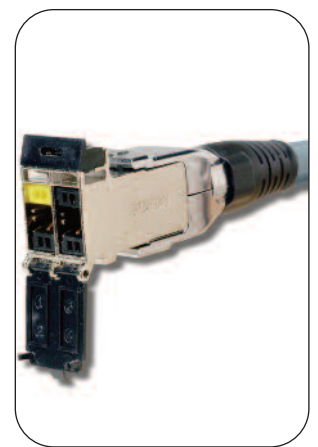
The new plant had to be built with the future in mind and this meant an IT infrastructure that would support a 320-strong workforce in administration and production, with scope to deliver for more staff in the years to come. Together with his team, Selim Caluwaerts, Buchelay's site IT manager at Turbomeca, had the responsibility for setting up the plant's IT systems. Knowing the high performance demands he summed up his personal goal for the new site, "It was my vision to equip Mantes-Buchelay with an IT infrastructure of the future – an infrastructure flexible enough to support a growing business, a growing number of network users; ready to handle increased network traffic and data throughputs, including video and high speed applications."

Besides specifying flexibility, performance and future proofing for the site's new cabling system, security was also high on the agenda. Working closely with military organisations, Turbomeca's information security manager needed to ensure that they worked to the same standards as their business partners. These standards included strict rules on data security.

### Robust Research

Having defined the key requirements, the IT team started a period of intensive industry research, whilst being mindful of other specific criteria: "In my opinion, the lifecycle of the traditional RJ45 copper connector technology is coming to an end", commented Selim. "So we focused on sourcing an alternative cabling solution." Further research soon lead Turbomeca to global network infrastructure specialist Siemon and its comprehensive portfolio of copper cabling systems, including the non-RJ45 style category 7A/TERA® solution.

Next, they performed extensive product tests of different non-RJ45 based cabling systems and it was Siemon's



TERA that produced the performance parameters that they hoped to see. Giovanni Bellu, Siemon's account manager for the project recalls: "As an example, Turbomeca tested different cables for suitability to deliver Power over Ethernet (PoE). We were very pleased to see that the research demonstrated how well Siemon cable performed in comparison to others. After extensive periods of 3 rigorous product tests our solution proved to be the most stable. In fact, category 7A cabling can dissipate the more heat caused by PoE or PoE and hotter environments compared to other copper cabling options. Greater heat dissipation reduces the need for length derating due to increased insertion loss at higher temperatures." TERA also fulfilled a number of other key requirements: The fully shielded nature of the cable and the quadrant style connector interface minimises alien crosstalk, ensuring the highest performance parameters. It is therefore well suited to support next generation applications beyond 10GBASE-T and is capable of supporting all channels of broadband video. With a 20-year estimated lifecycle, TERA provides the maximum return-on-investment says Siemon and limits the needs for costly cabling upgrades, it claims.

## Maximum Security

Being a fully shielded solution, TERA also has its place in environments where emissions and immunity are a concern, thereby addressing the data security aspect raised by the Information Security department.

Specifically, with US-based governmental organisations, compliance to Tempest security regulations is critical. TERA is the only copper cabling system that has been certified for use in Tempest rated environments.

As a standards-recognized interface, the TERA connector fits within a standard RJ-45 footprint and is easily integrated into existing switches and computers through the use of hybrid TERA to RJ patch cords. This aspect convinced the IT team to move away from the traditional RJ45 that they were familiar with. Based on the test results, Turbomeca selected Siemon's fully shielded 10Gb Ethernet category 7A cabling for the new site and Selim explained: "For us TERA ticked all the boxes. With a product lifecycle of 20 years we can be sure that our IT requirements will be supported on day one and also in the years to come. In this sense, TERA provides an excellent return on investment."



During the installation process approximately 150km of category 7A TERA 1000 MHz S/FTP cable was laid with 1300 TERA outlets and a 10Gig single mode fibre optic backbone installed to deliver up to 10 Gigabit Ethernet from telecoms rooms to the production hall, design and administration. Selim remembers the installer's feedback: "Although the TERA connector takes a little more time to terminate, the number of errors compared to terminating a RJ45 style connector are marginal. We installed 1300 points in total and only 10-15 points had to be re-terminated. We were very pleased with this result as the low error rate enabled a faster installation with less costly troubleshooting."

In production, every manufacturing machine is supported by at least one PC, plus additional display boards keep workers informed on the production floor. The site takes advantage of the cabling's PoE capabilities, powering active measuring equipment through the cable. Future plans include converting from analogue telephony to VoIP phones which the new infrastructure will fully support in addition to video and CCTV for on-site security.



## Future Focus

According to the engine manufacturer, TERA was also chosen for its cable sharing capabilities which would provide the new site with much desired flexibility. With cable sharing, one cable can deliver between one and four independent 1 or 2-pair data or 4 voice applications to a single work area outlet. Turbomeca needed to be able to add more users to the network over time without modifying the cabling. With TERA a second user can get added to an existing outlet in future as one outlet easily supports two 100BASE-T PC connections. As they had planned to install a sufficient number of outlets at each work area, users can - as and when required in the future - take advantage of a 10Gb/s connection, using all four pairs of a dedicated high speed outlet.

The new site was designed in accordance with the Low Energy Consumption Building (Bâtiment Basse Consommation) initiative and meets the High Environmental Quality (Haute Qualité Environnementale) building criteria. "The choice of the cabling solution in this project also has a positive effect on the environment," says Giovanni Bellu. "The future-proof performance of the system and its realistic extended lifecycle decreases the frequency of upgrades and limits the need for cable removal and/or disposal."

# case study

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## **Final Word**

Today 320 Safran personnel benefit from a modern site that greatly improves industrial efficiency and that maintains competitiveness in the company's hi-tech industrial activities near Paris. The last word goes to Selim Caluwaerts: "We are confident that our vision of a world-class, future-proof manufacturing site has been realised and we know that this investment in the highest performing copper cabling system will support the business to excel well into the future."