

Let's "Go Anzen-ni !"

as **ONE TEAM**



UTAMAKAN KESELAMATAN **KAO**

Kirei—Making Life Beautiful

“Mottainai - Wastefulness – Never Today, Nor Tomorrow, Stop Pemborosan”

Keep Stability Individual Film Process On LSSG Product

Team : All In

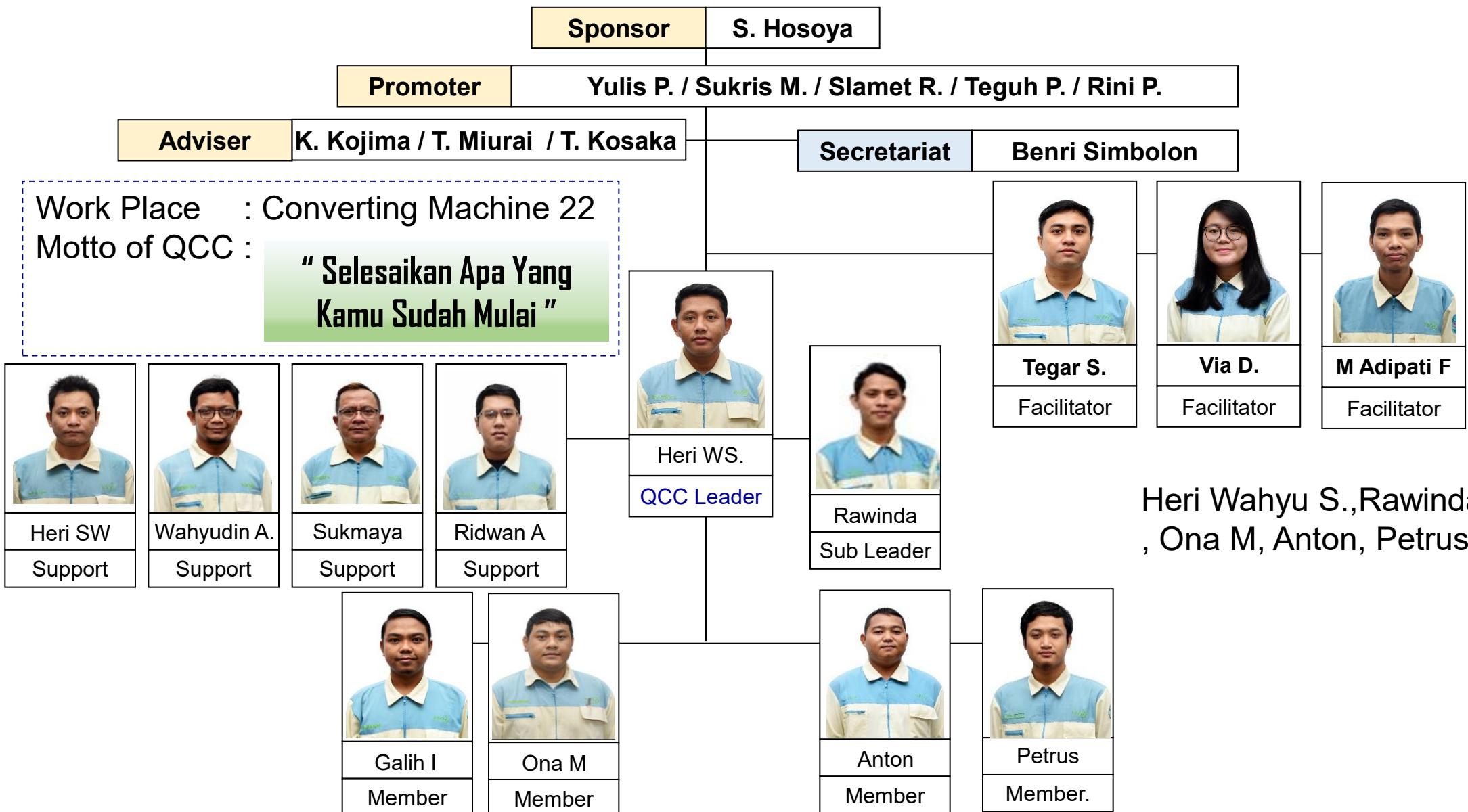
By : Heri Wahyu Styawan

Date : Nov 2024





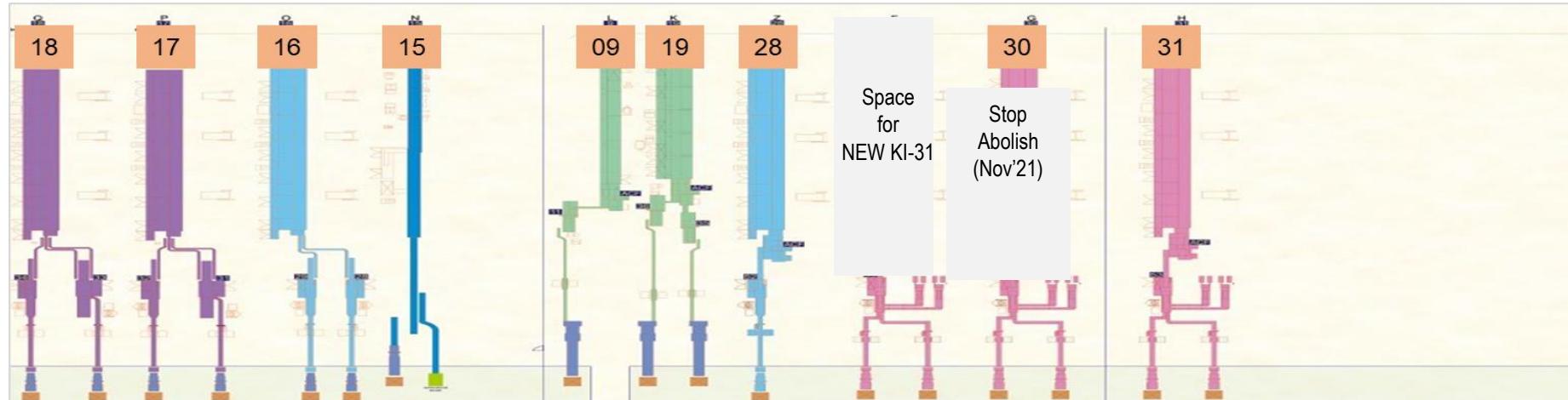
Introduction Team Name and QCC Member





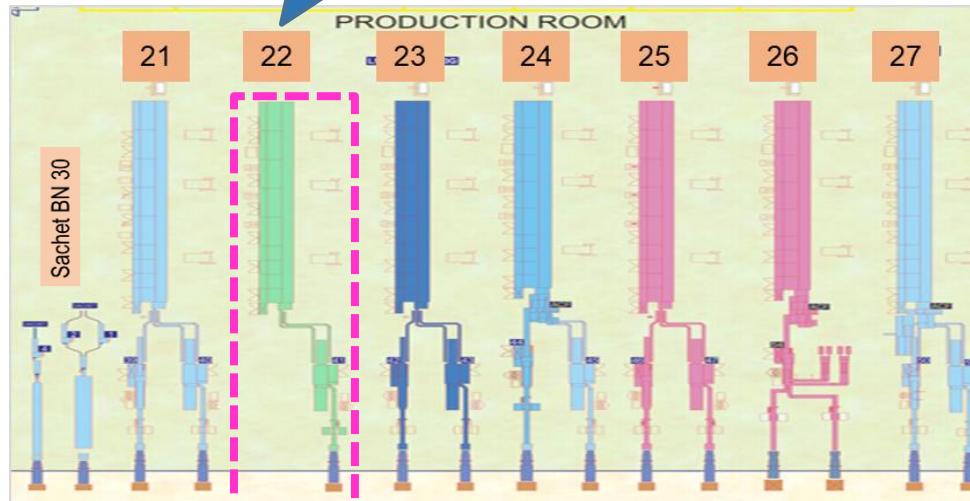
Human Health Care Layout

HHC Plant -1 (14 lines)



HHC Plant -2 (7 lines)

Qcc activity



Converting-22 Product is:

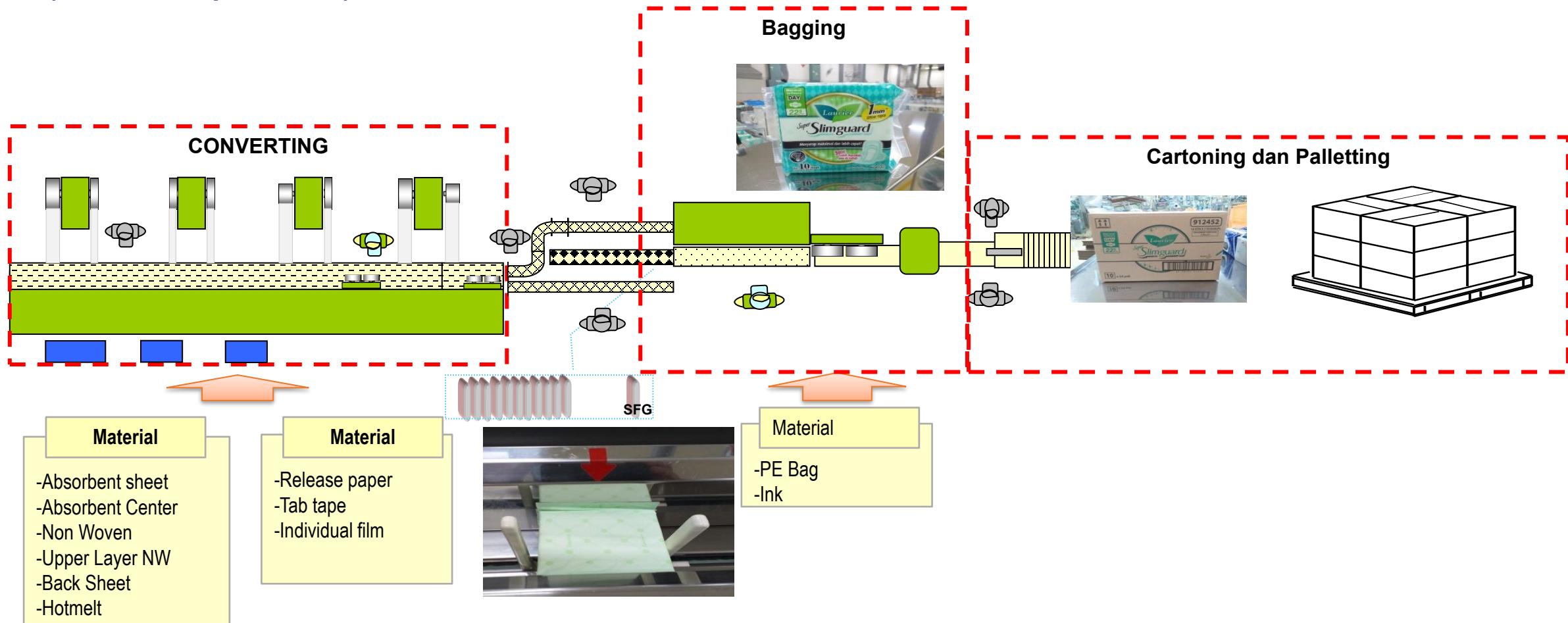


LSSG 22.5

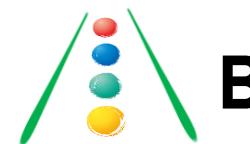


About Line No.22 (LSSG) process

□ Product LSSG 22.5 (Laurier Super Slim Guard 22.5) (Without Pulp Product)



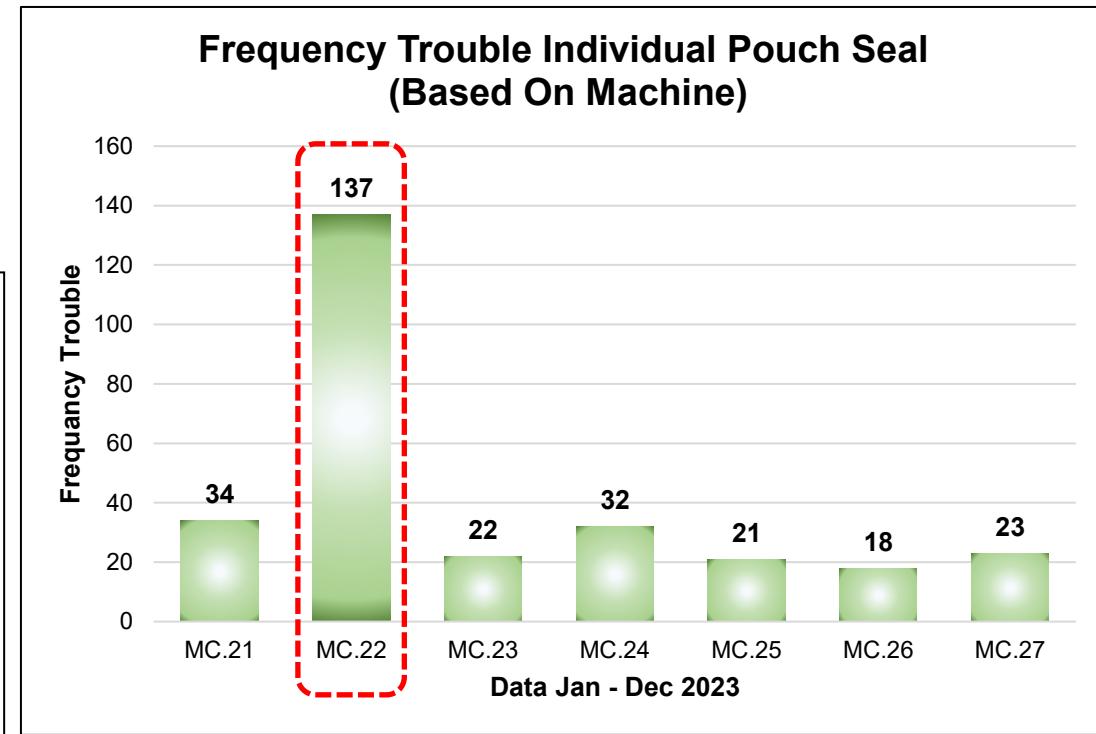
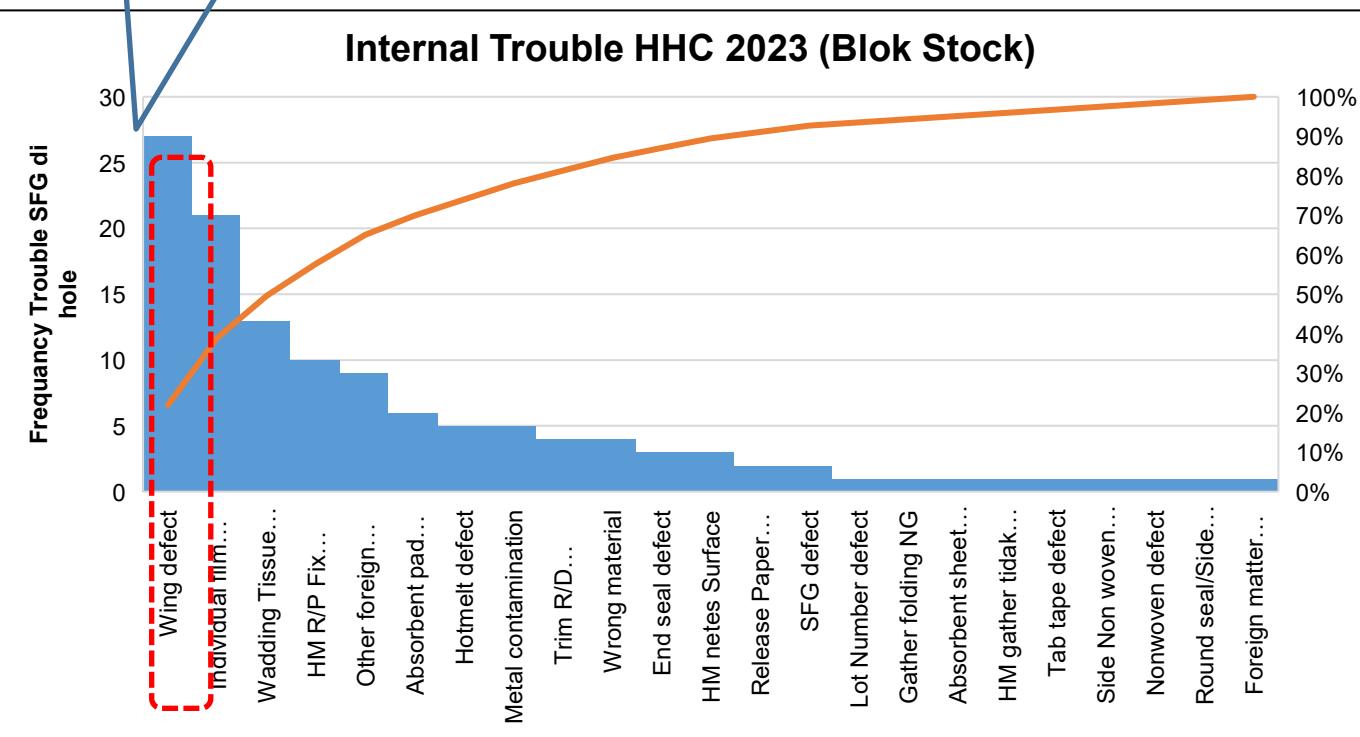
Flow Conv. 22



Background Data

□ Graphic Internal Trouble Line HHC (Jan – Dec '23)

Trouble wing detect
sudah di bahas team lain



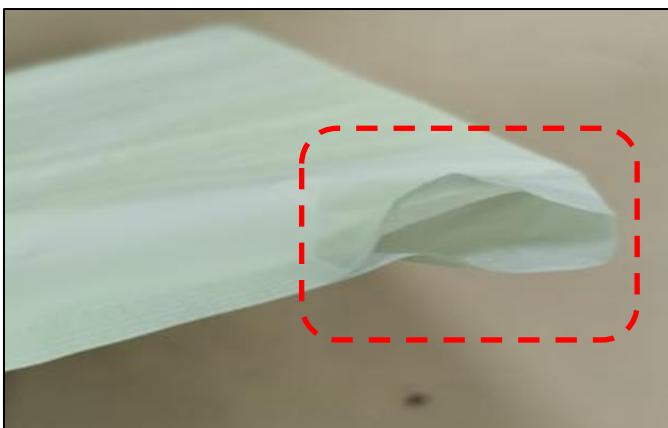
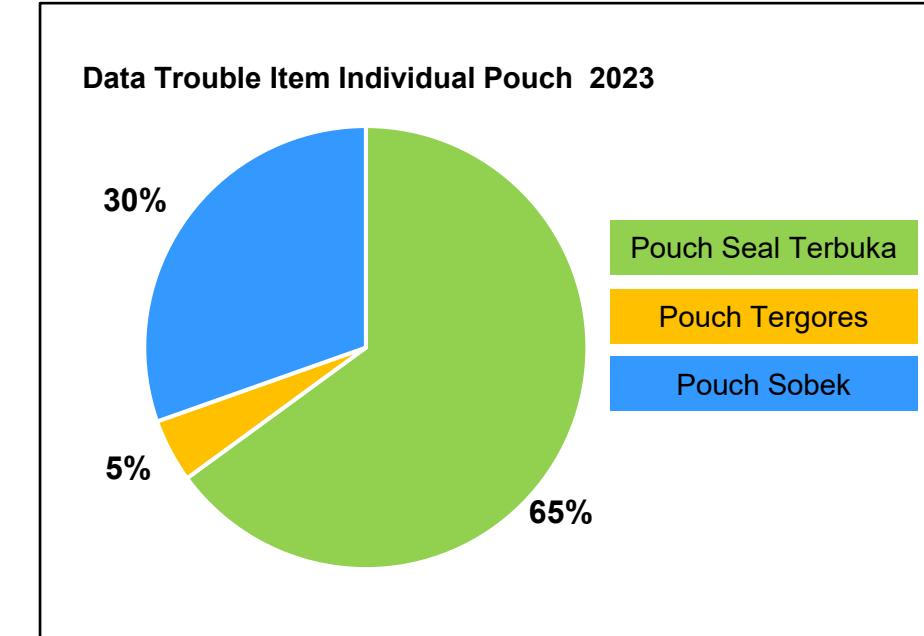
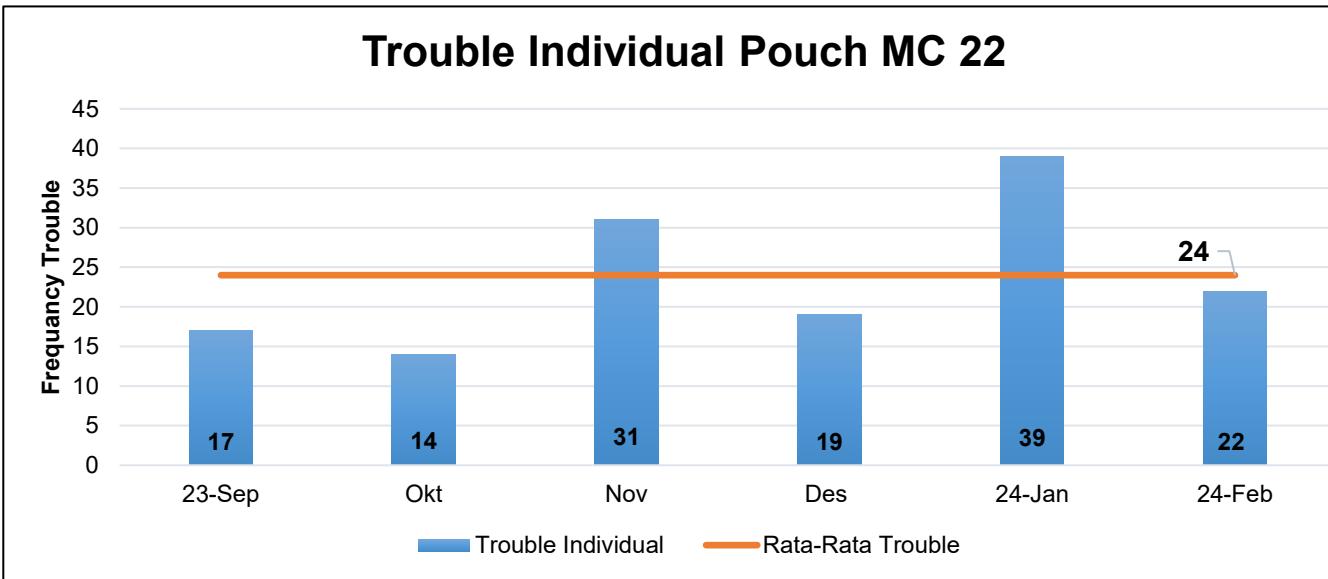
Berikut adalah data Frequency trouble individual Pouch di plant HHC 2 pada jan – des 2023 dimana mesin conveting 22 paling banyak terjadi trouble 137 kali



Background Data

□ Graphic Trouble Line 22 (Sep' 23 – Feb '24)

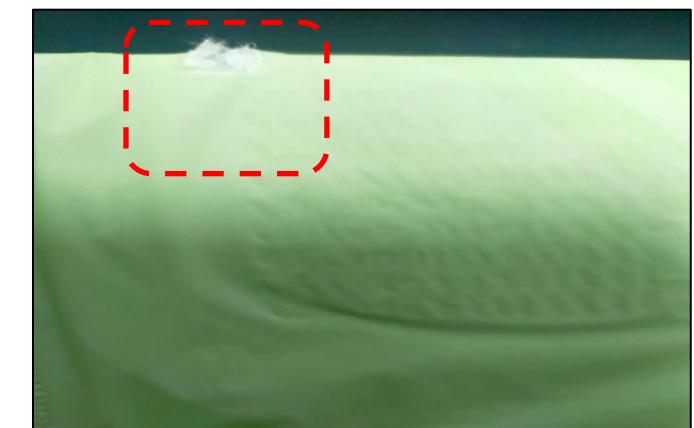
Berikut adalah table data trouble dari bulan sept 2023 sampai 16 feb 2024.



Pouch seal lemah/terbuka



Pouch Tergores



Pouch Sobek

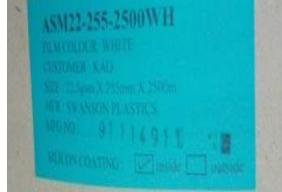


Background Data

□ Material Individual Film LSSG 22.5

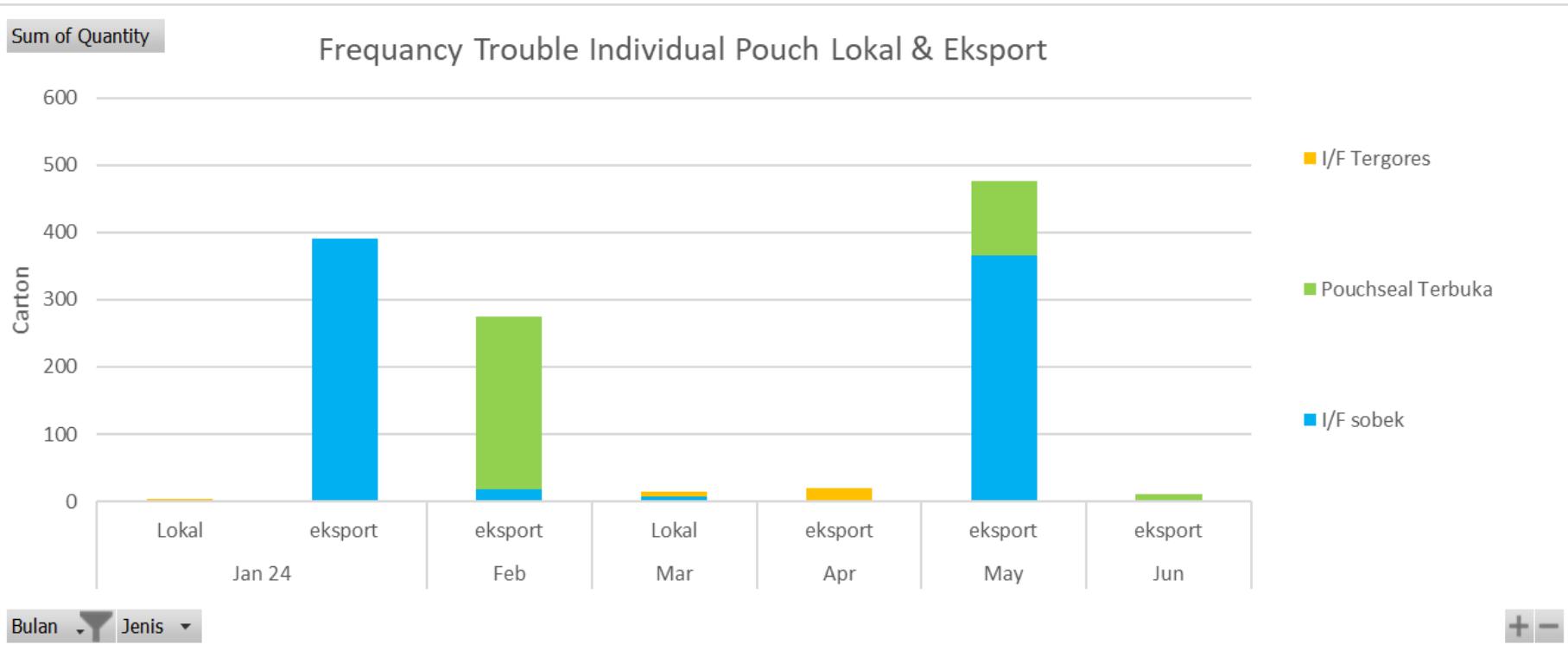
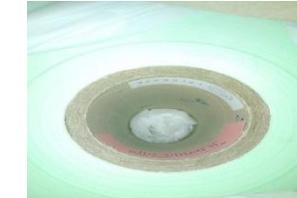
1) I/F white (2014 – Nov' 2019) Lokal

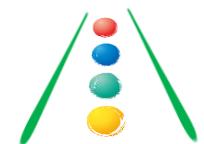
ASM 22-255-2500WH from supplier Swanson Malaysia



2) I/F green (Nov' 2021 ~) Export

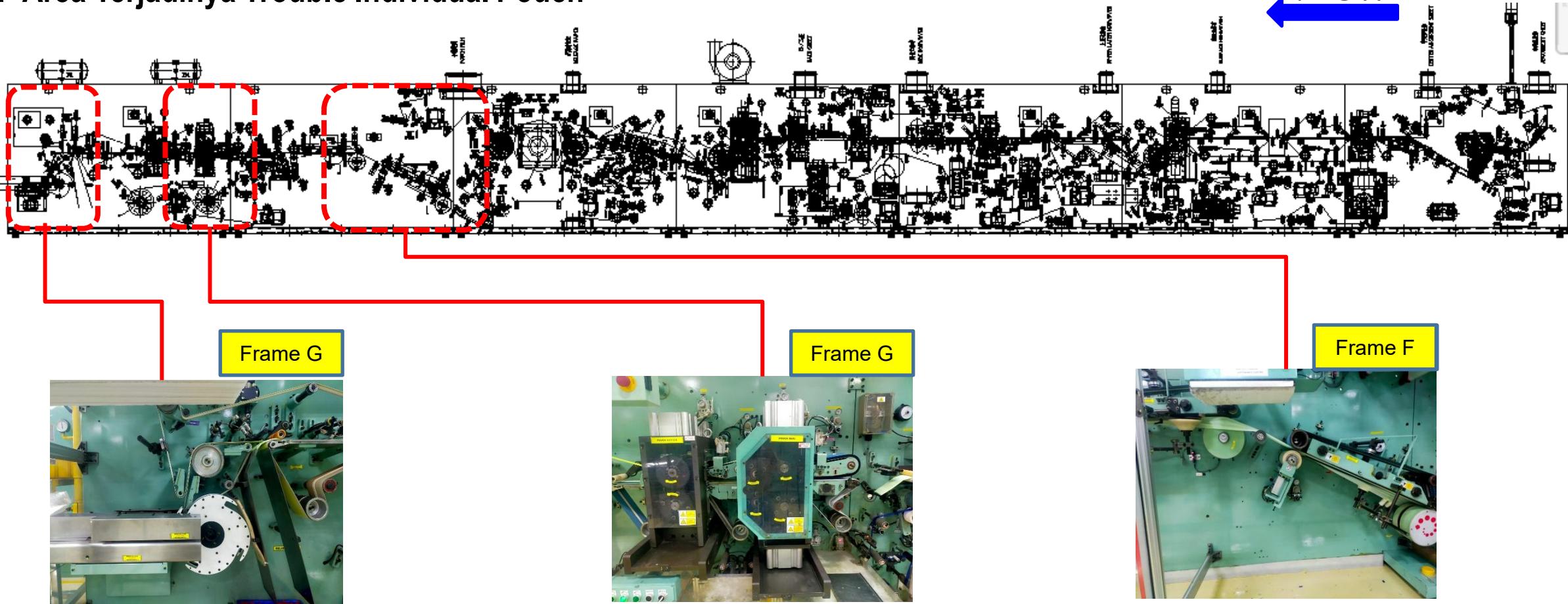
ASM 24-255-2500 RG-P from Supplier Swanson Malaysia





Problem Understanding

□ Area Terjadinya Trouble Individual Pouch

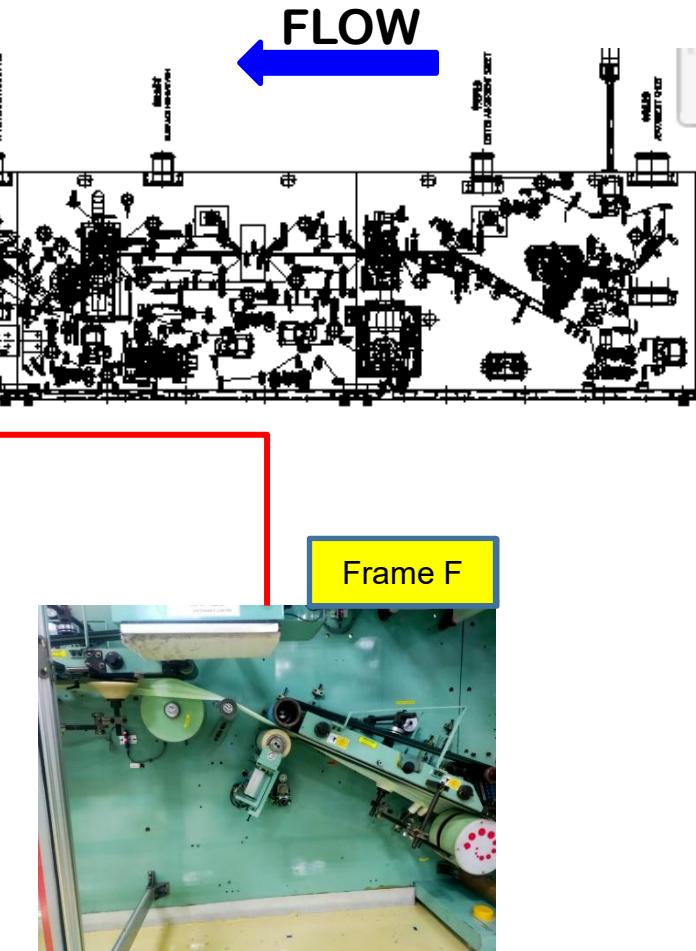


Steker, yaitu Baling-baling transfer SFG menuju conveyor bagging

Di area steker terjadinya
Pouch Tergores

Pouch Seal, yaitu Pengemasan dilakukan dengan men-seal kedua ujung material Ind.Film yang membungkus SFG,

Di area ini terjadinya Pouch seal
lemah/terbuka



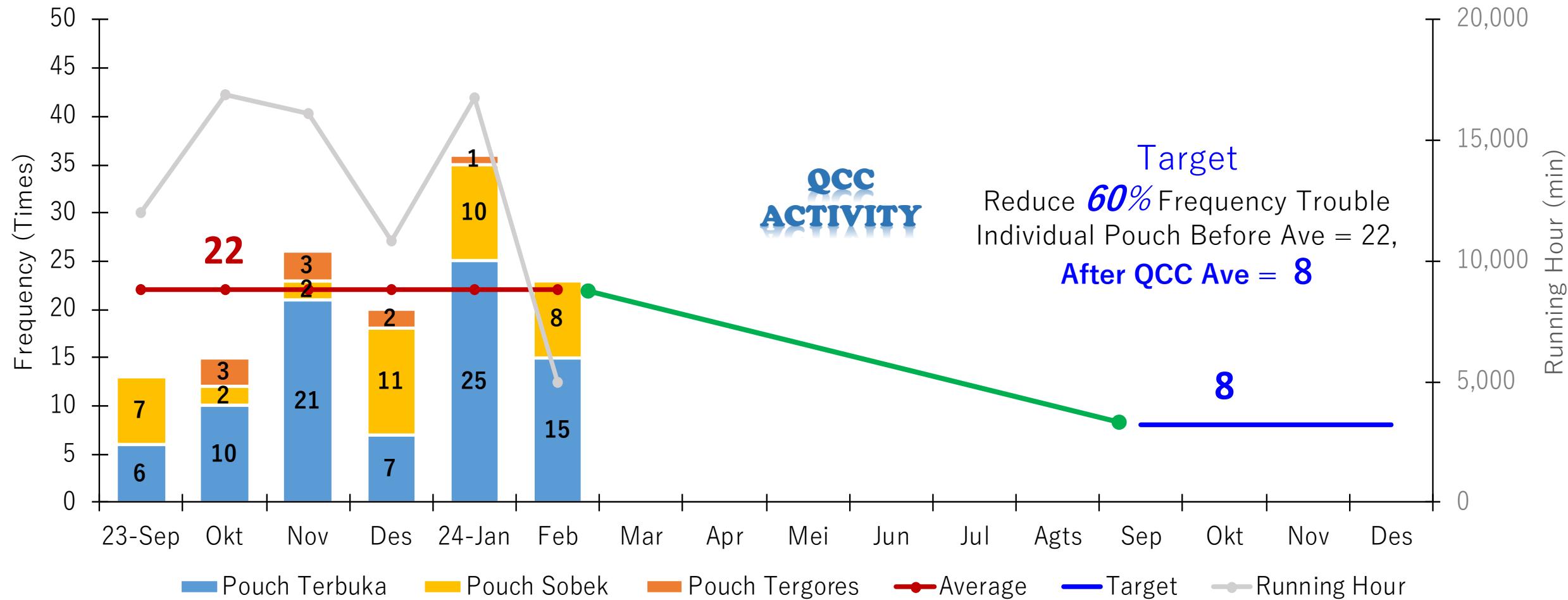
Folding If, yaitu Plat yang berfungsi untuk melipat SFG menjadi 3 bagian sebelum masuk ke tab tape

Di area folding If terjadinya
Pouch Sobek



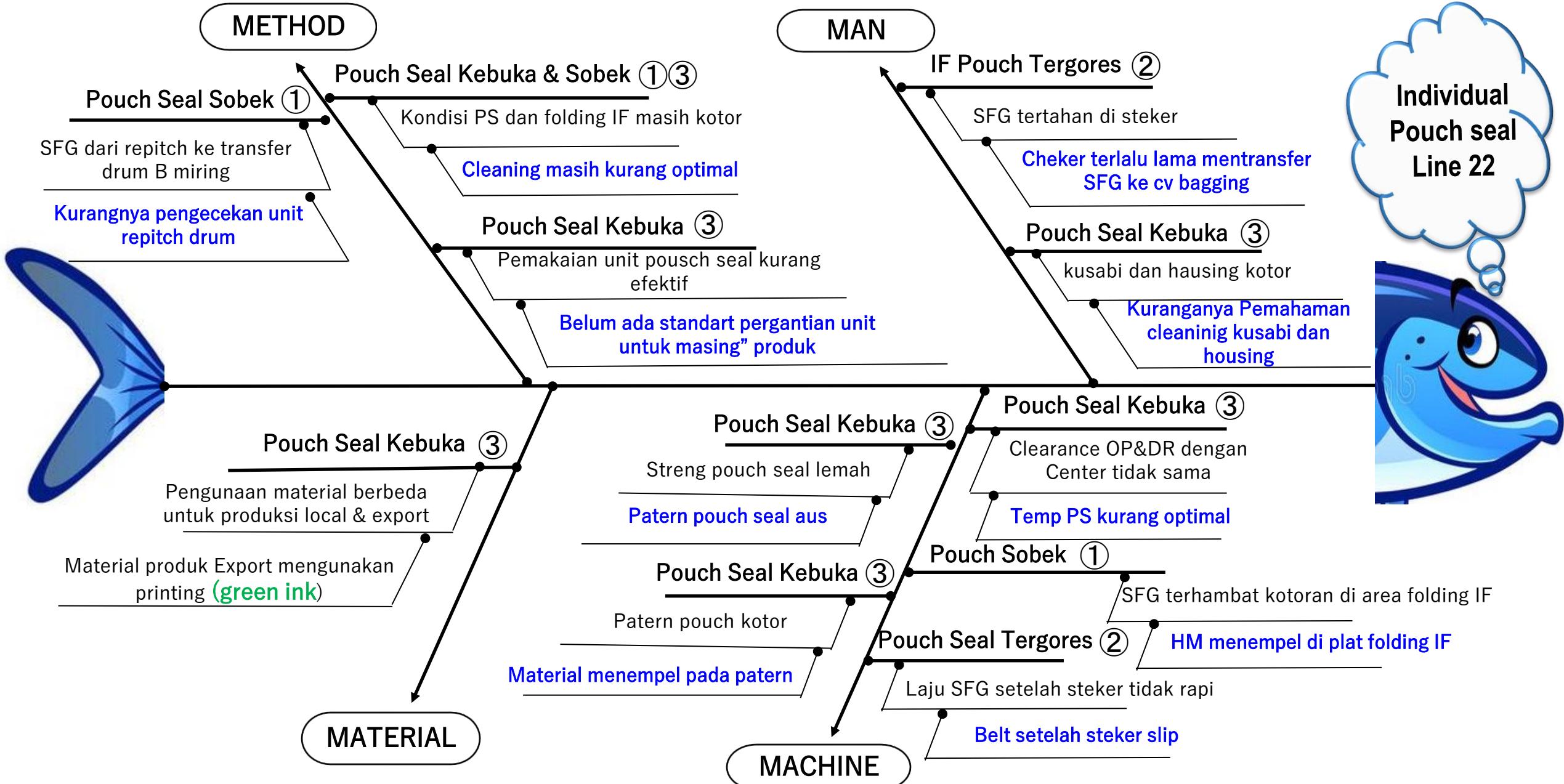
Based on Background Data, our team activity..

Keep Stability Individual Film Process On LSSG Product MC.22 By Reduce Frequency Trouble Pouch Seal





Fishbone Diagram





Action Plan (5W + 1H)

Description	What	Why	How	Where	When	Who	Status
	Factor	Root Cause	Improvement	Location	Time	PIC	Time
Trouble Individual Pouch Mc 22	Man	Kurangnya Pemahaman cleaning kusabi dan housing	Refresh training	MC. 22	April - Mei 2024	Ona,Galih	Finish
		Cheker terlalu lama mentransfer SFG ke CV bagging	Refresh Training		April – Juni 2024	Petrus	Finish
	Machine	Laju SFG miring setelah repitch drum	Ganti seal Pad repitch drum & udjust clearance repitch ke transfer drum B		April - Mei '2024	Heri ws	Finish
		Laju SFG tidak rapi setelah steker	ganti type roll dan cover belt setelah steker		April ' 2024	Heri ws	Finish
		Laju SFG kurang stabil di sebelum pouch seal	Re setting speed gear servo & penambahan free roll sebelum pouch seal		Mei - Juni ' 2024	Heri ws	Finish
		SFG ketahan di sebelum steker	Rubah jalur press belt sebelum steker		Mei - Juni ' 2024	Heri ws	Finish
		Parameter pouch seal belum optimal	Optimalisasi unit pouch seal dan ambil data parameter pouch seal		Juni-Juli '2024	Heri ws	Finish
		Temperature PS kurang optimal	Trial heater dengan spesifikasi baru		Juli '2024	Heri ws	Finish
	Method	Cleaning masih kurang optimal	Rivew OPL cleaning pouch seal penambahan alat bantu cleaning		April '24	Rawinda	Finish
		Kuranganya pengecekan area unit repitch drum	Penambahan pereodical chek seal pad repitch dan OPL pemasangan seal PAD		juni'24	Anton	Finish
		Pergantian unit pouch seal belum efektif	Pembuatan Standart pergantian unit untuk masing masing produk		Juli'24	Heri ws	Finish



Action Plan (Time Schedule)

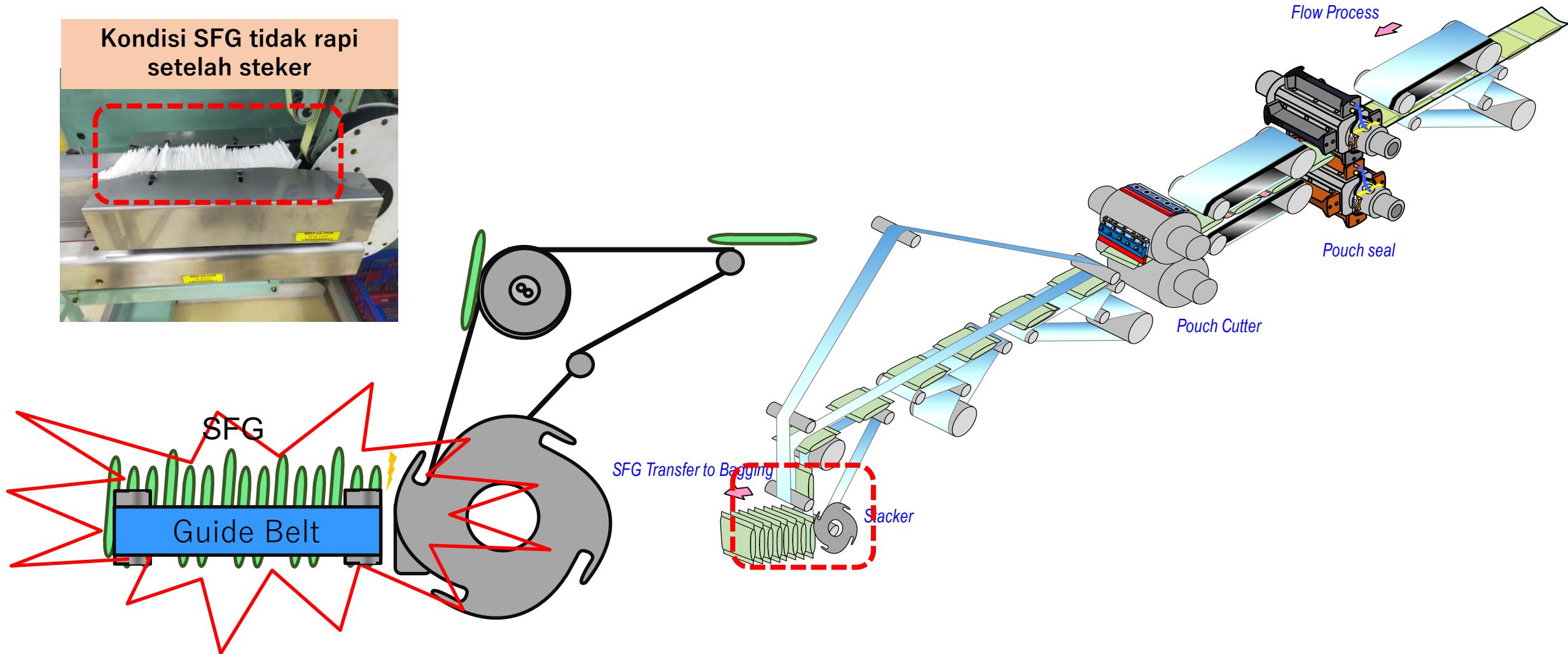
Activity		2024											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Plan	Theme Selection	●	●										
	Problem Identification	●	●	●	●	●	●	●					
	Problem Classification	●	●	●	●	●	●	●					
	Problem Evaluation	●	●	●	●	●	●	●					
Do	Factor Analysis	●	●	●	●	●	●	●					
	Countermeasure Study & Implementation		●	●	●	●	●	●					
Check	Result Confirmation						●	●	●	●	●		
Action	Standardization							●	●	●			
	Next Plan									●	●	●	→

●————● Plan

●————● Actual



Pouch SFG yang tersangkut oleh baling-baling stacker.

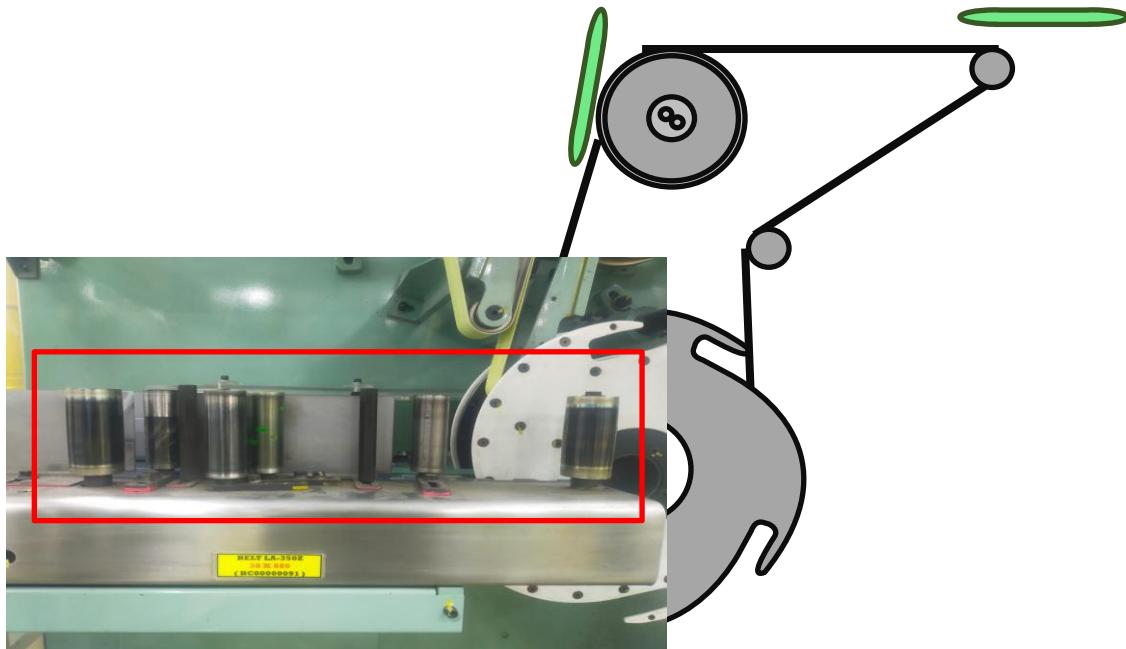


Laju SFG tidak stabil setelah Stacker dikarenakan putaran guide belt SFG goyang & slip

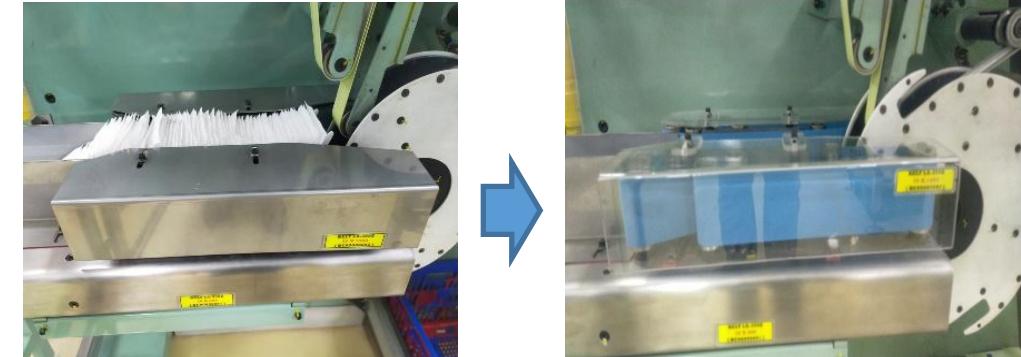


1st - 1 Countermeasure :

Modifikasi Roll For Belt Transfer SFG Setelah Stacker

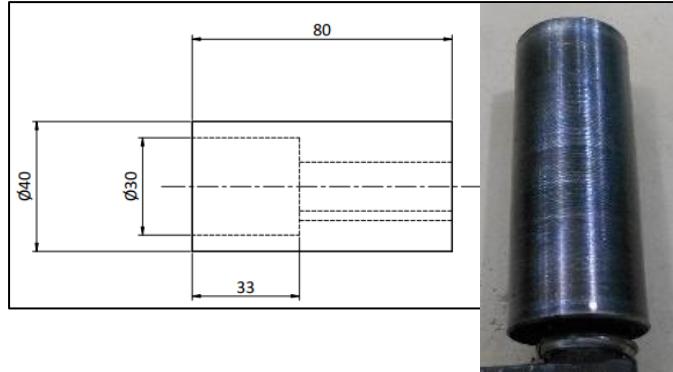


Modification : Transparan Cover

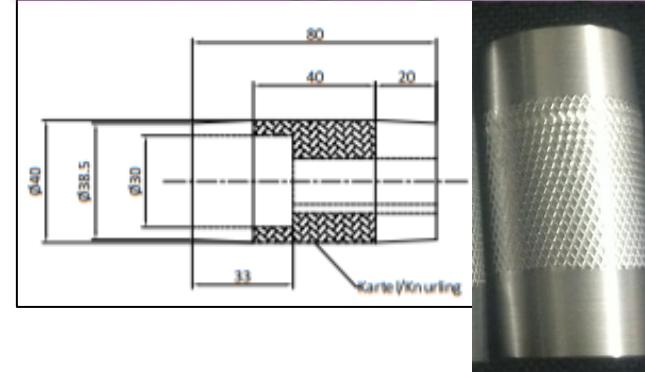


Memudahkan aktifitas patrol ketika belt selip & bearing roll rusak

Before : Roll Flat (Original)



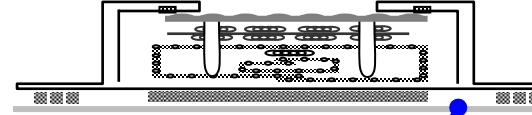
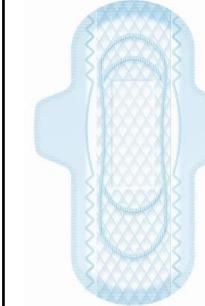
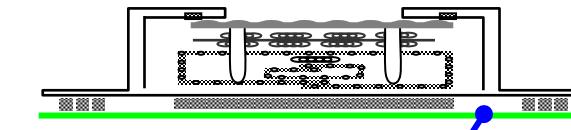
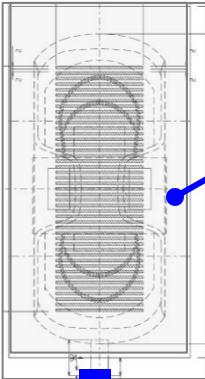
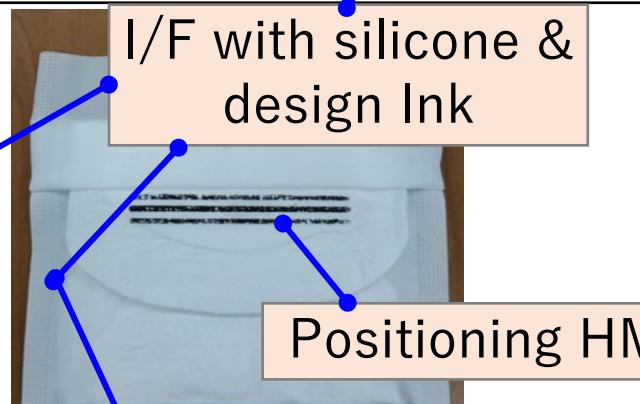
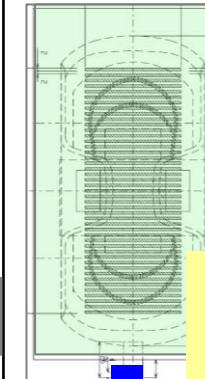
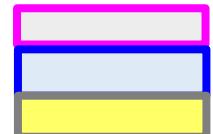
Modification : Roll Crown Grib



Setelah Pergantian roll kondisi pouch seal Tergores berkurang dan laju SFG lebih rapi dan stabil.



Review Specification I/F LSSG Domestic VS Export

Spec	LSSG Domestic	LSSG Export
Product structure	 	 
Individual Folding	 	  <p>Terkadang bagian pinggir terbuka, Terkadang bagian tengah terbuka.</p>
Structure	<p>3 Layer $30 \mu m$</p>  <p>White printing LDPE/LLDPE Silicone</p>	<p>3 Layer $30 \mu m$</p>  <p>* Oxygen Ti increasing Green printing * LDPE/LLDPE Silicone</p>

Pada dasarnya, I/F Green lebih sulit daripada I/F white.
Kondisi seal menjadi lebih sulit karena perubahan komponen tinta



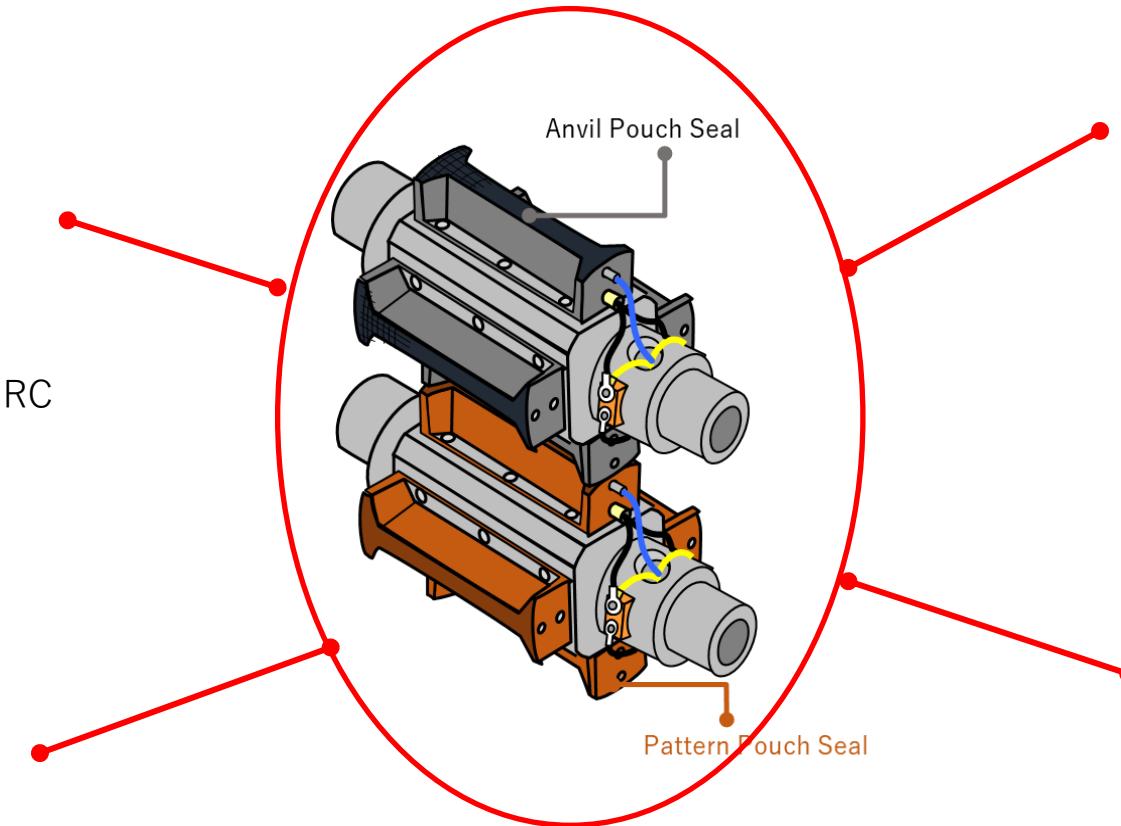
Beberapa Activitas Yang sudah Dilakukan

1. Kanuc Treatment Hardening

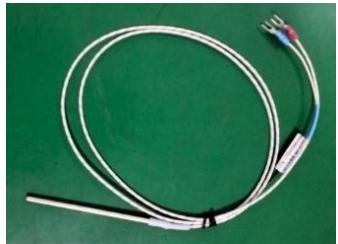


*Standard min kekerasan. 62 HRC

2. Adjust Temperatur Setting



6. Ganti Thermocouple



5. Periodical Cleaning

3. Reset Auto tuning

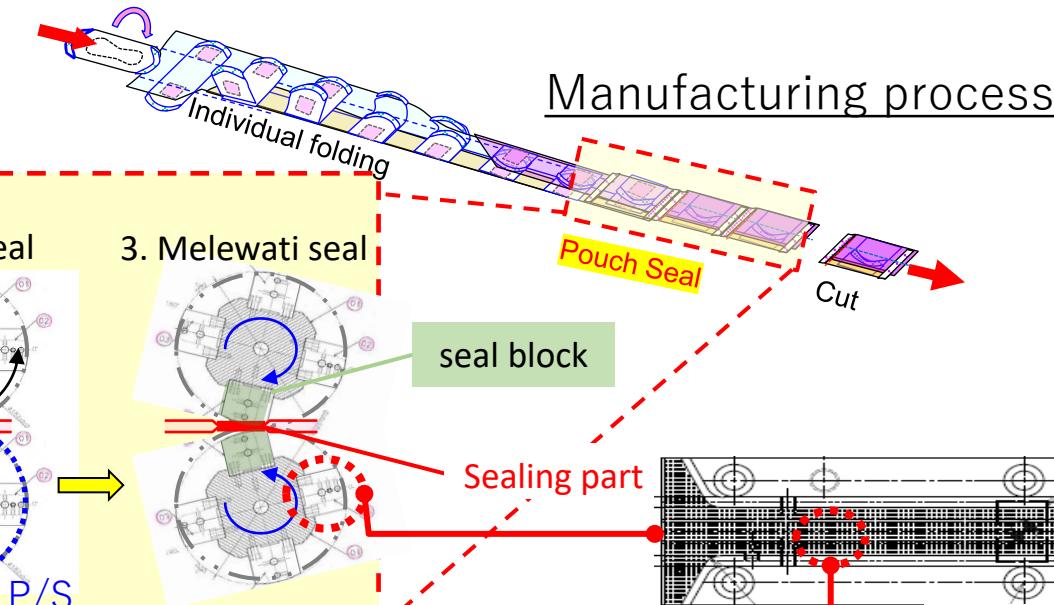
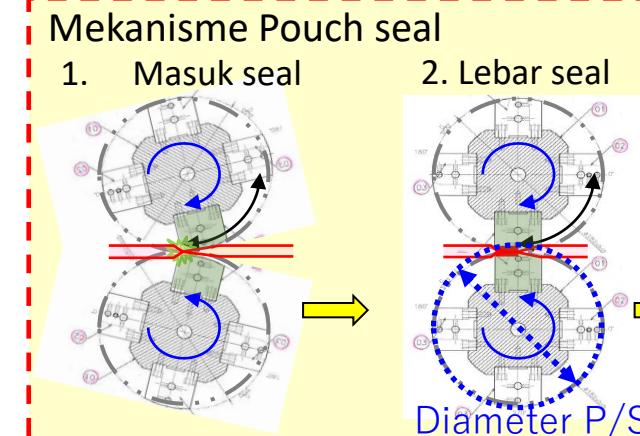
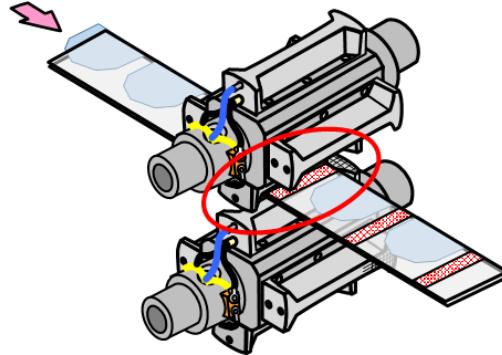


4. Ganti temp Control



Dari aktivitas tersebut , Hasil yang didapat masih belum maksimal
Selanjutnya kami melakukan analisa lebih mendalam lagi

Strength Pouch Seal Lemah



New Pouch Seal :
 Diameter = 162.4 mm
 Peak Of Pattern = 0.714 mm
 Width Of Pattern = 0.5 mm

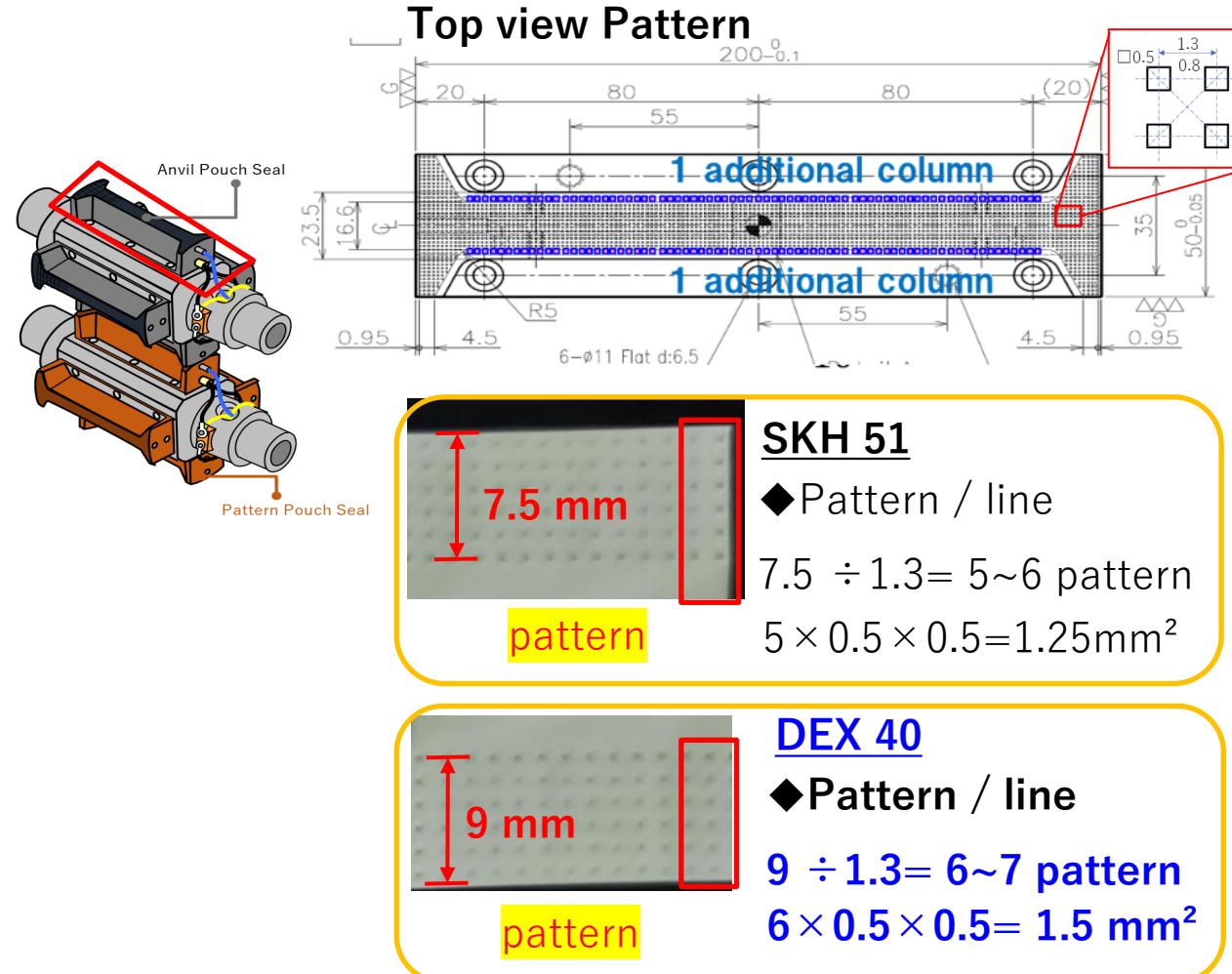
Peak Pattern berkurang 0.03mm/month/grinding



Peak Pattern Pouch Seal cepat aus (lifetime ± 40 days),
 menyebabkan Pouch Seal tidak maksimal untuk Men-seal SFG (Seal Lemah)

Change Specification Pouch Seal Unit

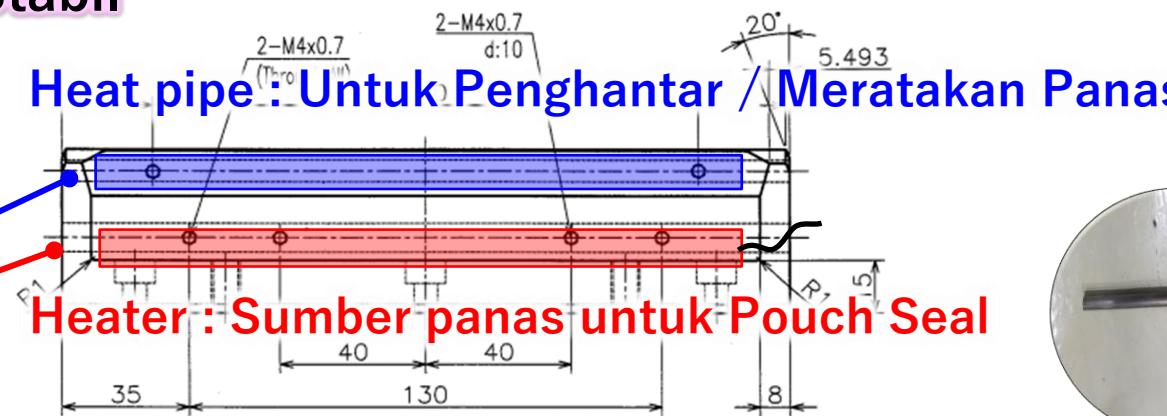
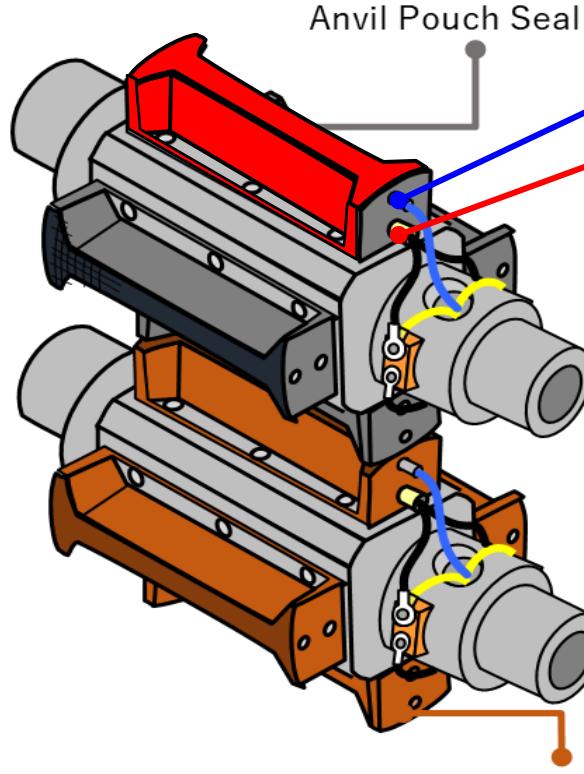
Spesification	Previous SKH 51	Improvement DEX 40
Material Supplier	Hitachi Metal	Daido Metal
Material	(High Speed Tool Steel)	(Powder High Speed Tool Steel)
Hardness	61	65
Clearance	- 39 μ	- 70 μ
Coloum	5-6 patern	6-7 patern
Pattern Width	15mm	18mm
Lead Time	40 Days	2 Months



Dengan spesifikasi pattern yang lebih lebar & keras , Hasil seal SFG lebih kuat & lifetimenya lebih lama
Tapi ada factor lain yang menyebabkan Seal terbuka

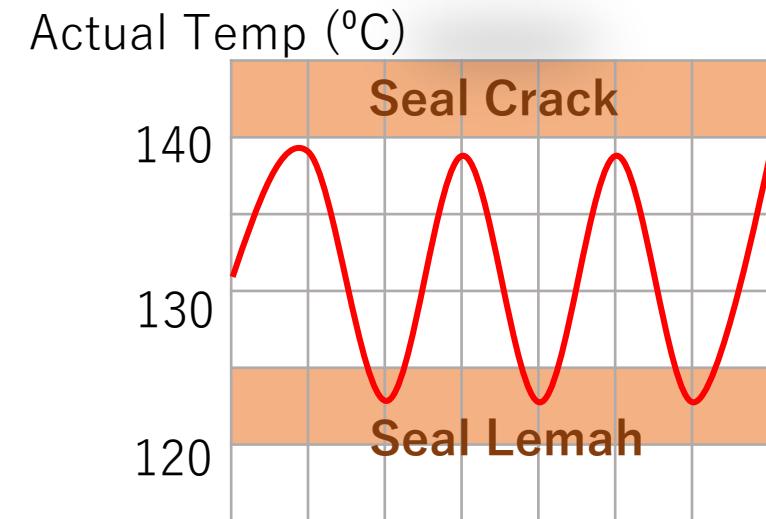
Temperatur Pouch Seal Tidak Stabil

Setting Standard Temp (145°C)



Initial :

Heater 300W 200 V Ø 8 X 220 mm* 8 sets (Atas-Bawah)



Dengan daya heater (300watt) saat ini ,

Penyesuaian temperatur (Heat Down), Heater terlambat untuk Heat Up permukaan Pouch Seal sehingga Temperatur Pouch Seal berada pada temperature Seal Lemah

Change Heater Position

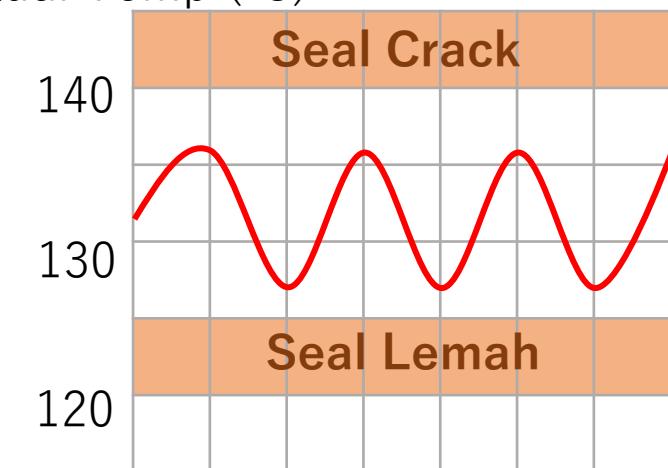
Trial :

Heater 240W 200 V Ø 6 X 120 mm 2pcs X 8 sets (Atas-Bawah)

Ex Heater Cutter seal



Actual Temp (°C)



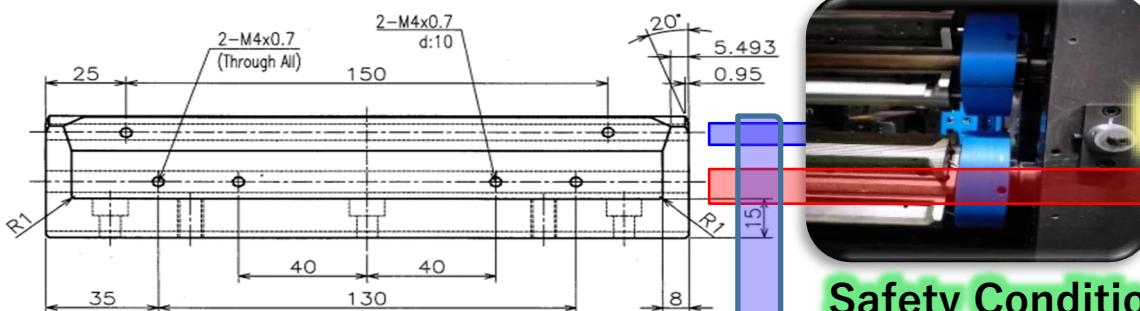
Setting Standard Temp (145°C)

Unsafe Condition

Cover Kabel Tidak bisa di pasang

Fix Countermeasure

Heater 500 W 220 V Ø 7.9 X 195 mm 8 sets (Atas – Bawah)



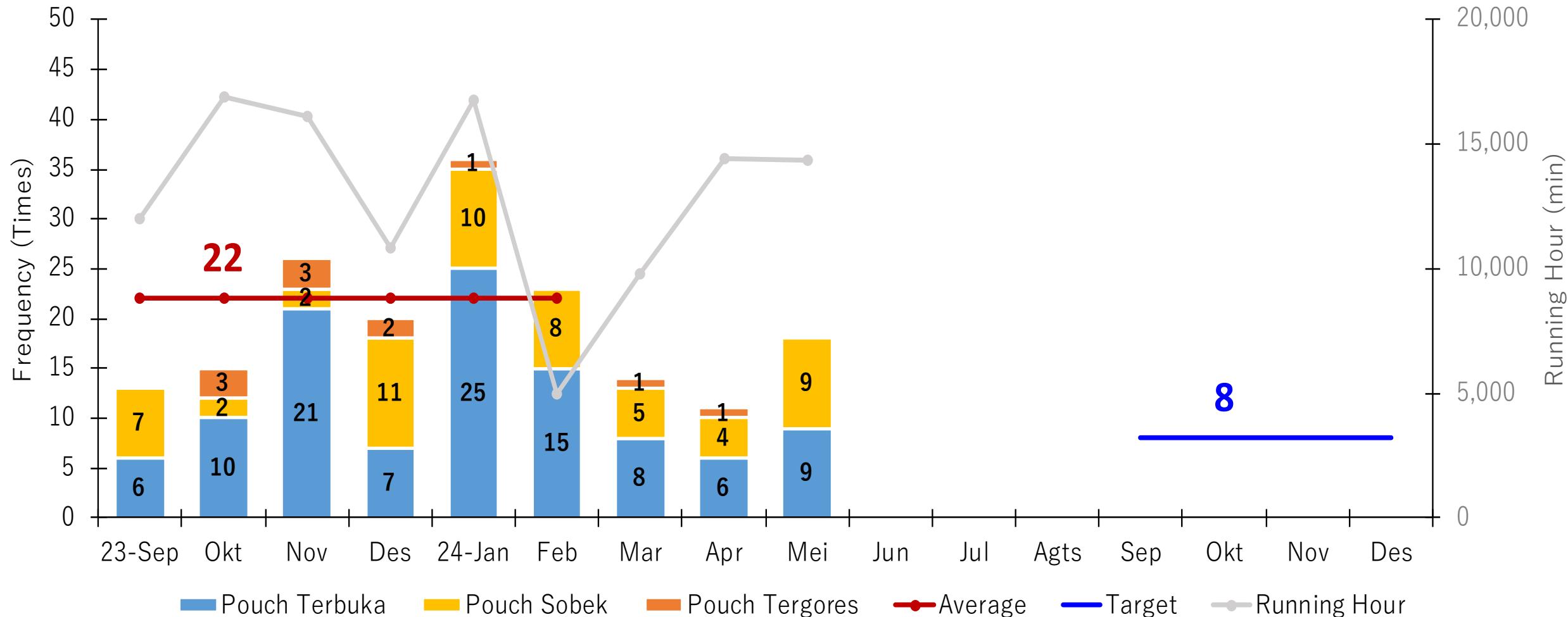
Dengan daya heater (500 watt)

Kemampuan penyesuaian temperatur (Heat Up – Down)
permukaan Pouch Seal Lebih cepat
sehingga Temperatur Pouch Seal Tetap berada pada
temperature Standard



Progress QCC Activity

Reduce Frequency Trouble Pouch Seal



Masalah Pouch Terbuka & tergores sudah menurun tetapi Trouble Pouch Sobek masih tinggi
Kami melakukakan analisa PDCA kembali

HM Body tidak center menempel di produk, efeknya :

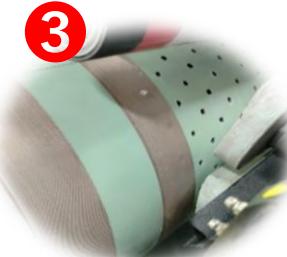
1



2



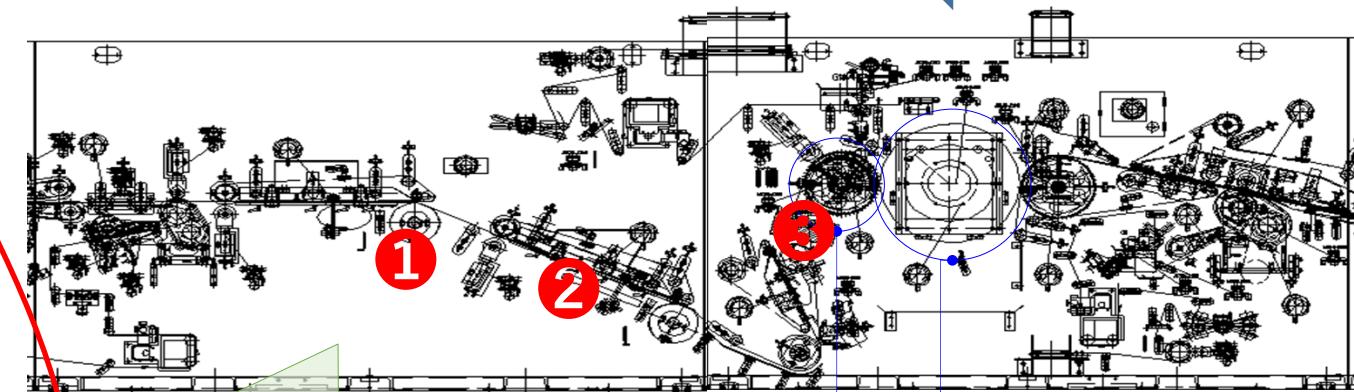
3



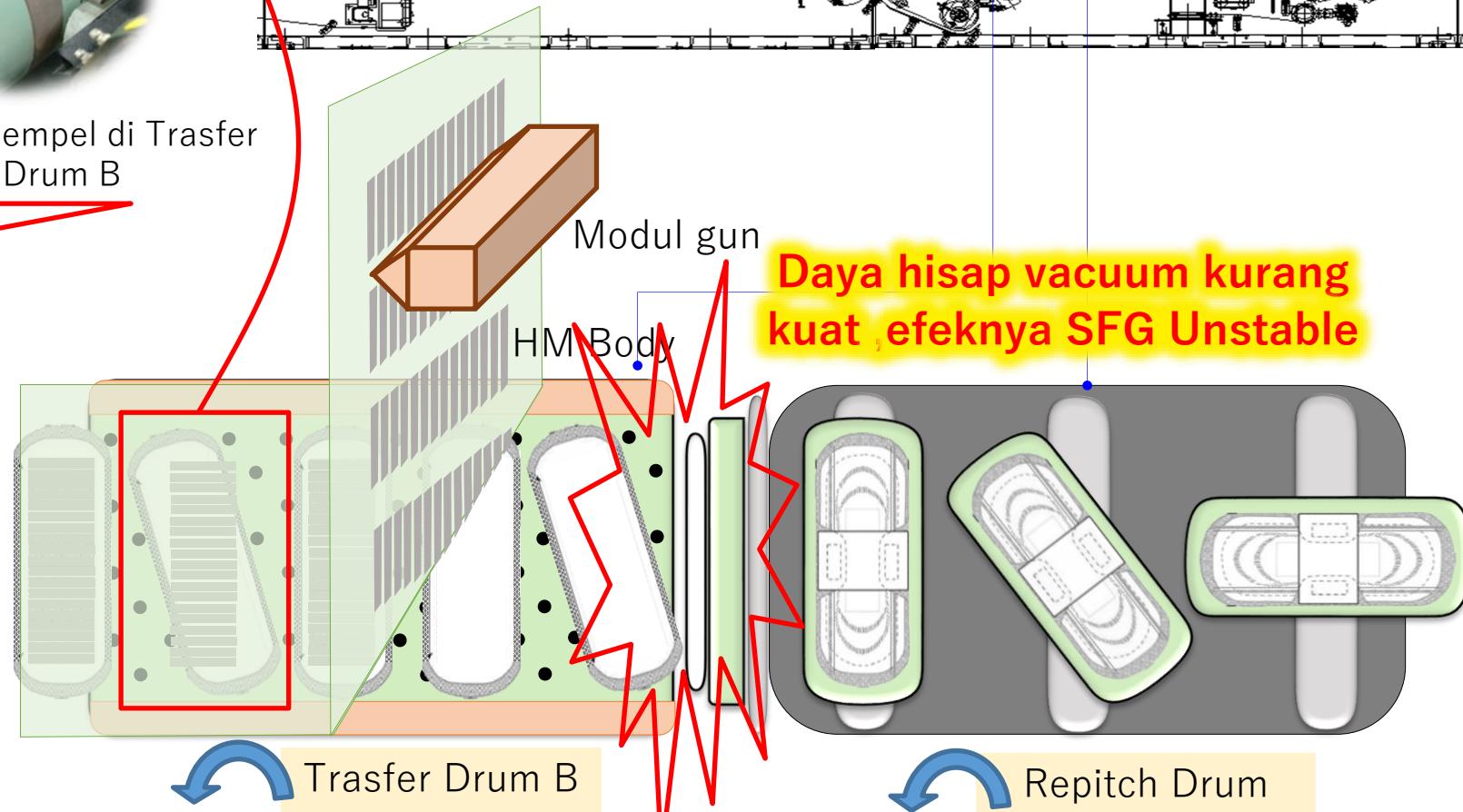
HM Menempel roll
folding IF

HM Menempel Plat
folding IF

HM Menempel di Trasfer
Drum B



Pouch Sobek Karena Tertarik HM



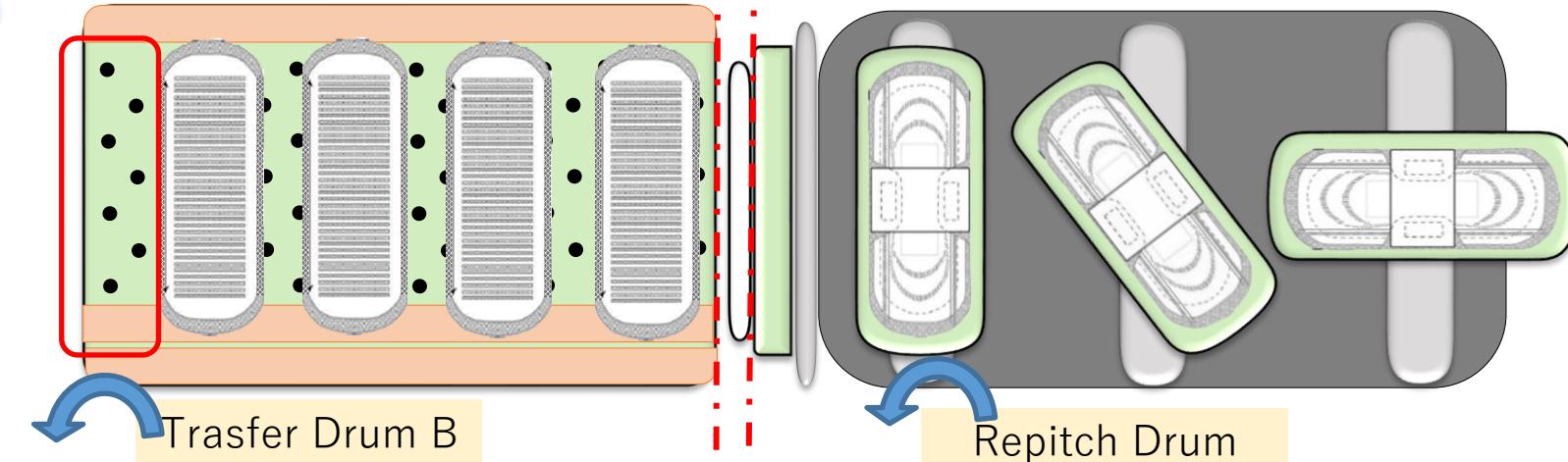
Maximize Vacuum System Repitch Drum

- 1** Mengurangi lubang vacuum
Agar hisapan vacuum lebih kuat

New Condition : 7 Baris



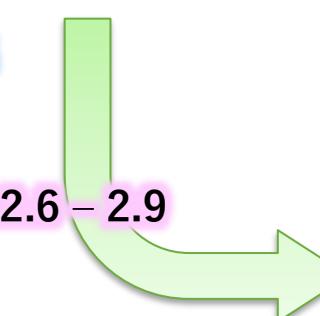
Previous : 8 baris lubang vacuum



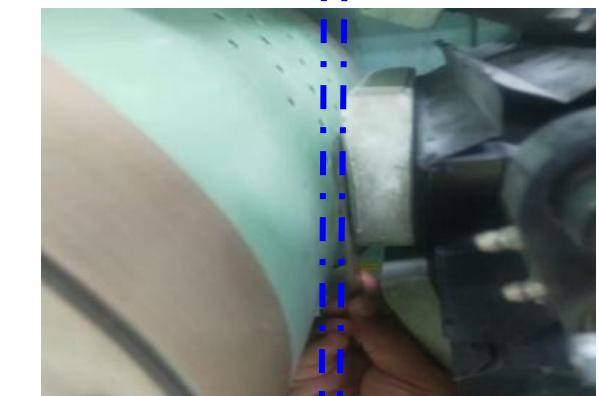
- 2** Re-Setting Thickness
Repitch Drum dengan Transfer Drum B

QA data :

Standard Thickness Product(mm) : 2.3 - 2.6 - 2.9



New Condition : 3mm



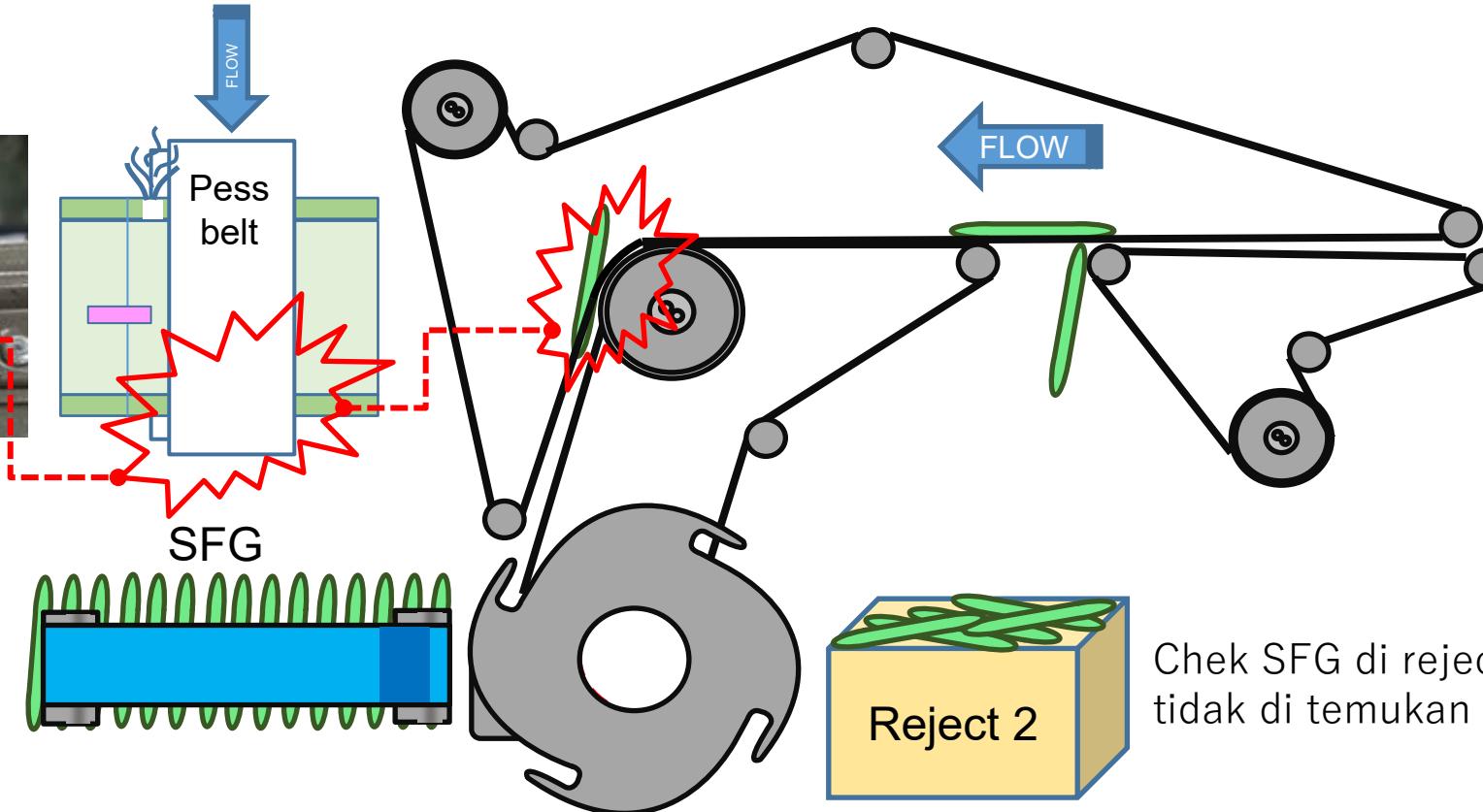
Dengan standard setting baru

Laju Produk di transfer drum B lebih stabil , efeknya HM Body center menempel di produk



4th Cause Analysis: Individual Pouch Seal Sobek

Clearence Belt Transfer SFG Over Press

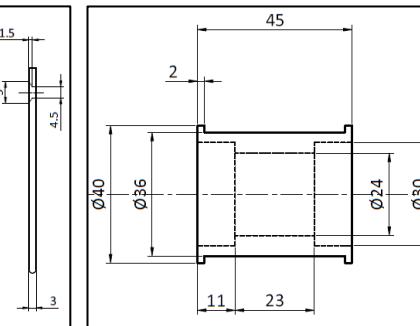
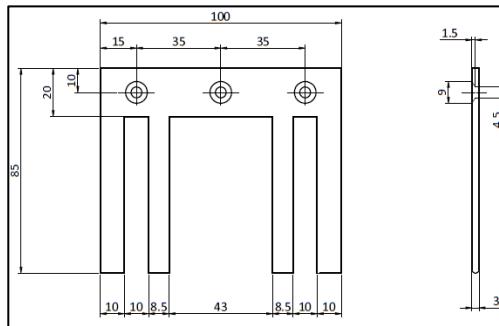


Chek SFG di reject 2 hasil **OK**
tidak di temukan seal terbuka akibat P/S.

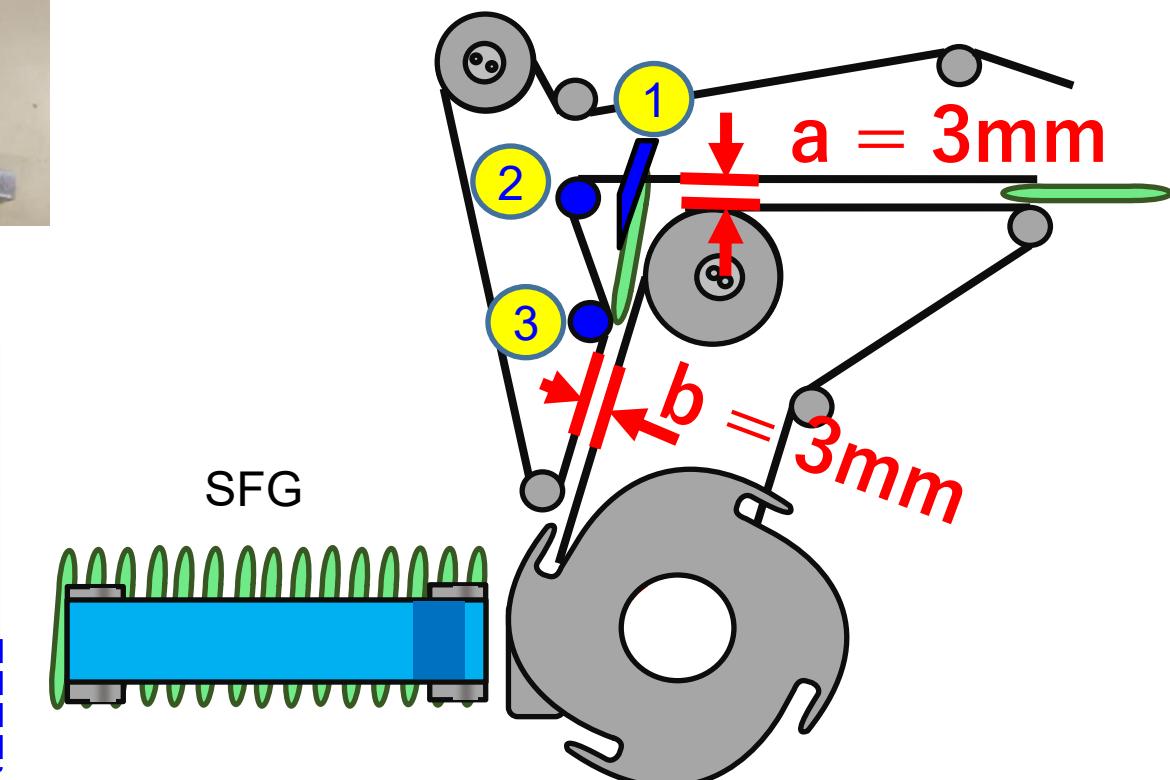
Desain CV belt bertipe press belt tidak ada clearance (0)

Ketika SFG melewati turn roll SFG menerima tekanan press belt berlebih , mengakibatkan pouch seal sobek

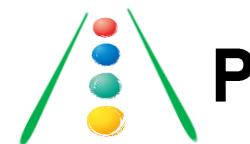
Setting Clearance belt untuk meminimalisir gesekan SFG



Trial Setting Clearance Press Belt			
Clearance (a)	Clearance (b)	Hasil	Keterangan
5 mm	5 mm	NG	Laju SFG berantakan
4 mm	4 mm	NG	Laju SFG berantakan
3 mm	3 mm	OK	Laju SFG stabil
2 mm	2 mm	OK	Laju SFG stabil
1 mm	1 mm	NG	Indikasi SFG lemah

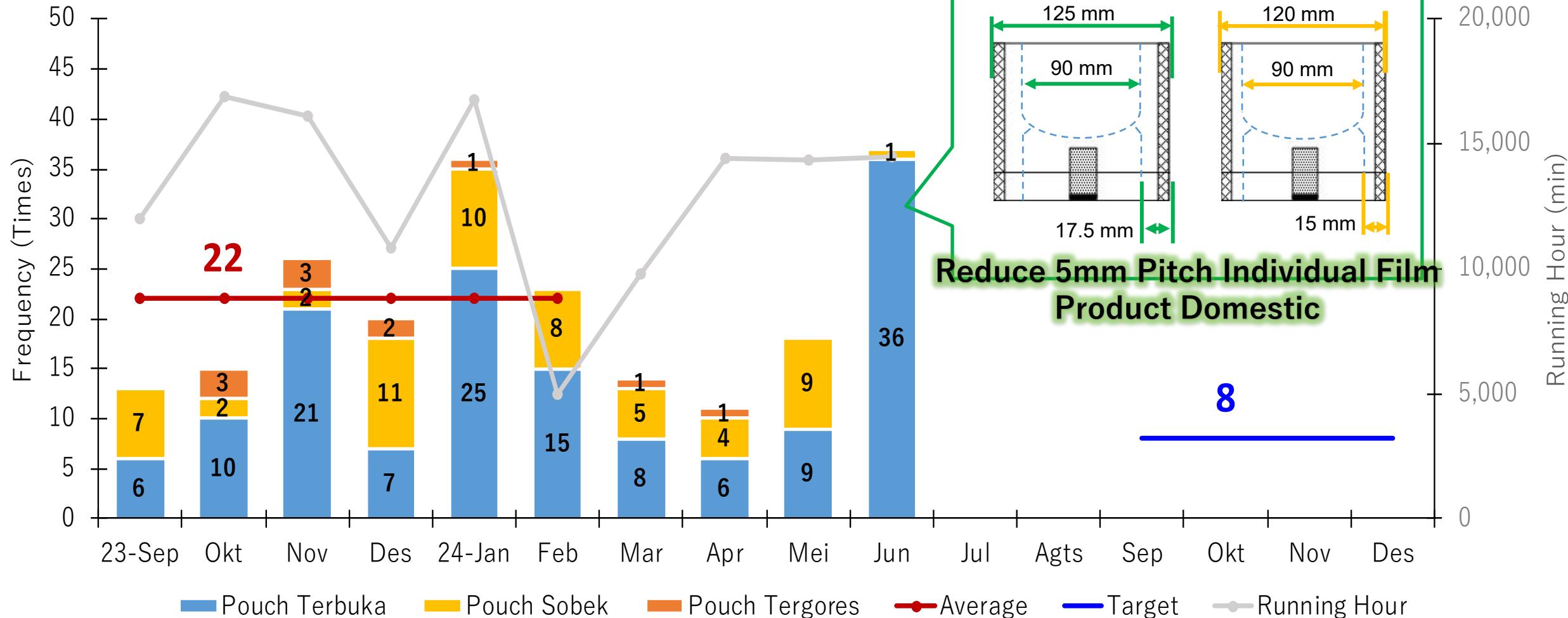


Setelah setting Clearance belt a & b = 3mm,
kami bisa mengurangi trouble Pouch sobek karena gesekan belt



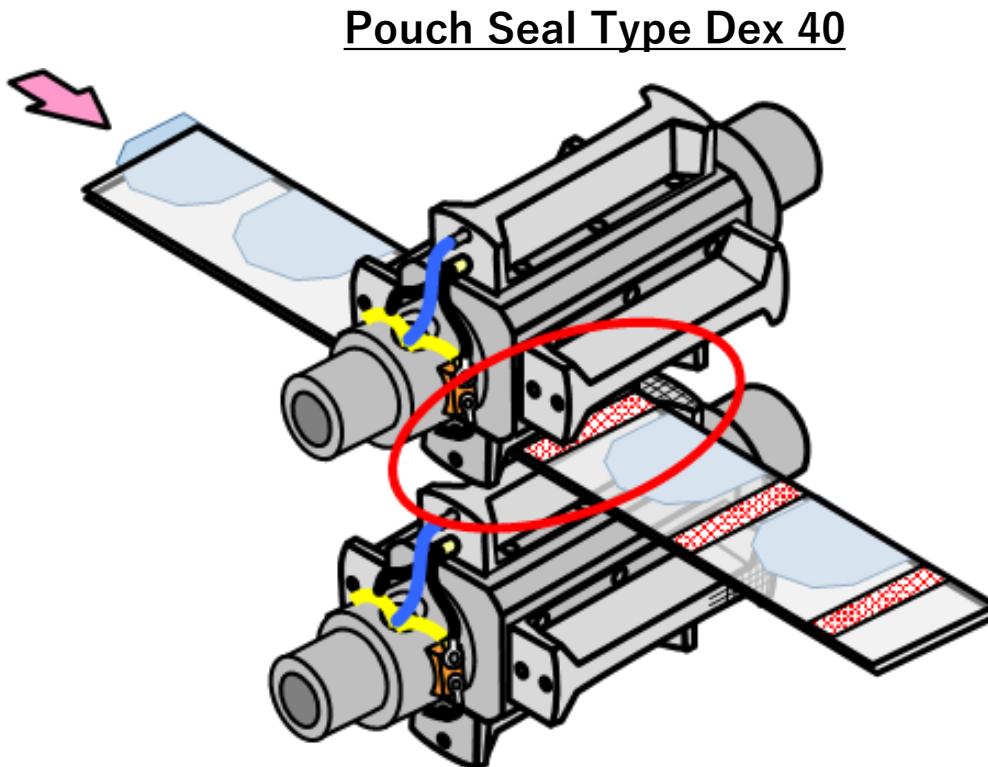
Progress QCC Activity

Reduce Frequency Trouble Pouch Seal



Masalah Pouch sobek menurun drastis , Tetapi Trouble Pouch terbuka meningkat
Untuk full support Aktivitas TCR ini, kami melanjutkan Countermeasure

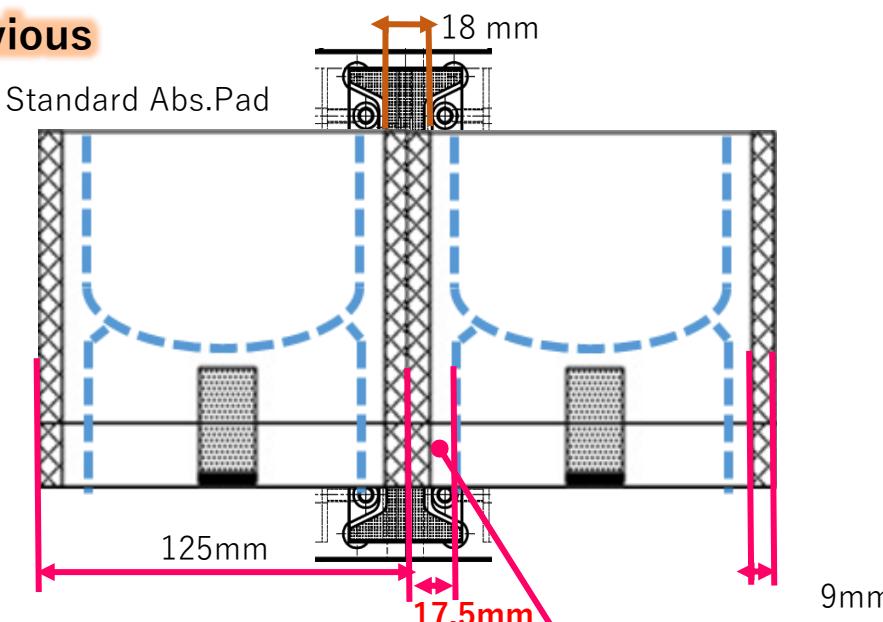
Abs.Pad Tergigit Pouch Seal
Mengakibatkan Pouch Seal Terbuka



Dengan berkurangnya lebar SFG (125mm → 120mm),
area seal SFG semakin kecil (17,5mm → 15mm)

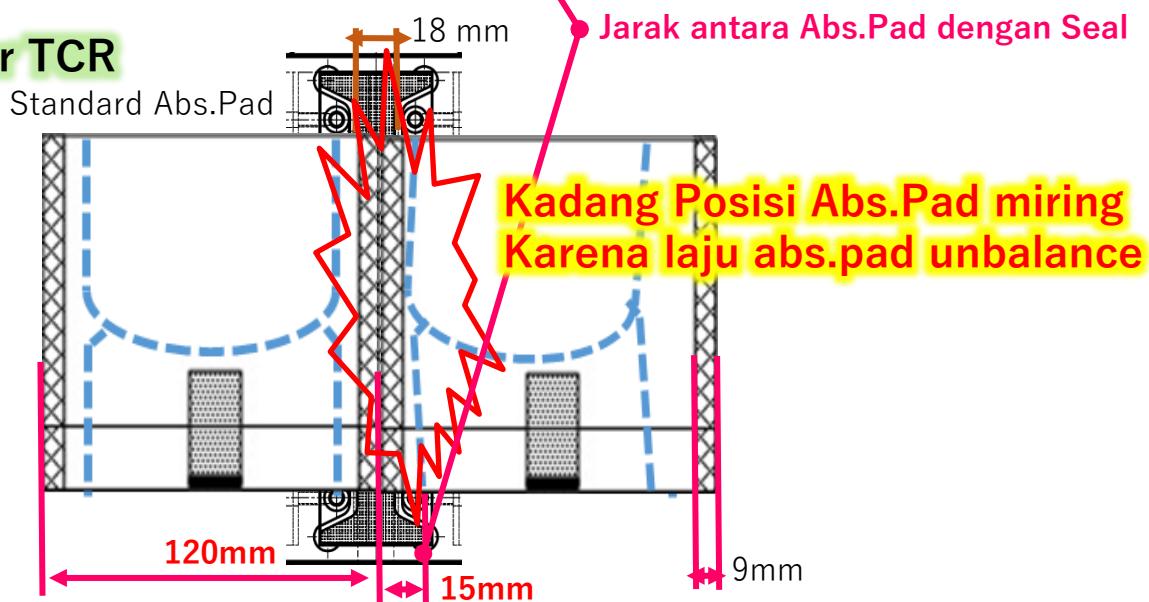
Previous

Posisi Standard Abs.Pad



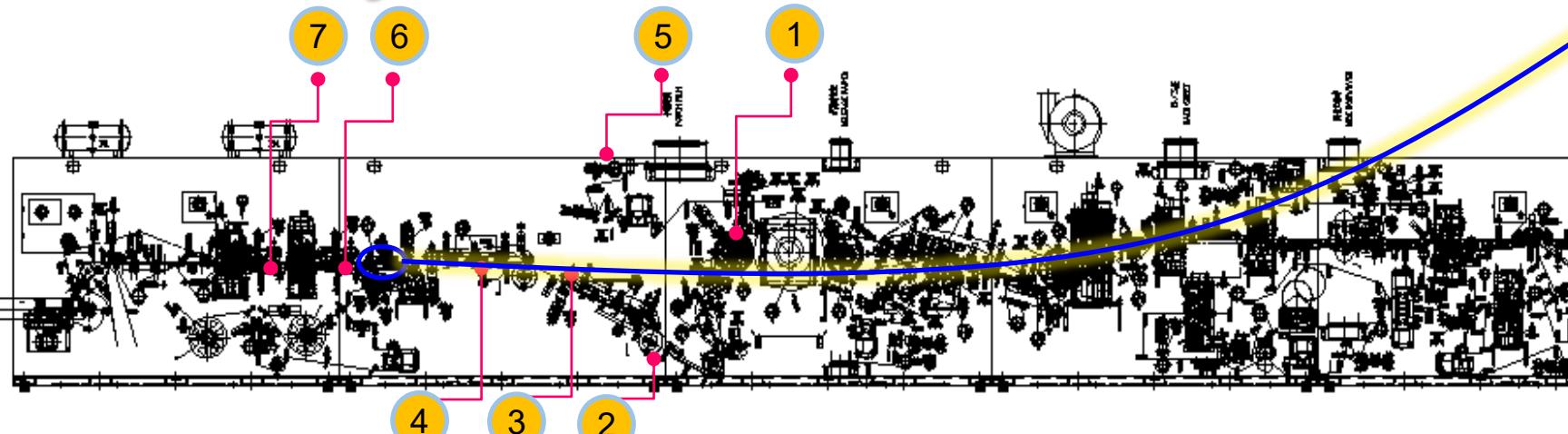
After TCR

Posisi Standard Abs.Pad

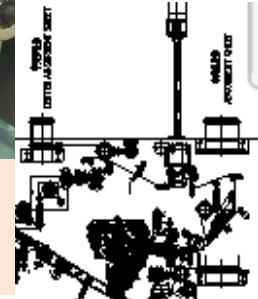


Re-Setting Speed Servo

Stabilisasi Laju Produk Dari Transfer Drum B ~ After Pouch Seal

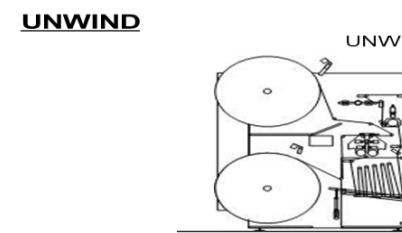
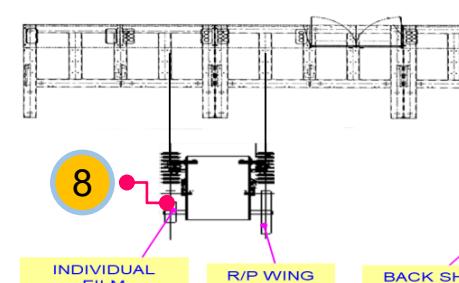
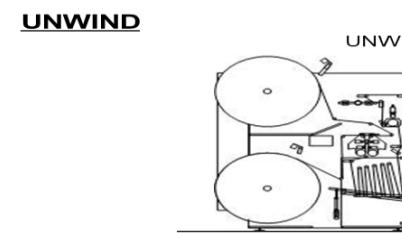
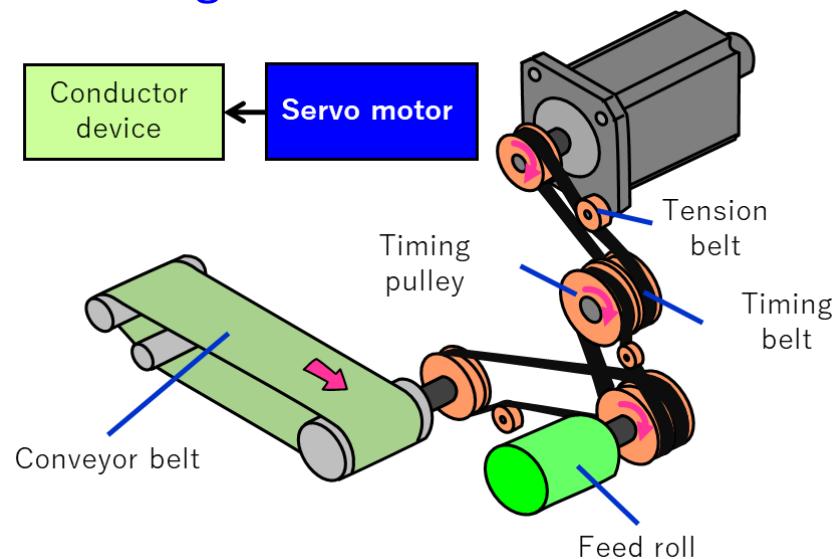


Penambahan Roll Sebelum Pouch seal



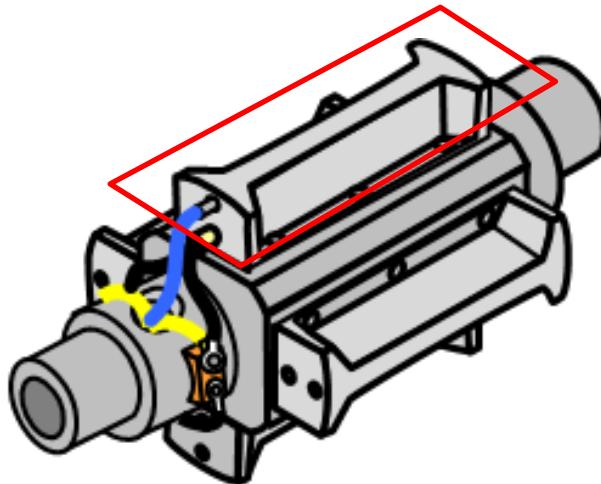
Dengan Re-Setting 8 speed servo,
Iaju SFG menjadi lebih stabil

Proses transfer product dengan conveyor
digerakan oleh servo motor

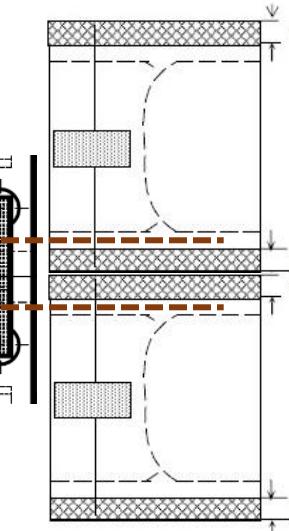
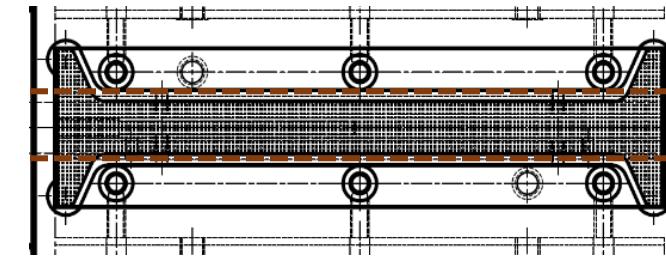


No	Individual Film	Pitch 125 mm		Pitch 120 mm	
		Previous	Improve	In	Out
1	Transfer B	3684	1000	3536	1000
2	1ST FOLD C/V	2605	1000	2501	1000
3	2nd FOLD C/V	4263	1000	4093	1000
4	3rd FOLD C/V	2368	1000	2274	1000
5	Pouch film Nip roll no.1	6632	1000	6367	1000
6	C/V before pouch seal	3831	1000	3677	1000
7	C/V after pouch seal	3749	1000	3599	1000
8	Material Unwind (Pouch Film)	2829	1000	2716	1000

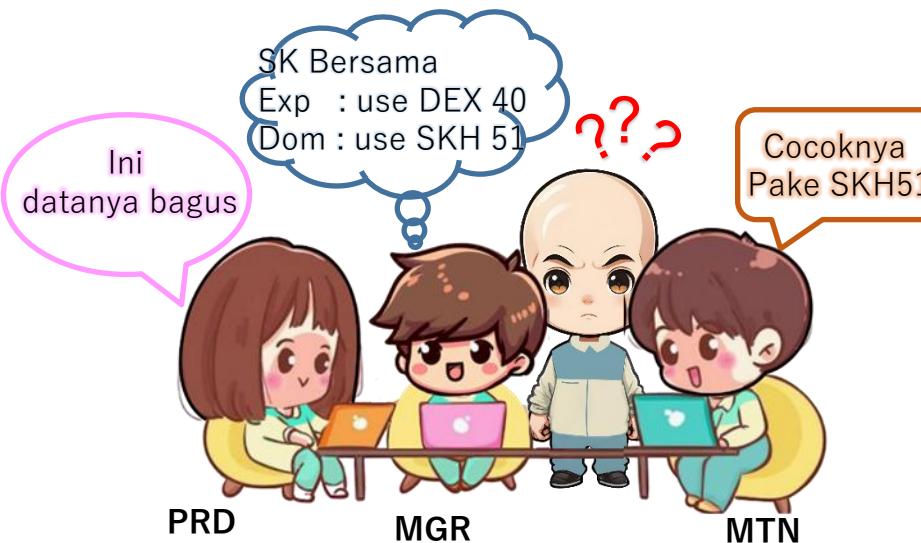
Maximize Pouch Seal Type SKH 51 For Product Domestic



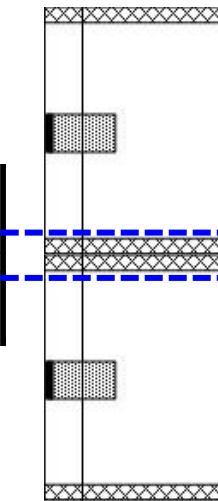
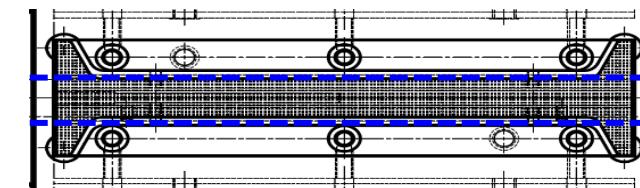
Pouch Seal Type Dex 40



Lebar Pattern : 18mm
Coloum : 6-7 Pattern



Pouch Seal Type SKH 51



Lebar Pattern : 15mm
Coloum : 5-6 Pattern

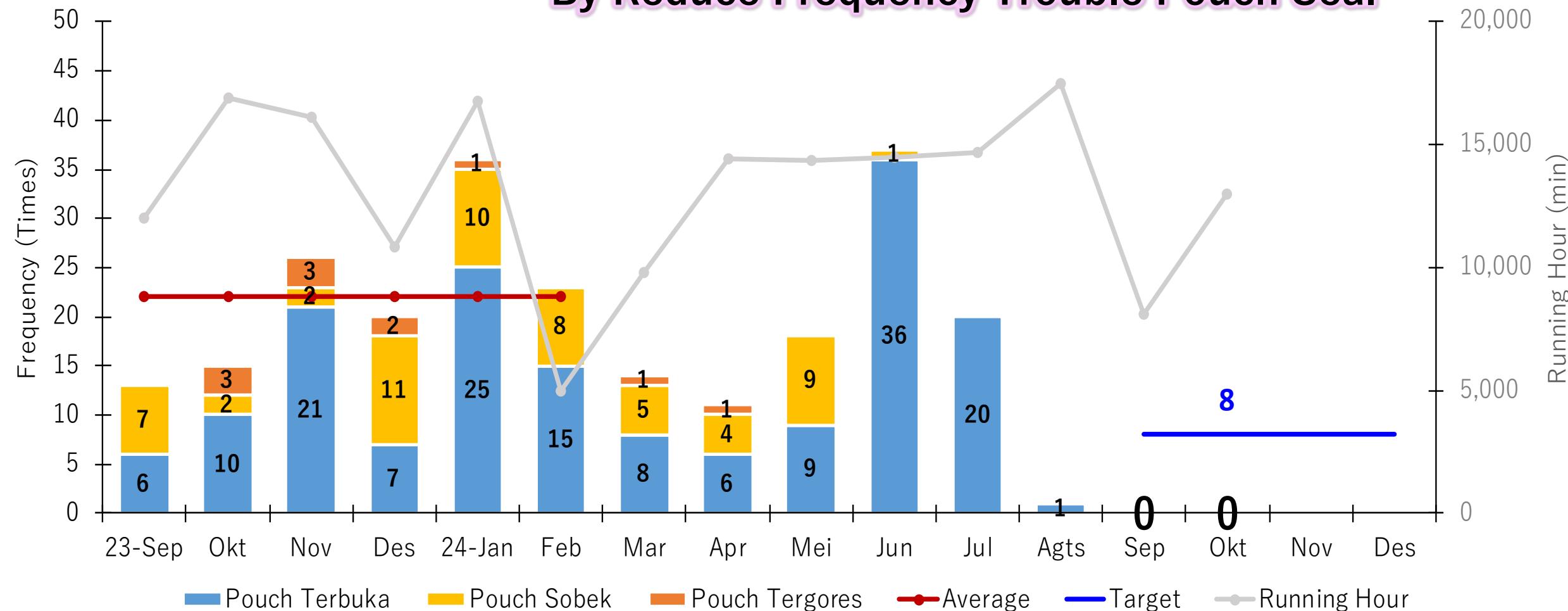
Dengan spesifikasi **Pouch Seal Type SKH 51** yang memiliki pattern lebih kecil akan digunakan untuk product domestic MC 22



Result QCC Activity

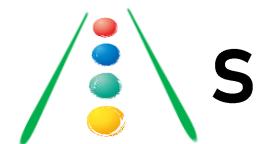
Keep Stability Individual Film Process On LSSG Product MC.22

By Reduce Frequency Trouble Pouch Seal



Achievement Average September - October 2024 = **0 Trouble Pouch Seal**

Achievement Vs Target 166%



Maintain The Activity For Stable Operation

Improvement

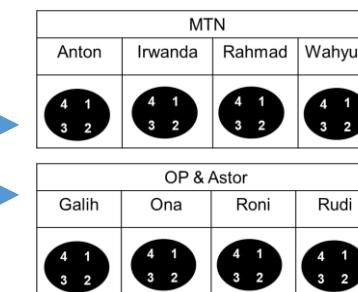
9 Item

1. Penambahan free roll sebelum pouch seal
2. Modifikasi roll belt setelah steker menjadi crown grib
3. Modifikasi cover belt setelah seteker menjadi transparan
- 4. Penambahan periodical chek seal pad unit repitch drum**
5. Standarisasi temp actual pouch seal
- 6. Ganti spec heater pouch seal dari 300 watt ke 500 watt**
- 7. Standarisasi unit pouch seal DEX (export) dan SKH (local)**
8. Modifikasi turn press belt sebelum steker
9. Standarisasi clearance turn press belt

One Point Lesson (OPL)

2 item

1. Cara pasang seal pad repitch drum ----->
2. Cara cleaning patern & anvil pouch seal ----->

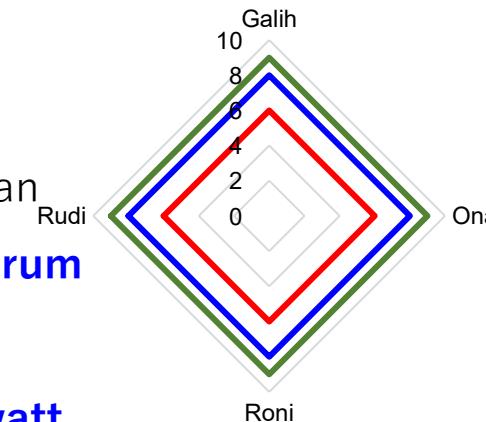


Op & Astor

MTN

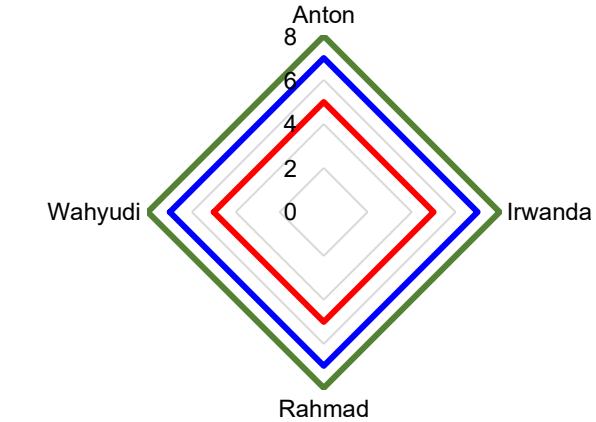
Cara cleaning patern & anvil pouch seal

Pre test Post test Target



Cara pasang seal pad repitch drum

Pre test Post test Target



TPM	ONE POINT LESSON		
Tujuan Kegiatan	Dilakukan	Diketahui	Berikan Sumbangan (PS)
Cara Cleaning Patern & Anvil Pouch Seal			
Hari Wahyudi S	Ruri K	Tegar S	Pengetahuan umum Trouble shooting Improvement
Definisi :			
1. Pouch seal adalah part pada mesin yang digunakan untuk membentuk seluaran.			
2. Silika terbutuh.			
3. Gunakan seal pad pada transfer drum MC 22.			
Foto dokumentasi :			

TPM	ONE POINT LESSON		
Tujuan Kegiatan	Dilakukan	Diketahui	Berikan Sumbangan (PS)
Pengantian Seal Pad Repitch Drum MC 22			
Hari Wahyudi S	Ruri K	Tegar S	Pengetahuan umum Trouble shooting Improvement
Definisi :			
1. Repitch Drum adalah salah satu unit mesin converting yang berfungsi untuk memutar arah SFG dari transfer drum A ke posisi horizontal ke transfer drum B menjadi posisi vertikal.			
2. Seal Pad Repitch Drum adalah bagian dari repitch drum yg berfungsi untuk memegang SFG dan memutar arah SFG.			
3. Seal Pad Repitch Drum adalah karet seal yang berfungsi untuk menghindari vacuum pada repitch drum agar tidak bocor.			
Foto dokumentasi :			
1. Repitch Drum		2. Transfer drum B	
3. Seal Pad Repitch Drum			

skill up MTN & Operator

