Galling of Stainless Steel Fasteners

How does Galling occur on Stainless Steel?
Galling is caused by friction which generates heat and the chrome oxide film is damaged, wiped off, 'bunched' up, and this can be the start of the process of seizing of the fastener. Once galling starts the raw material is laid bare and exposed and if the mating part is of similar composition and they touch the raw material can 'grow' leading to seizing. Once the material touches the mating face and starts to grow it can lock up very solidly into the other part. This is often referred to as 'Cold Welding'. If the torque continues the bolt or external thread part is twisted and shears off.

Causes and Prevention
The key factors that contribute to thread galling include friction and heat produced during assembly, use of similar materials and thread smoothness and cleanliness. Understanding the causes that contribute to these factors is essential in reducing or eliminating galling's effects and incorporating appropriate countermeasures.

Cause	Prevention
Fastener misalignment	Lubricate Threads
High rpm installation	Revise assembly procedures
Use of similar materials	Revise design
Rough thread surfaces	Revise design
Damaged threads	Revise handling procedures
Thread surface debris	Clean threads

Conclusion
What seems to be a very major problem can easily be solved with careful selection and understanding of how galling and seizing can occur. Ask the team at Allied Fastenings Limited for more information on the right product to use for your particular application before the problem occurs in the first instance.
Base material and working temperatures and the environment the product is being used in will denote which product to use.