

Online repair  
for SF6 leaking flange



REFLANGEKIT®

DEFECT TYPE  
FLANGE DETAILS  
LOCATION  
3X SOLUTION

SF6 gas leakages on flanges

Open cone insulators – tension 400 kv - pressure 5.2 bars – temp. 25°C

SAUDI ARABIA

**REFLANGEKIT®**

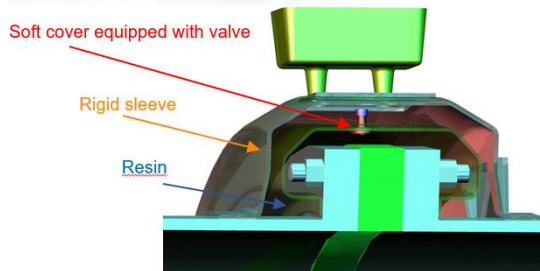


Figure 1: **REFLANGEKIT®** Concept



Figure 2: View of flange type to be fixed

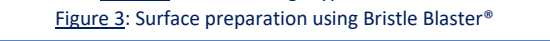


Figure 3: Surface preparation using Bristle Blaster®



Figure 4: Soft shell installation

Figure 5: Rigid shell installation



Figure 6: **REFLANGEKIT®** installed and recovered with protective coating

## OVERVIEW

The objective of the repair, performed early 2018 by 3X ENGINEERING and its local distributor ASSET PROTECTION CORP., was to **repair 15 flanges with SF6 leakage**.

## SCOPE OF WORK

After data analysis and onsite inspection, it was decided to repair the flanges using our **REFLANGEKIT®** product specifically designed to seal SF6 gas leakage online.

Surface preparation was completed, using Bristle Blaster® machine, to remove the existing coating and get a good surface cleanliness of Sa 2<sub>1/2</sub> and roughness Rz > 60 µm, in order to ensure a good bonding of the product.

The repair was then performed following 7 main stages:

- 1 Preparation and installation of the soft shell around the defected flange. The goal is to protect all the functional parts and to concentrate the SF6 gas leak in a single point located on the top (= the valve).
- 2 Insulation and compression of the soft shell using specific 3X filler and adhesive tape.
- 3 Composite reinforcement is then performed with glass fiber impregnated with 3X resin.
- 4 Preparation and installation of the rigid shell around the composite reinforcement.
- 5 3X resin injection into the rigid shell through an overflow positioned on the top. The valve is protected from the resin by a Teflon vent protection during injection of the resin.
- 6 Valve closing and leak control. After 3X resin curing, the vent is removed and the valve is closed using a plug. The imperviousness of the valve is then checked using SF6 gas detector to be sure that the leak is stopped.
- 7 The flange repair is finalized recovering the valve with resin. The **REFLANGEKIT®** is then painted with a protective coating and an

## RESULTS

This job has been successfully managed by 3X specialists and all the leakages have been sealed using **REFLANGEKIT®** product. The client is so satisfied that he ordered 13 more repairs for another site.