

## Challenge

### Issue

Existing service life of <6 months with insufficient weld repair of screws reduced throughput and effected plant operation. Weld repair resulted in scrapping of screw after 2 repair cycles.

### Goals

- Increase MTBR and operational efficiency
- Avoid scraping of screw after 2 weld repair cycles

### Root Cause

Abrasive ore wears flight faces and heat exposure from welding leads to stress cracking.



Old screw showing weld overlay repairs

## Solution

### Preparation

- Grit blast to Sa 2.5 and 3 mil (75 µm) angular profile

### Application

1. Apply **ARC MX1** @ 250-375 mils (6-9 mm) to flight faces and shaft
2. Shaft to flight covered with a 500 mil (12 mm) 45° transition
3. Apply 1 coat of **ARC 855** @ 10 mil (250 µm)



Screw during ARC MX1 coating process

## Results

### Client Reported

- Service life extended to > 18 months with **ARC MX1**
- Cost of new screw (every 12 mo.): \$10,000
- Weld repair every 12 months: \$ 7,000
- **Total cost with ARC:** -\$ 5,000
- **Savings:** \$12,000
- Client is using **ARC MX1** in additional areas of plant including chutes, deflector plates, and hoppers

\$=USD



ARC-coated surfaces