



# Project Case Studies

## Rexflex Extra Cut Gouge Resistant Steel Breaker Conveyor Belt

<b>MANUFACTURER</b>	REXLINE ENGINEERING
<b>MANUFACTURER'S DESCRIPTION/PART NUMBER</b>	EP 1250/4 10 + 3mm 1050 mm width Grade of Cover Extra XCGR Comes with steel breaker top cover
<b>MATERIAL NUMBER</b>	NA
<b>CLIENT</b>	
<b>PURCHASE ORDER</b>	4506861328
<b>DATE OF PURCHASE</b>	17/07/2018

### Table of Contents

1	Introduction .....	2
2	Case Study .....	2
3	Technical Specifications .....	3
<b>3.1</b>	<b>Process Parameters .....</b>	<b>3</b>
<b>3.2</b>	<b>Technical Data Sheet .....</b>	<b>4</b>
<b>3.3</b>	<b>Testing Conducted .....</b>	<b>5</b>
4	Project Benefits Review .....	6
5	Photos .....	6
<b>5.1</b>	<b>Case Study Photos.....</b>	<b>7</b>
<b>5.2</b>	<b>Steel Breaker Conveyor Belt Supplied.....</b>	<b>8</b>
<b>6</b>	<b>Rexline Engineering Clients .....</b>	<b>9</b>



## **1 Introduction**

Rexline Engineering had supplied [REDACTED] Operations with Steel Breaker Belt in July 2018.

This belt was proposed to [REDACTED] by Rexline Engineering Technical Team after conducting site audit at [REDACTED] request. As part of its re-initiation of [REDACTED] operations, all its conveyor systems were audited to identify issues. During the extensive survey of the [REDACTED] Site, Rexline Engineering identified issues with the current conveyor belt that it uses against the parameters of operation at site.

Upon approval, Rexline Engineering got its factory to exclusively manufacture and supply this belt for [REDACTED].

GWS with its technical expertise in the conveyor industry manufactured the belt to specifications and supplied to [REDACTED] on schedule.

## **2 Case Study**

As per Audit conducted by Rexline Engineering on [REDACTED] Site, the Site Engineers identified the issues pertaining to the existing conveyor belt. Most sections of the belt are worn out along the length of the belt. Also, there are areas where cuts and gouge have been observed.

Rexline Engineering has identified various factors that led to the belt being cut and gouge. The Rollers used on the conveyor system was way past its service life and required urgent replacements. This led to the belt not being conveyed as required and tracking of the belt.

The Belt Currently in place was not rated for Extra Cut and Gouge Resistance. Furthermore, the Belt was only rated for 800/4 Ply Rating with only Fabric Ply as its setup

Rexline Engineering Proposed a XCG Belt with Steel Breaker along with Higher rating catering to existing conveying tonnage rates.

Also, Rexline Engineering supplied the splice kit necessary on site for splicing of the belt.



Extra Cut and Gouge Resistance (XCGR) delivers superior resistance to heavy impacts, abrasion and gouging. Extra Cut and Gouge Resistance (XCGR) rubber cover compound provides high end performance in applications where increased resistance to heavy impacts, abrasion and gouging is required in Nickel Operations.

**Benefits of High Tensile engineered reinforcement on the top cover:**

The Extra Cut and Gouge Resistance (XCGR) Belt that we offered is equipped with **High Tensile engineered reinforcement on the top cover** to provide efficient protection. This **High Tensile engineered reinforcement on the top cover provides extra impact and rip protection** for the belt and potentially allow smaller pulley diameters, serving as the basis for a longer service life and a lower risk of severe damage.

### **3 Technical Specifications**

#### **3.1 Process Parameters**

Material Properties: Nickel Ore  
Take Up Type: Gravity  
Take Up Mass (Kg): 12000Kgs  
Tonnage (t/h): 500  
Maximum Lump Size(mm): 400 x 550 x 200  
Conveyore Ore: Lumps  
Material Profile: Flat



3.2 Technical Data Sheet

<b>TECHNICAL DATA SPECIFICATIONS: _ _ ConveyOre 1050 EP1250/4 10/3 XCG TOP COVER WITH STEEL BREAKER</b>			
Item	Description	Unit	Specification
1	Dimensions		
1.1	Width of belt	mm	+/- 1%
1.2	Tolerance in belt length	M	+/-2.5%
1.3	Belt edge		cut
1.4	Total thickness	mm	21.1 +/-0.5
1.5	Cover thickness		
1.5.1	Top cover	mm	10 +/-0.5
1.5.2	Bottom cover	mm	3 +/-0.1
1.6	Belt weight	kg/m	~28.14
2	Rubber cover		
2.1	Specific gravity	g/cm <sup>3</sup>	1.15 +/-0.05
2.2	Tensile strength	N/mm <sup>2</sup>	Min.18
2.3	Ultimate elongation	%	Min.400
2.4	Tensile strength after aging 70° C x 168h	N/mm <sup>2</sup>	Min.13.5
2.5	Ultimate elongation after aging 70° C x 168h	%	Min.200
2.7	Abrasion resistance	mm <sup>3</sup>	Max.90
2.8	Hardness	Shore A	65+/-5
2.9a	Tearing resistance	N/mm	Min.12
2.9b	Ozone resistance	96h 50pphm	No crack
3	Adhesion		
3.1	Top cover to ply	N/mm	7
3.2	Bottom cover to ply	N/mm	7
3.3	Ply to ply	N/mm	7
4	Full belt elongation		
4.1	At 10 % reference load	%	Max.2.5
4.2	At breaking	%	Min. 14
5	Trough ability at 40°troughed idlers	0.16	0.16
6	Tracking	mm	60
7	Full belt tensile strength	N/mm	Min.1250
8	Steel breaker		Top
8.1	Cord diameter	mm	1
8.2	Cord pitch	mm	10



### 3.3 Testing Conducted

<b>Test Type:</b> Thickness of belt		
<b>Test Standard:</b> AS 1334.2 Determination of thickness of belting and rubber covers across the width		
<b>Required Properties:</b> Meet the requirements of AS 1332-2000 clause 5.3 Tolerance on thickness of belting across width		
<b>Sample ID:</b> AWBH18157		
<b>Note 1:</b>		
<b>Discussion:</b> Pass		
Property	AWBH18157	Minimum requirements AS 1332-2000
Minimum thickness of belt (mm)	21.1	
Maximum thickness of belt (mm)	22.1	
Average thickness of belt (mm)	21.6	
Maximum difference between any two measurements of thickness of belt (%)	1.0	AS 1332-2000 Cl 5.3 Thickness of belt >10 mm 10 % max variation 1.1 mm max variation

<b>Test Type:</b> Tensile strength and elongation of full thickness belt		
<b>Test Standard:</b> AS 1334.3 Determination of full thickness tensile strength and elongation of conveyor belting		
<b>Required Properties:</b> Meet the requirements of AS 1332-2000 clause 6.1 Tensile strength of belt carcass Meet the requirements of AS 1332-2000 clause 6.2 Elongation of belting		
<b>Sample ID:</b> AWBH18157		
<b>Note 1:</b>		
<b>Discussion:</b> Pass		
Property	AWBH18157	Minimum requirements AS 1332-2000
Average longitudinal tensile strength (kN/m)	1320	AS 1332-2000 Cl 6.1 1,250 kN/m minimum
Longitudinal elongation at 10% of the tensile strength as appropriate to the	2.0	AS 1332-2000 Cl 6.2 4 % max elongation
Longitudinal elongation at break point (%)	22.1	AS 1332-2000 Cl 6.2 10 % minimum
Average transverse tensile strength (kN/m)	408	AS 1332-2000 Cl 6.2 Specified by Purchaser
Transverse elongation at break point (%)	26.7	AS 1332-2000 Cl 6.2 10 % minimum



<b>Test Type:</b> Cover and ply adhesion		
<b>Test Standard:</b> AS 1334.7 – Determination of ply adhesion of conveyor belting – Longitudinal direction		
<b>Required Properties:</b> Meet the requirements of AS 1332-2000 clause 6.6 Cover and ply adhesion.		
<b>Sample ID:</b> AWBH18157		
<b>Note 1:</b>		
<b>Discussion:</b> Pass		
Property	AWBH18157	Minimum requirements AS 1332-2000
Ply Adhesion Carry - Ply 1 – Top Cover (kN/m)	9.8	AS 1332 Cl 6.6 Cover to ply 4.3 kN/m mean
Ply Adhesion Ply 1 - Ply 2 (kN/m)	9.0	AS 1332 Cl 6.6 Adjacent plies 5.3 kN/m mean
Ply Adhesion Ply 2 – Ply 3 (kN/m)	9.1	
Ply Adhesion Ply 3 – Ply 4 (kN/m)	8.7	
Ply Adhesion Ply 4 – Bottom Cover (kN/m)	6.0	AS 1332 Cl 6.6 Cover to ply 4.3 kN/m mean

#### 4 Project Benefits Review

PARAMETER	BENEFITS
SERVICE LIFE	The belt is currently in operation since it has been installed in October 2018. Previous service life of the belt is 6 Months Expected service Life of GWSConveyOre Belt: 12 Months
COST	Replacement and Maintenance costs of these belts was reduced by 40% considering for a year's worth of service life.

## 5 Photos

### 5.1 Case Study Photos



*Figure 1. Previous Fabric Conveyor Belt*



*Figure 2. Condition of Previous Belt - Worn Out Belt*



*Figure 3. Gouge and Cuts on the Belt*

## 5.2 Steel Breaker Conveyor Belt Supplied







# PT. REXLINE ENGINEERING INDONESIA

Taman TeknoBSD Blok K2 No. 25  
Setu, Kota Tangerang Selatan, Banten, Indonesia  
[www.rexlineengineering.com](http://www.rexlineengineering.com)  
Phone : +62 21 7568 5412

## Rexline Engineering Clients



CARTENZ

