Let's "Go Anzen-ni !"

as ONE TEAM

SAFETY FIRST

UTAMAKAN KESELAMATAN

kao

Kirei–Making Life Beautiful

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

inovasi untuk peduli

Keep Stability Individual Film Process On LSSG Product

Team : All In
By : Heri Wahyu Styawan
Date : Juli 2024

Laurier

Kao
Kirei—Making Life Beautiful

Introduction Team Name and QCC Member

Sponsor	S. Hosoya
Promoter	Yulis P. / Sukris M. / Slamet R. / Teguh P. / Rini P.
Adviser	K. Kojima / T. Miurai / T. Kosaka
Secretariat	Benri Simbolon

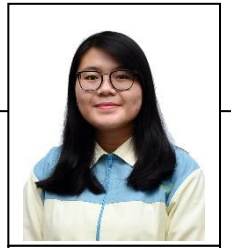
Work Place : Converting Machine 22

Motto of QCC : **" Selesaikan Apa Yang Kamu Sudah Mulai "**

Heri WS.
QCC Leader

Rawinda
Sub Leader

Tegar S.
Facilitator



Via D.
Facilitator

M Adipati F
Facilitator

Heri SW
Support

Wahyudin A.
Support

Sukmaya
Support

Ridwan A
Support

Galih I
Member

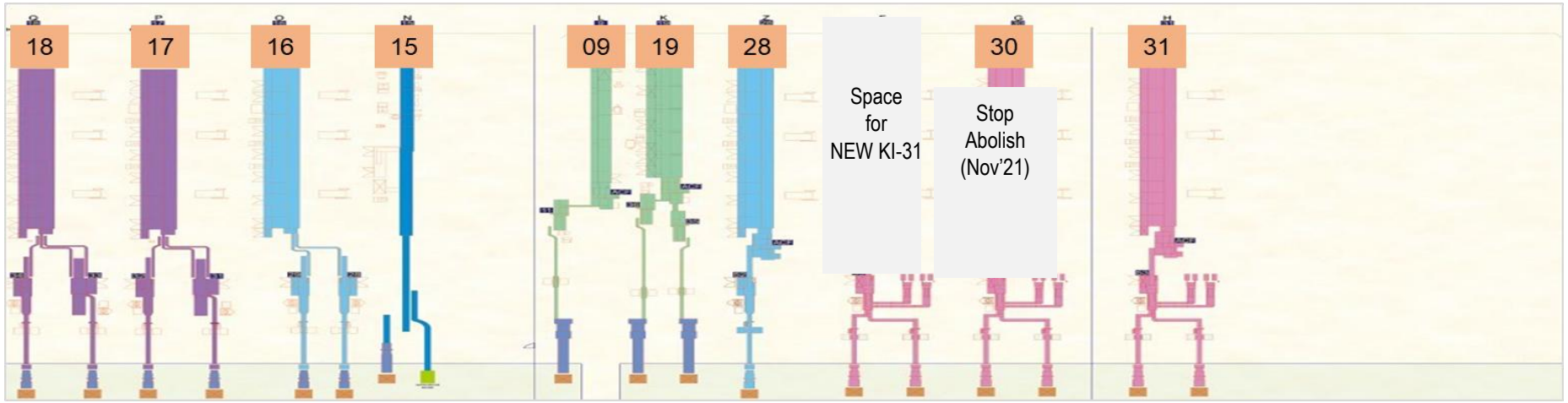
Ona M
Member

Anton
Member

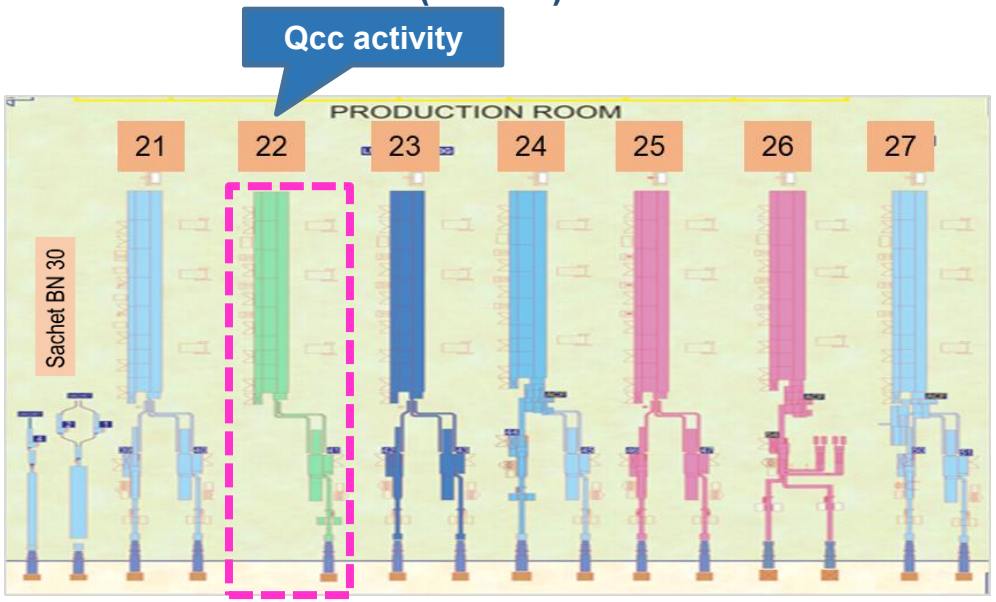
Petrus
Member.

Human Health Care Layout

HHC Plant -1 (14 lines)



HHC Plant -2 (7 lines)

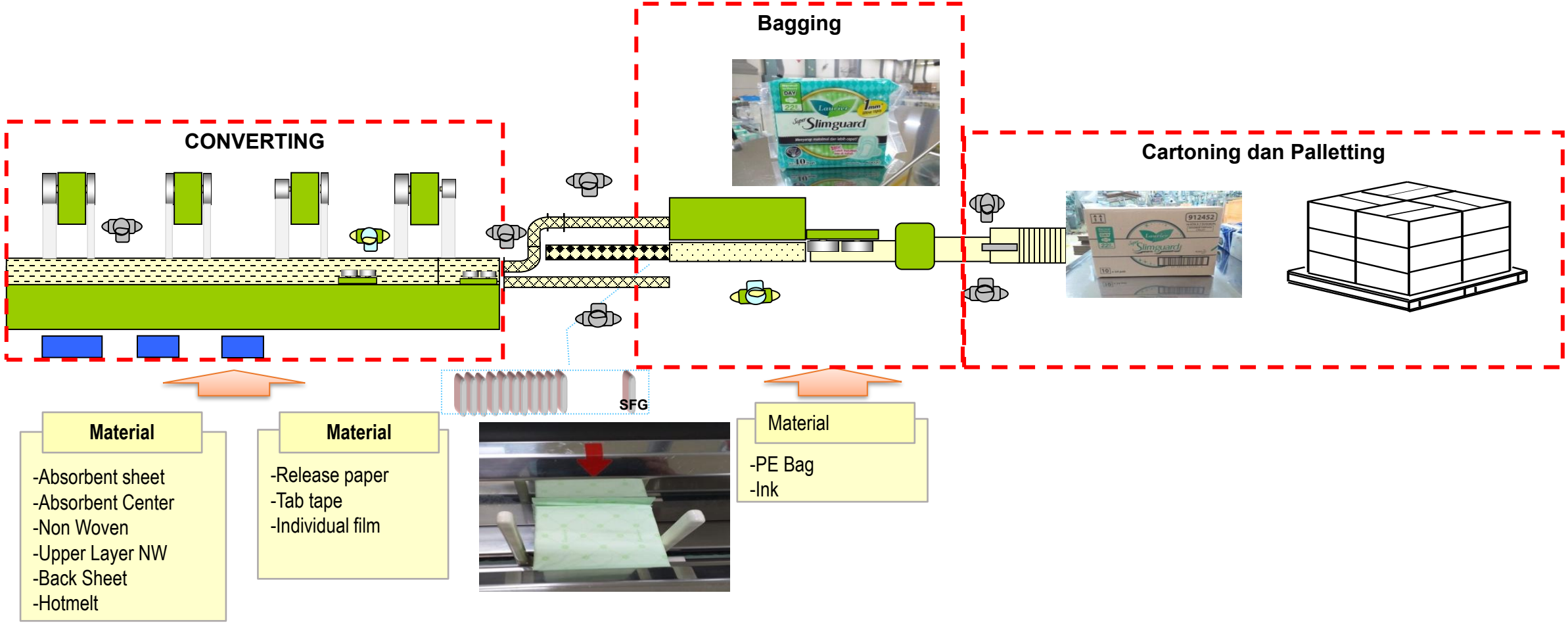


Converting-22 Product is:

LSSG 22.5

About Line No.22 (LSSG) process

- **Product LSSG 22.5 *(Laurier Super Slim Guard 22.5)* (Without Pulp Product)**

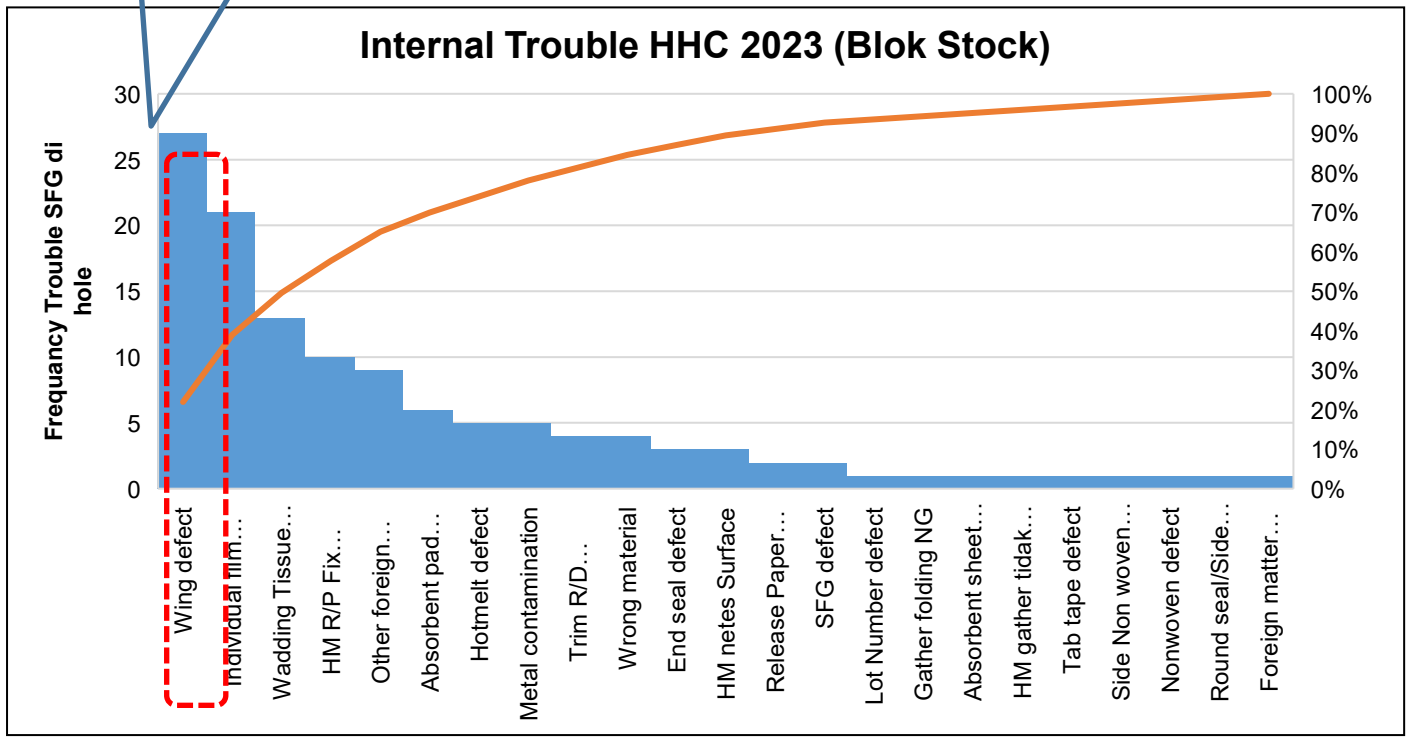


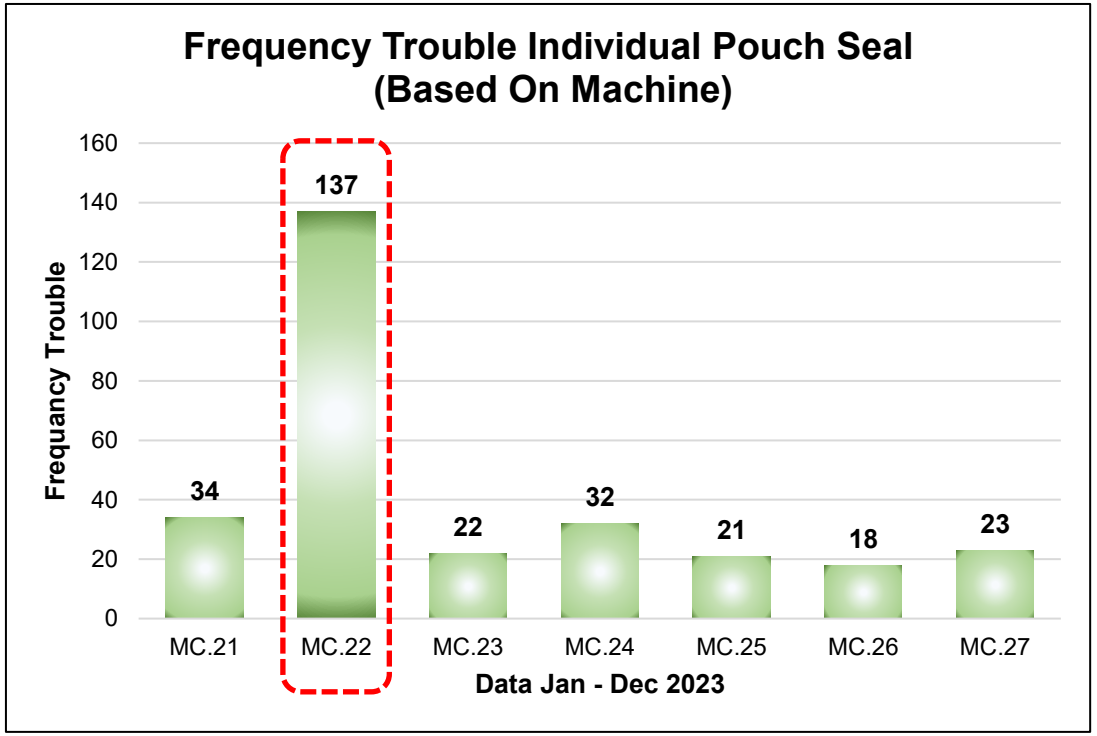
Flow Conv. 22

Background Data

❑ Graphic Internal Trouble Line HHC (Jan – Dec ’23)

Trouble wing detect sudah di bahas team lain



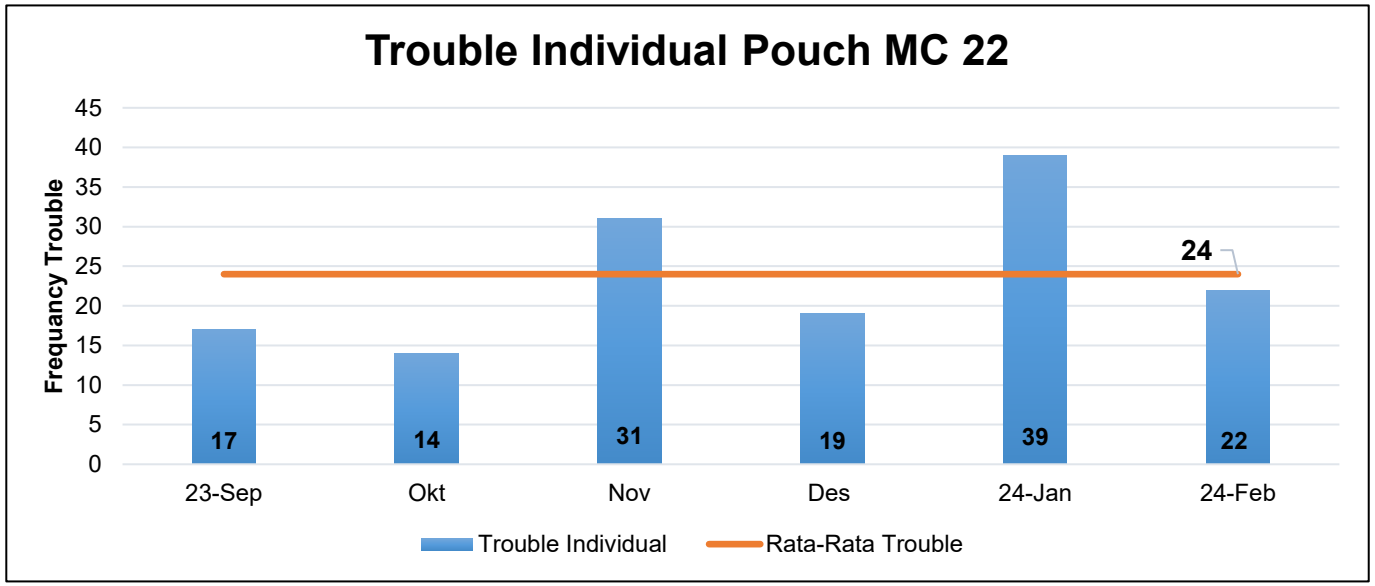


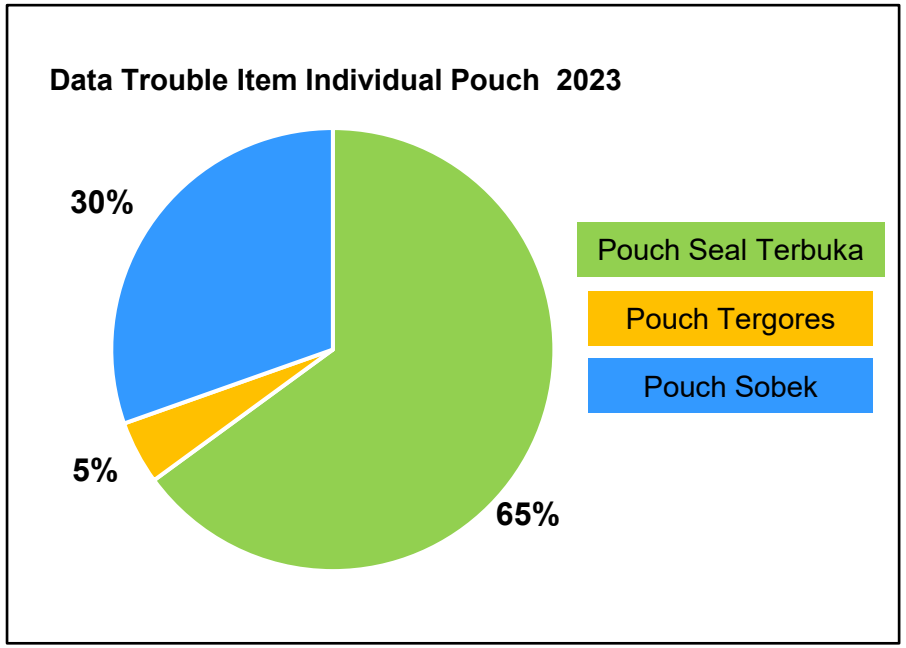
Berikut adalah data Frequancy trouble individual Pouch di plant HHC 2 pada jan – des 2023 dimana mesin conveting 22 paling banyak terjadi trouble 137 kali

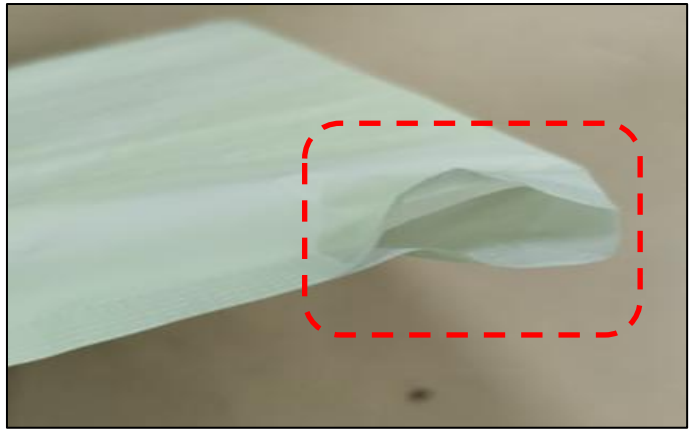
Background Data

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

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

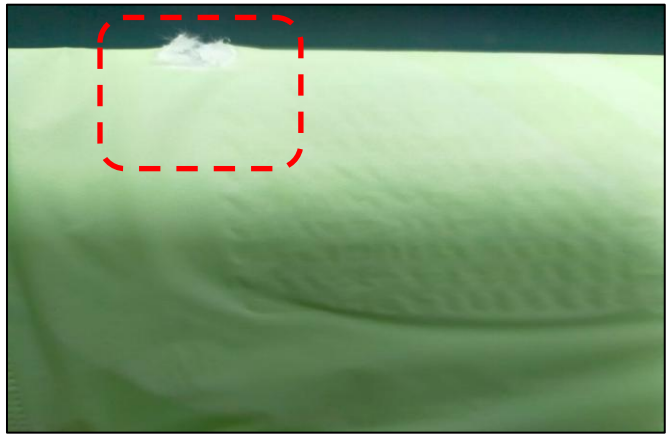






Pouch seal lemah/terbuka

Pouch Tergores



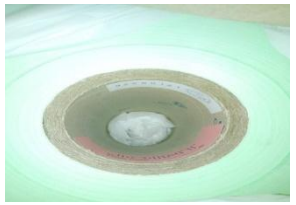
Pouch Sobek

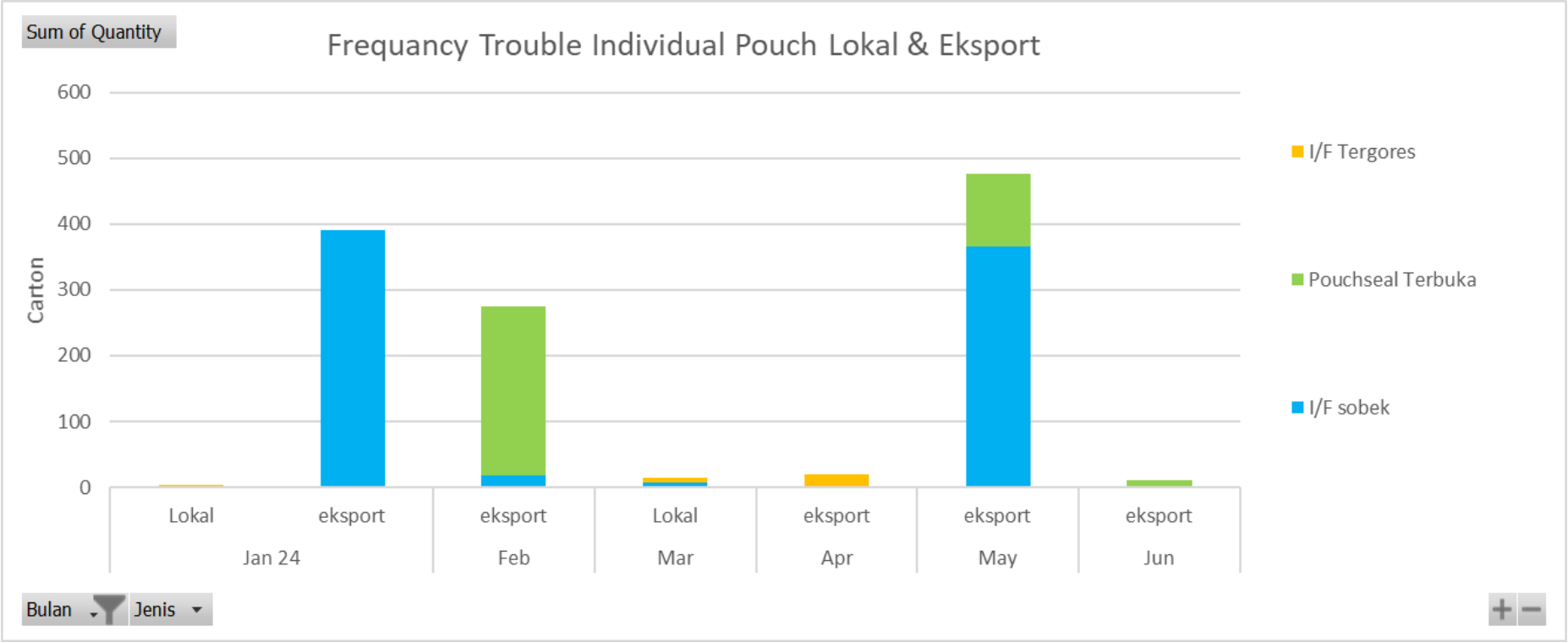
Background Data

❑ Material Individual Film LSSG 22.5

1) I/F white (2014 – Nov' 2019) Lokal
ASM 22-255-2500WH from supplier Swanson Malaysia

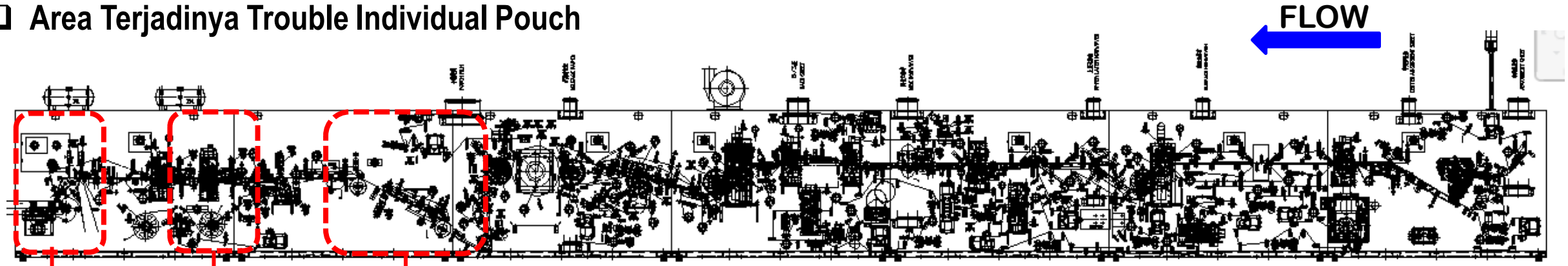
2) I/F green (Nov' 2021 ~) Export
ASM 24-255-2500 RG-P from Supplier Swanson Malaysia





Problem Understanding

❑ Area Terjadinya Trouble Individual Pouch



Frame G

Steker, yaitu Baling-baling transfer SFG menuju conveyor bagging

Di area steker terjadinya Pouch Tergores

Frame G

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

Di area ini terjadinya Pouch seal lemah/terbuka

Frame F

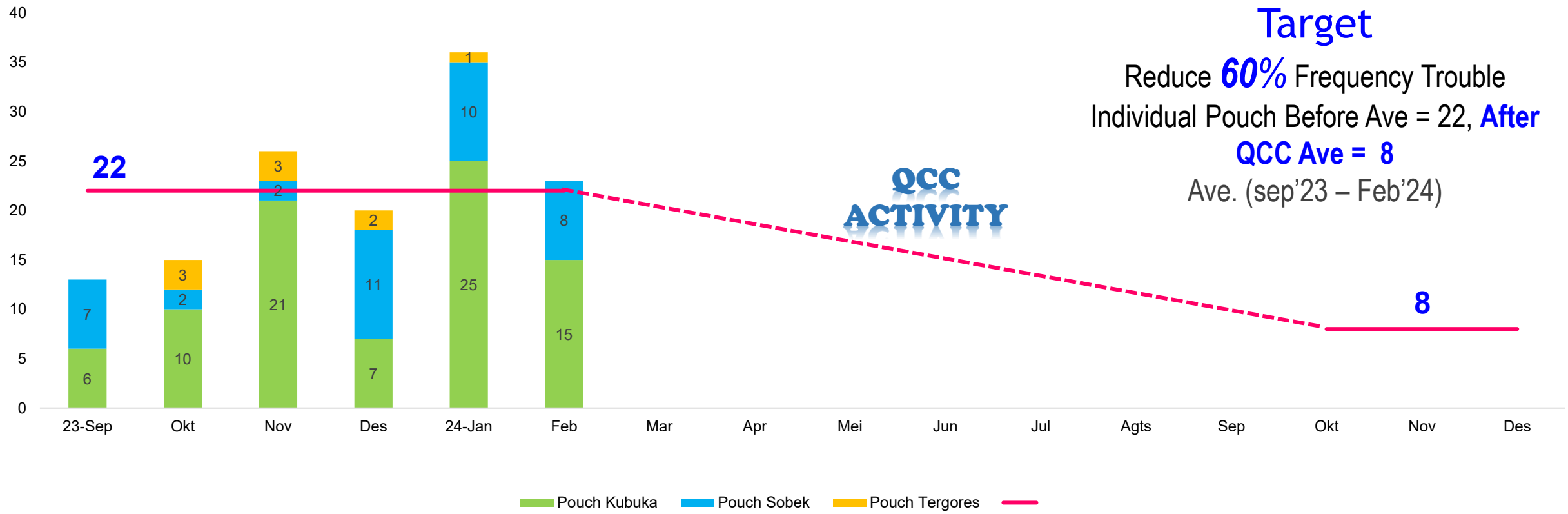
Folding IF, yaitu Plat yang berfungsi untuk melipat SFG menjadi 3 bagian sebelum masuk ke tab tape

Di area folding If terjadinya Pouch Sobek

Theme & Setting Target

Reduce Frequency Trouble LINE 22
By reducing
Trouble Individual pouch

Frequency Trouble Individual Pouch MC 22



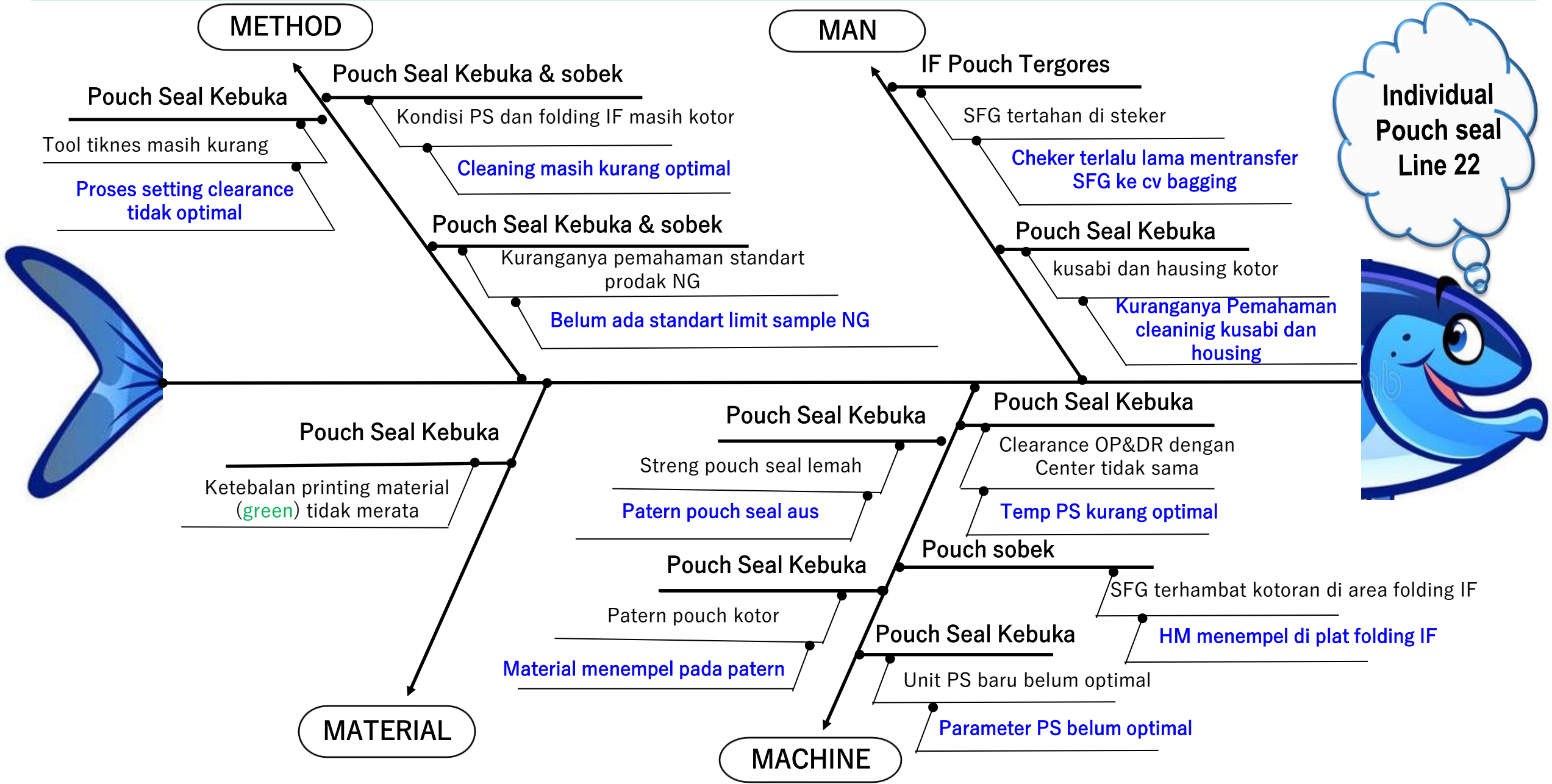
Target

Reduce ***60%*** Frequency Trouble Individual Pouch Before Ave = 22, **After QCC Ave = 8**

Ave. (sep'23 – Feb'24)

With setting position guide plat, we can minimize trouble SFG drop at throw in area

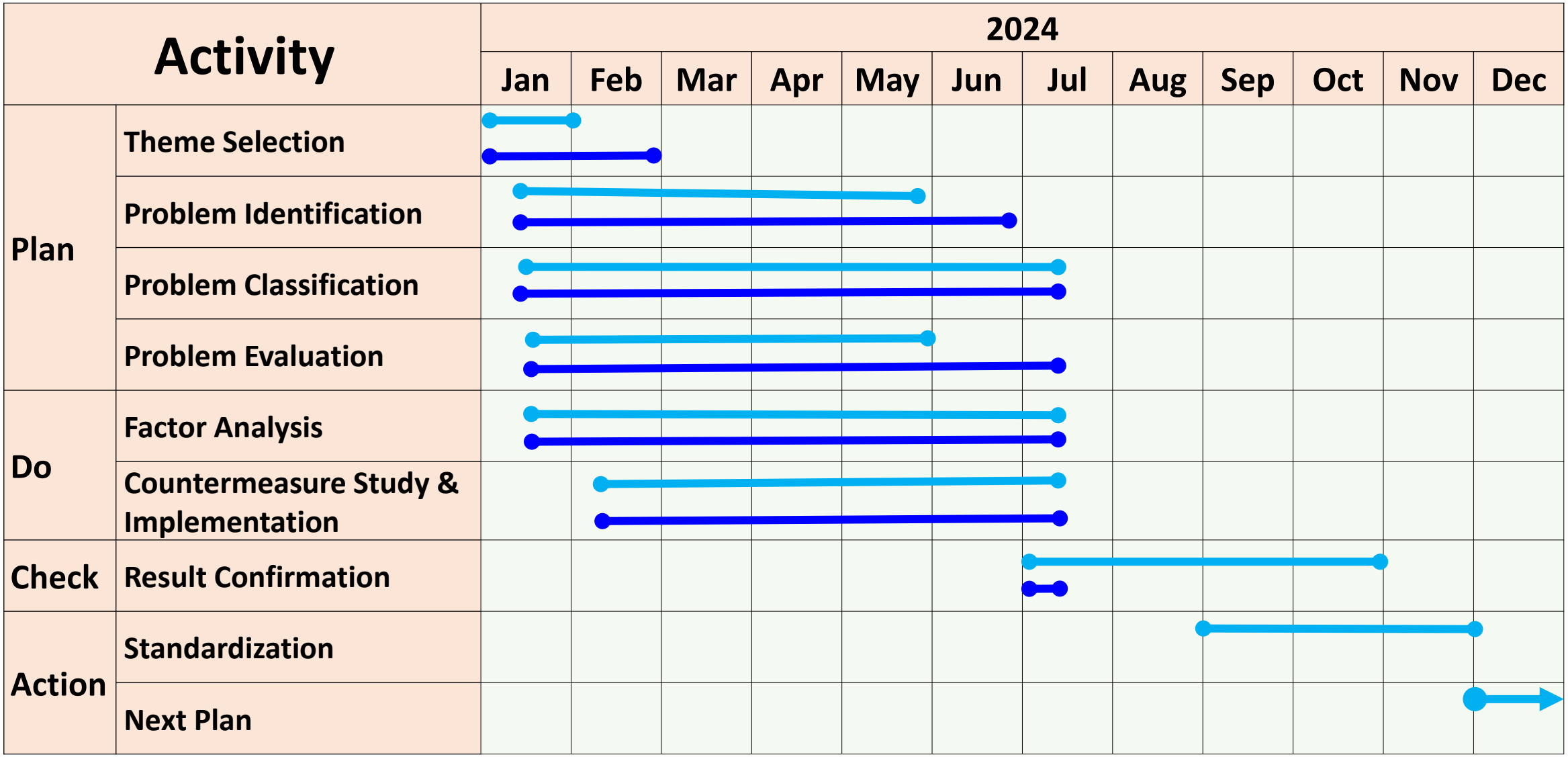
Fishbone Diagram



Action Plan (5W + 1H)

Description	What	Why	How	Where	When	Who
	Factor	Root Cause	Improvement	Location	Time	PIC
Trouble Individual Pouch Mc 22	Man	Kurangnya Pemahaman cleaning kusabi dan housing	Refresh training	MC. 22	Mar - April 2024	Ona,Galih
		Cheker terlalu lama mentransfer SFG ke CV bagging	Refresh Training		Mar - April 2024	Petrus
	Machine	Material If menempel pada pattern PS (lengket)	Re setting speed CV area individual transfer & install free roll		April - Sept '2024	Heri ws
		Pattern dan anvil cepat aus	Perawatan unit pouch seal		Mei - Sept ' 2024	Heri ws
		Parameter PS belum optimal	Optimalisasi unit PS baru dan ambil data parameter pouch seal		Mei - Sept ' 2024	Anton
		Temperature PS kurang optimal	Trial heater dengan spesifikasi baru		Jan - Aug '2024	Anton
		Hm RP fixing menempel di area tripel folding	Ganti seal Pad repitch drum		Mar-Mei 2024	Heri WS
	Method	Cleaning masih kurang optimal	Rivew OPL cleaning pouch seal penambahan alat bantu cleaning		April '24	Rawinda
		Proses setting clearance tidak optimal	Pengecekan clearance aktual setiap setting nilai temp		April'24	Rawinda
		Standart limit sample NG belum ada	Pembuatan Standart limit sample NG		Jul'24	Rawinda,Petrus
	Material	Banyaknya material claim	Optimalkan pengunaan material		Jul-24	Ona,Galih

Action Plan (Time Schedule)

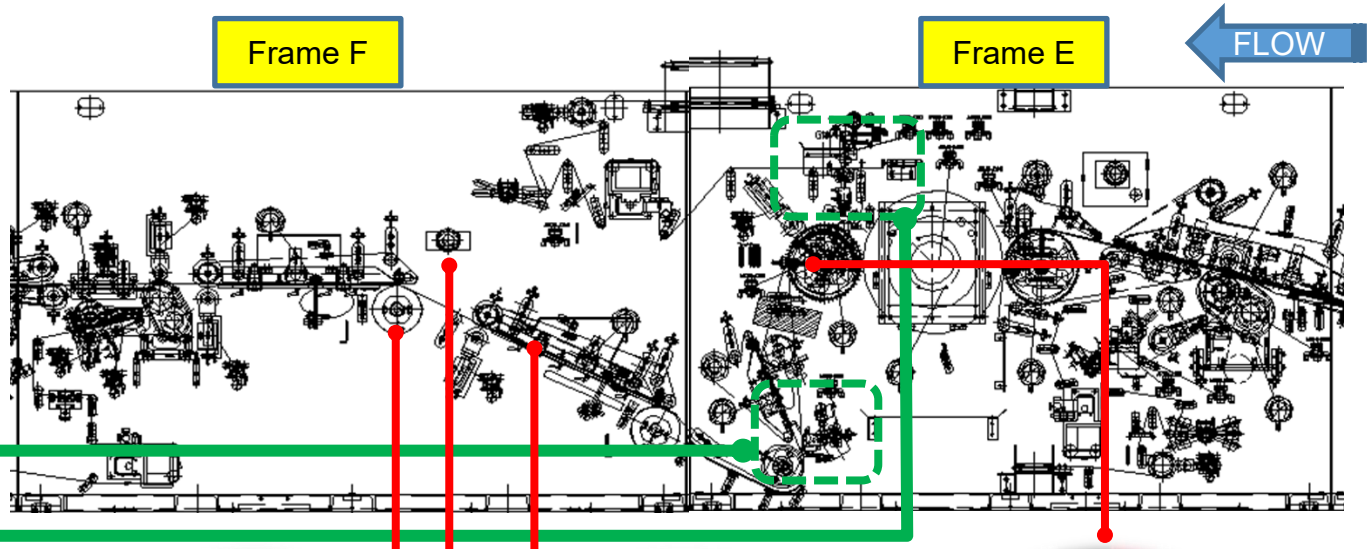


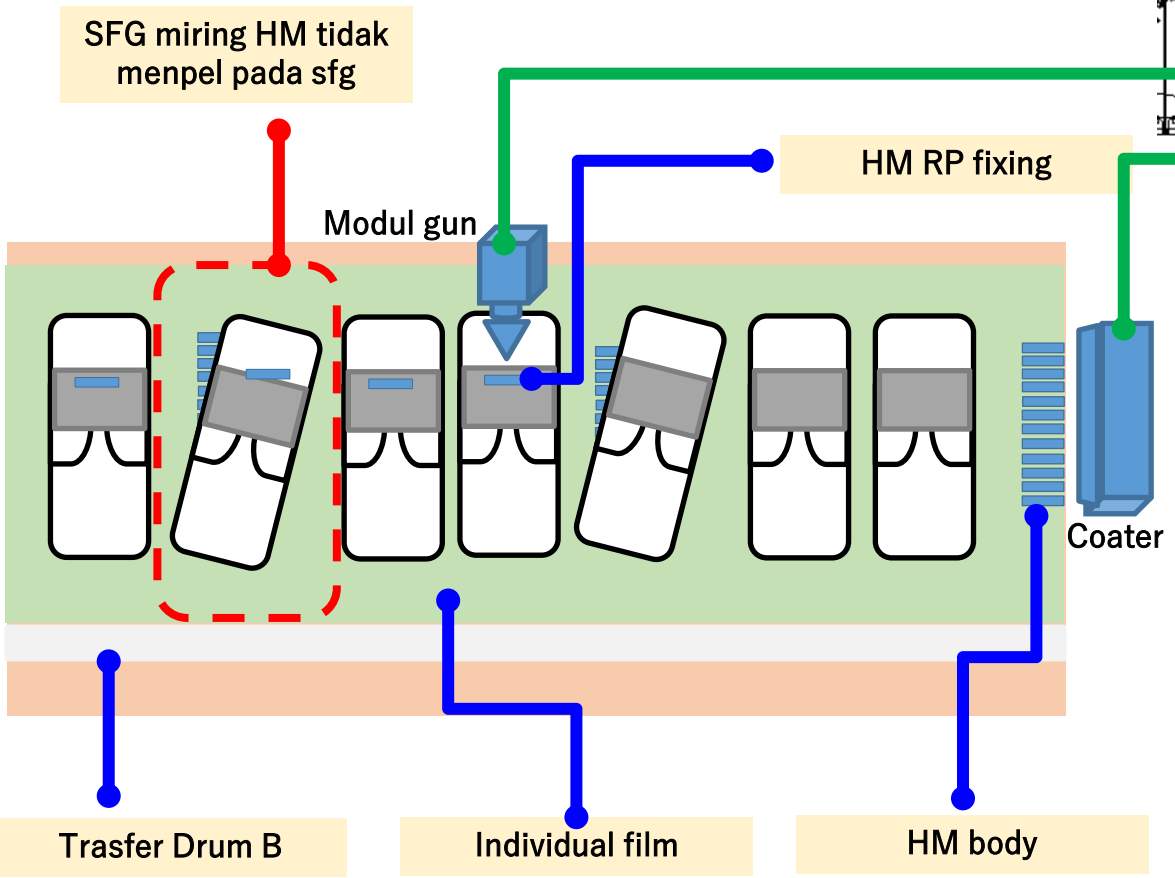
Plan Actual

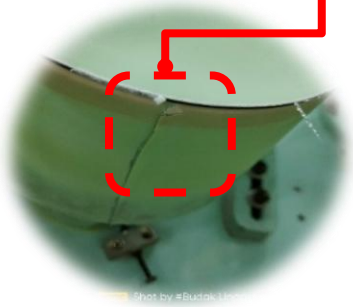
1st Cause analysis: Pouch Seal Sobek

❑ Pouch Sobek

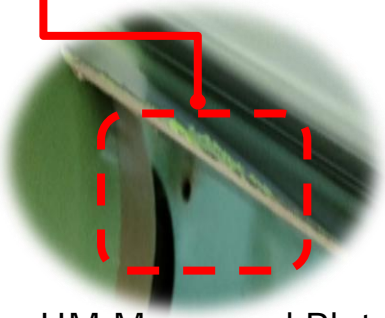
Adalah SFG yang out spek yang tidak bisa di tolerir ,karna Pouch sobek SFG menjadi bocor dan tidak bisa di pakai. Pouch sobek diakibatkan lajur area individual terkontaminasi kotoran yang membuat IF bergesekan dan mengakibatkan IF sobek saat produksi.



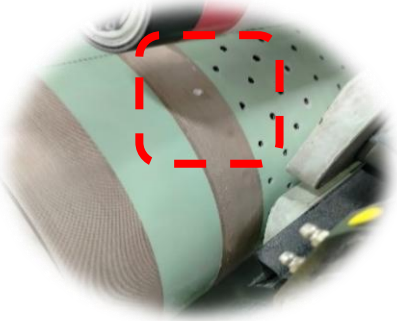




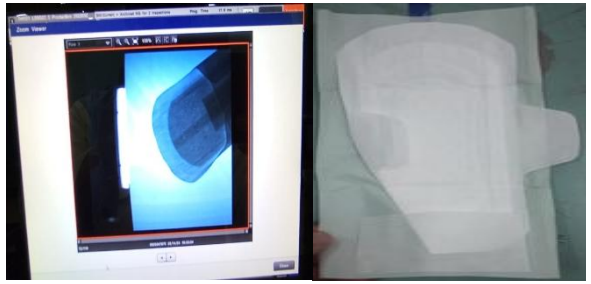
HM Menempel roll folding IF



HM Menempel Plat folding IF



HM Menempel di Trasfer Drum B



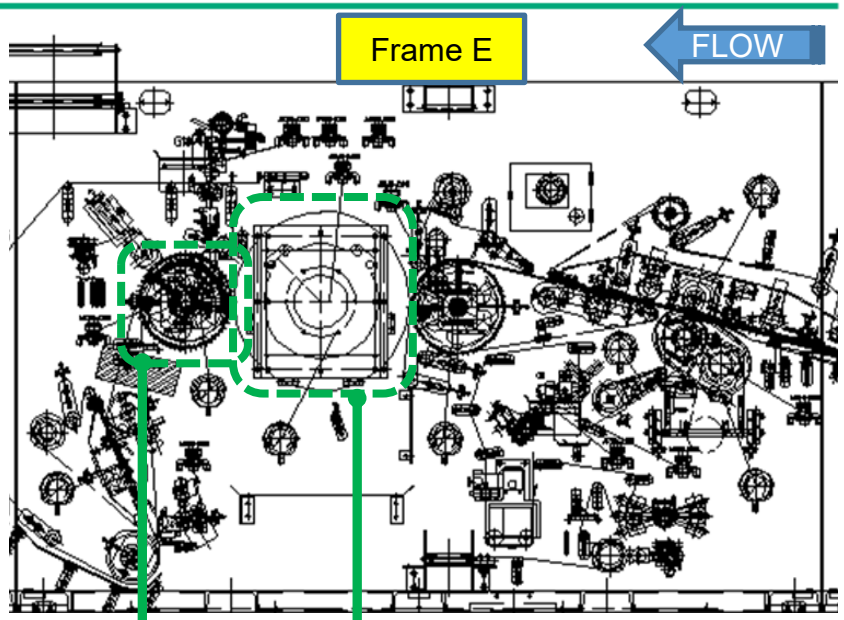
SFG miring detec di sensor vision

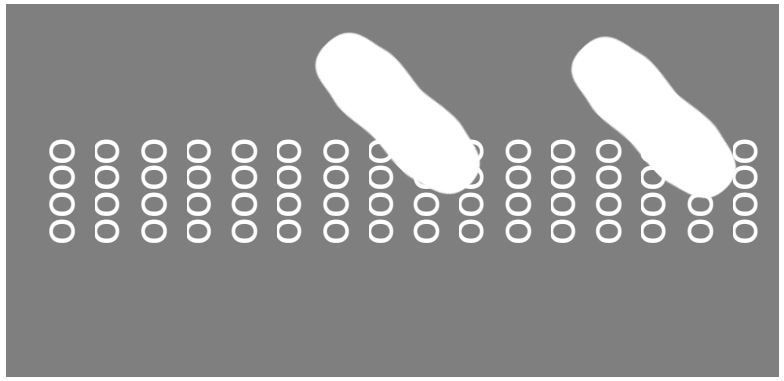
1st Cause analysis: Pouch Seal Sobek

❑ Analisa Penyebab SFG Miring

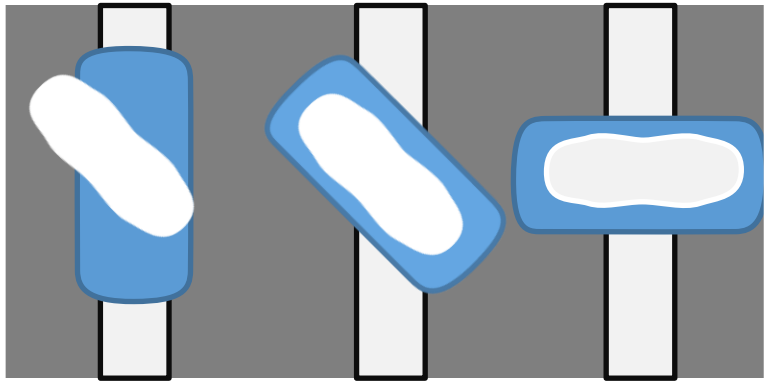
Kondisi SFG miring saat transfer dari repitch ke transfer drum B saat di monitoring mengunakan alat bantu STROBO dan Camera High Speed

Setting Speed strobo dengan speed MC arahkan Strobo ke titik yang di inginkan

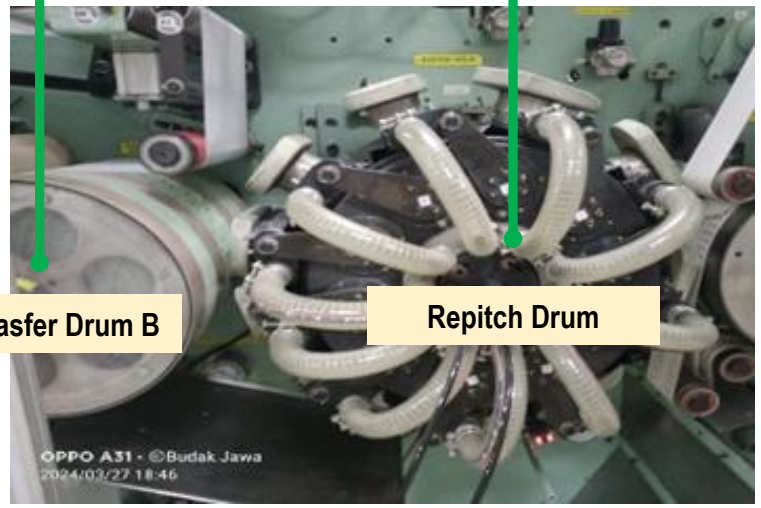




Trasfer Drum B



Repitch Drum



1st Countermeasure:
Pouch Seal Sobek

❑ Action

➢ Chek Vacuum

Vacuum meter repitch drum

Vacuum meter transfer drum B

Setelah pengecekan vacuum repitch drum dan transfer drum B kondisi vacuum bagus jarum pada vacuum mater sesuai pada standart

➢ Chek Hose Vacuum Repitch

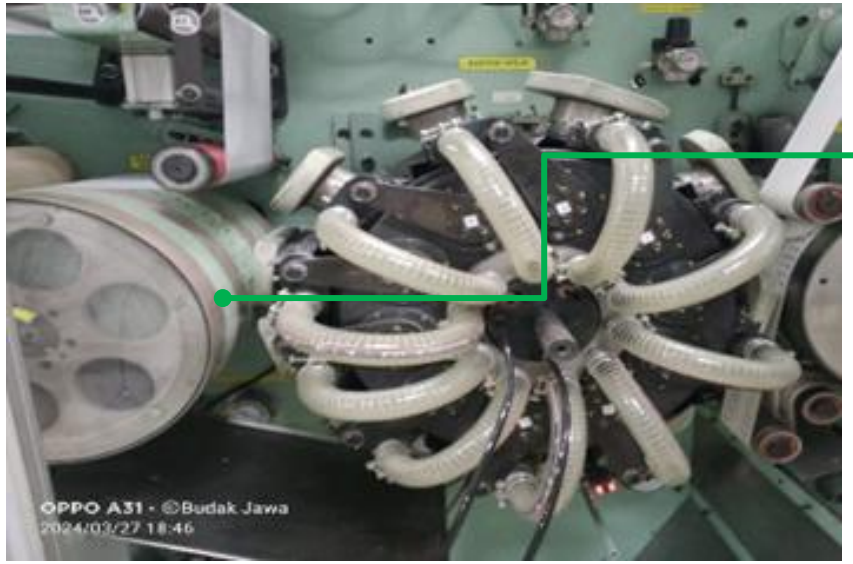
Hose Vacuum Repitch

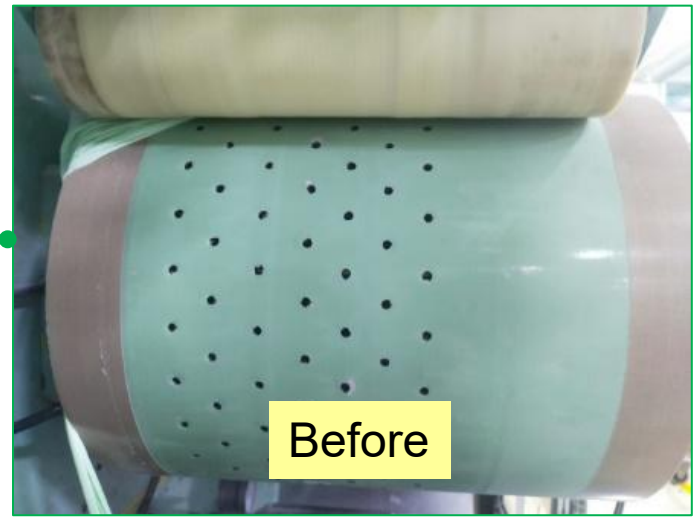
Chek kondisi Hose keseluruhan ada kebocoran tidak dan kondisi Hose tidak rusak

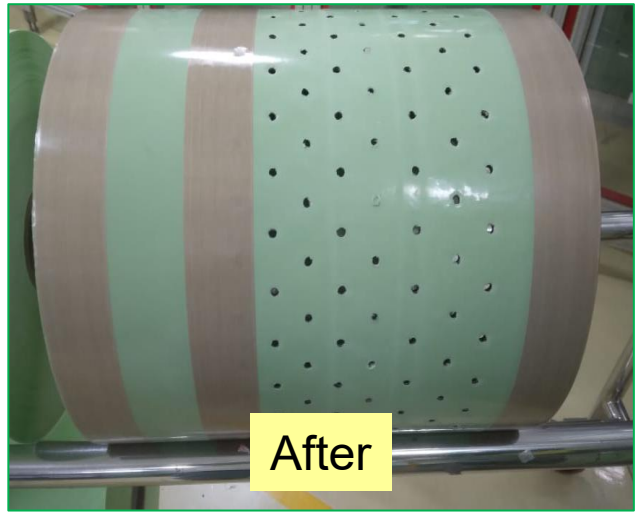
Hasil Masih NG masih di temukan SFG miring atifitas berlanjut

1st Countermeasure:
Pouch Seal Sobek

➢ Penambahan Glass Tape

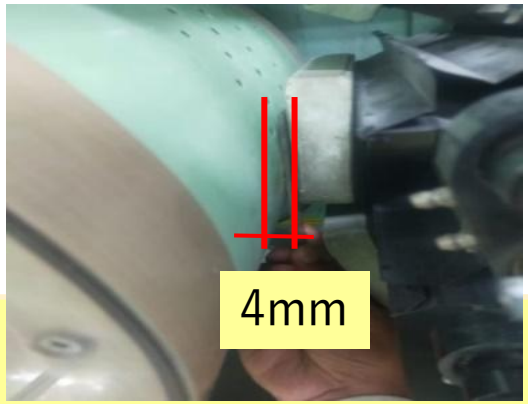


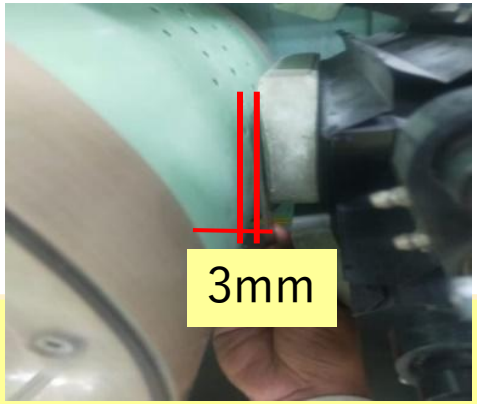




Tutup beberapa lubang vacuum untuk memaximalkan vacuum supaya SFG terpegang di transfer drum B

➢ Adjust Clearance Repitch Dengan Transfer Drum B



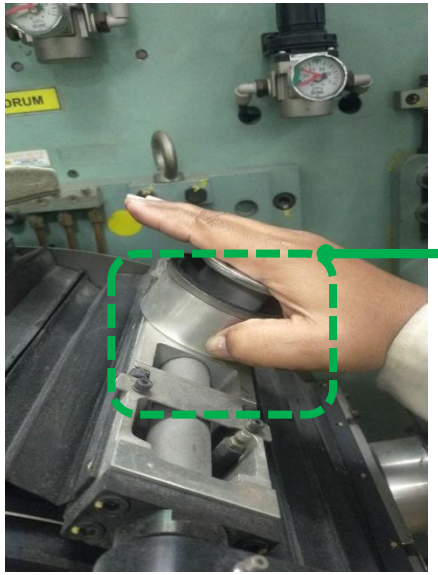


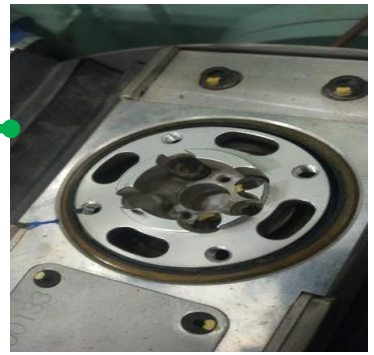
Adjust clearance dari 4 mm ke 3 mm untuk memaximalkan transfer SFG ke transferdrum B

Hasil Masih NG masih di temukan SFG miring atifitas berlanjut

2nd Countermeasure: Pouch Seal Sobek

➢ Ganti Seal Pad Repitch Drum

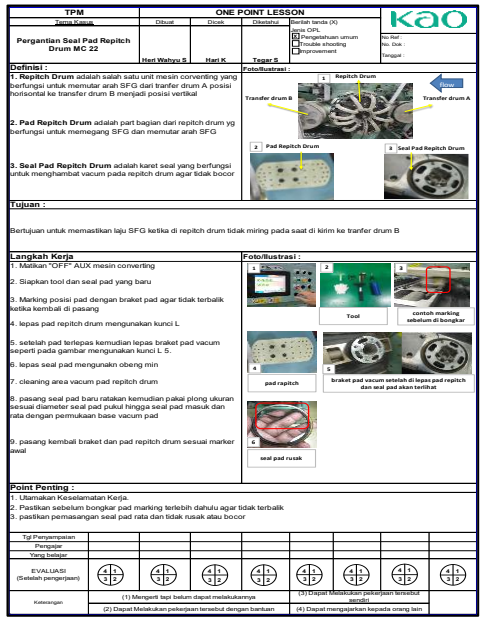




Ganti seal pad repitch drum kondisi seal pad sobek sehingga vacuum bocor SFG tidak terpegang maximal di repitch drum

Lakukan pengecekan vacuum pad repitch drum satu persatu seperti pada gambar dan hasilnya pad NO 5 vacuum kecil beda dengan yg lainya

OPL



TPM — ONE POINT LESSON — kao

Tema Kasus: Pergantian Seal Pad Repitch Drum MC 22

Dibuat: Hari Wahyu S | Dicek: Hari K | Diketahui: Tegar S

Berlih benda (K): Jenis OPL: ☑ Pengetahuan umum ☐ Trouble shooting ☐ Improvement

No. Ref : No. Dok : Tanggal :

Definisi :

1. Repitch Drum adalah salah satu unit mesin converting yang berfungsi untuk memutar arah SFG dari tranfer drum A posisi horisontal ke transfer drum B menjadi posisi vertikal

2. Pad Repitch Drum adalah part bagian dari repitch drum yg berfungsi untuk memegang SFG dan memutar arah SFG

3. Seal Pad Repitch Drum adalah karet seal yang berfungsi untuk menghambat vacum pada repitch drum agar tidak bocor

Foto/Ilustrasi :

1 Repitch Drum — Transfer drum B — Transfer drum A — Now

2 Pad Repitch Drum

3 Seal Pad Repitch Drum

Tujuan :

Bertujuan untuk memastikan laju SFG ketika di repitch drum tidak miring pada saat di kirim ke tranfer drum B

Langkah Kerja

1. Matikan "OFF" AUX mesin converting
2. Siapkan tool dan seal pad yang baru
3. Marking posisi pad dengan braket pad agar tidak terbalik ketika kembali di pasang
4. lepas pad repitch drum mengunakan kunci L
5. setelah pad terlepas kemudian lepas braket pad vacum seperti pada gambar mengunakan kunci L 5.
6. lepas seal pad mengunakn obeng min
7. cleaning area vacum pad repitch drum
8. pasang seal pad baru ratakan kemudian pakai plong ukuran sesuai diameter seal pad pukul hingga seal pad masuk dan rata dengan permukaan base vacum pad
9. pasang kembali braket dan pad repitch drum sesuai marker awal

Foto/Ilustrasi :

1 — 2 Tool — 3 contoh marking sebelum di bongkar

4 pad repitch — 5 braket pad vacum setelah di lepas pad repitch dan seal pad akan terlihat

6 seal pad rusak

Point Penting :

1. Utamakan Keselamatan Kerja.
2. Pastikan sebelum bongkar pad marking terlebih dahulu agar tidak terbalik
3. pastikan pemasangan seal pad rata dan tidak rusak atau bocor

Tgl Pengempatan								
Pengajar								
Yang belajar								
EVALUASI (Setelah pengerjaan)								
Keterangan	(1) Mengerti tapi belum dapat melakukannya				(3) Dapat Melakukan pekerjaan tersebut sendiri			
	(2) Dapat Melakukan pekerjaan tersebut dengan bantuan				(4) Dapat mengajarkan kepada orang lain			

Schedule Pereodical

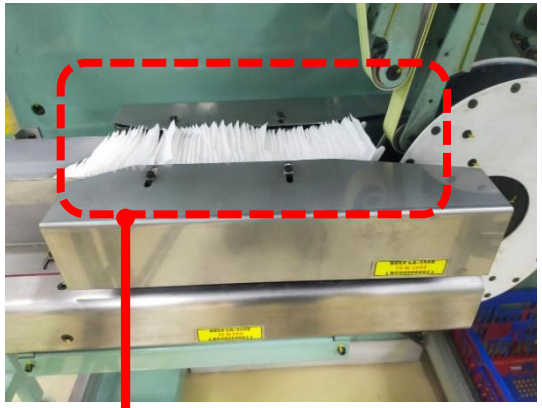
Machinery	Position	Item maintenance	Parts name	Period
Direct crusher	Spur gear feed roll	Grease up	Shell alvania 2	6M
	Change grease bearing saw mill	Change grease OP DR	Omega 22 120g	6M
Forming drum	Cross roller bearing	Grease up	Grease type Shell alvania 2 (1kali)	4M
Ventilation Shaft	Ventilation Shaft	Grease up	Grease Omega 22 (5kali)	4M
Repitch drum	Cylindrical cam Bearing	Grease up	Staburags NBU 8 EP Albania grease No.2	4M
	Pad Repitch Drum	Chek Seal Pad		

Hasil Setelah Pergantian PAD Repitch drum tidak di temukan Pouch Seal Sobek, Next Plan

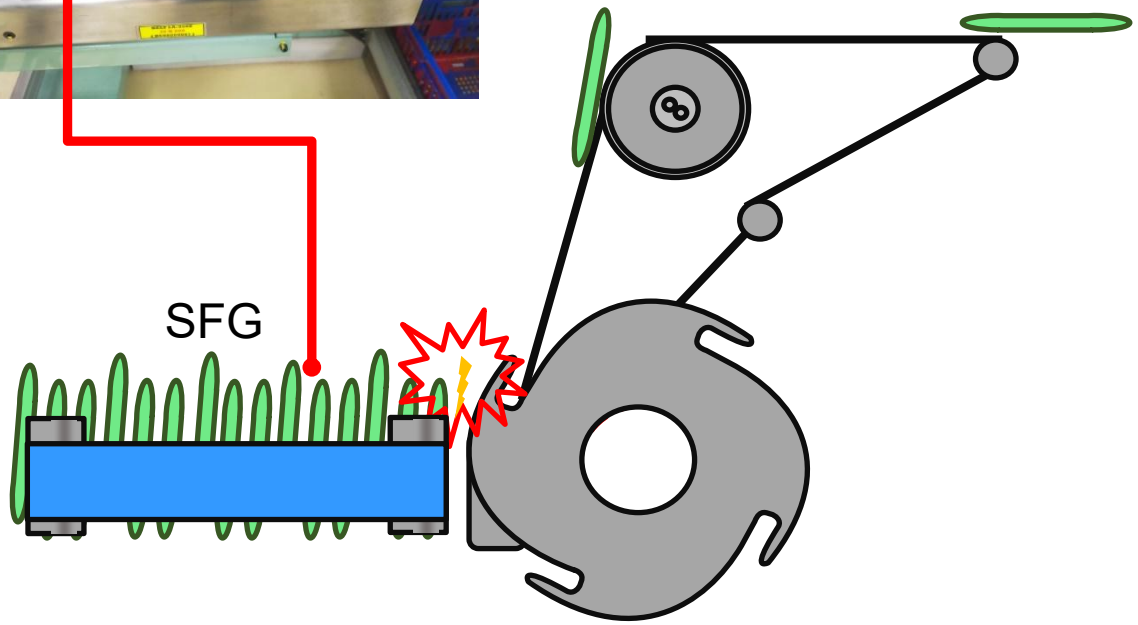
- ➢ Buatkan OPL Pengecekan kondisi seal pad repitch drum
- ➢ Buatkan OPL pergantian seal pad repitch drum
- ➢ Di buatkan pereodical pengecekan kondisi seal pad repitch drum

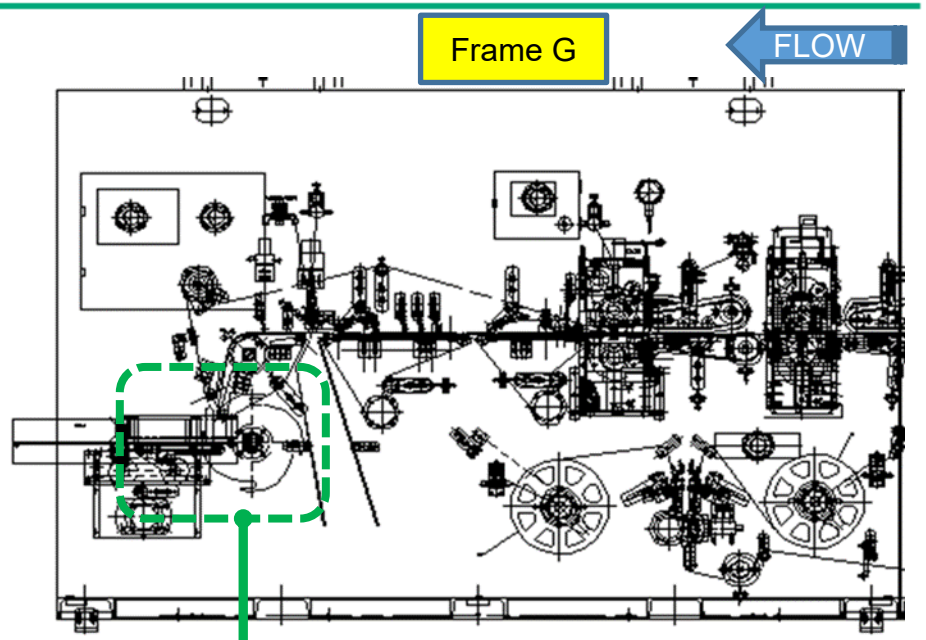
❑ Pouch Tergores

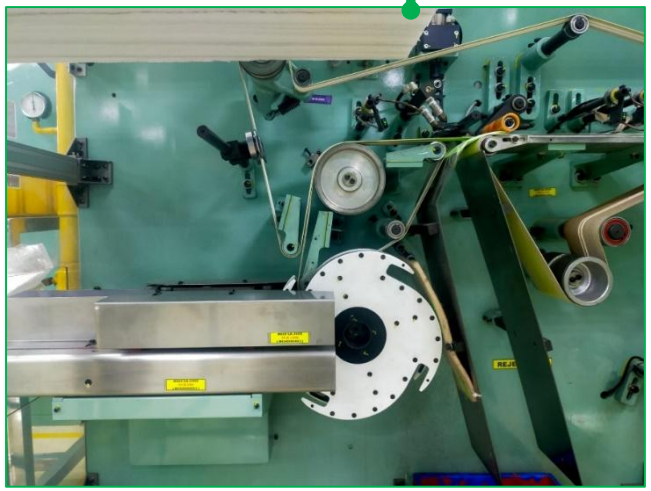
Adalah SFG yang out spek yang tidak bisa di tolerir ,karna Pouch sobek tergores menjadi bocor dan tidak bisa di pakai. Pouch tergores di akibatkan SFG yang tersangkut oleh baling-baling steker.



Kondisi SFG tidak rapi setelah steker





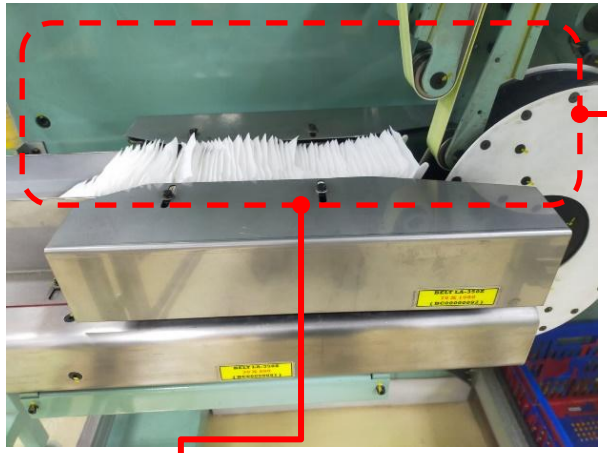


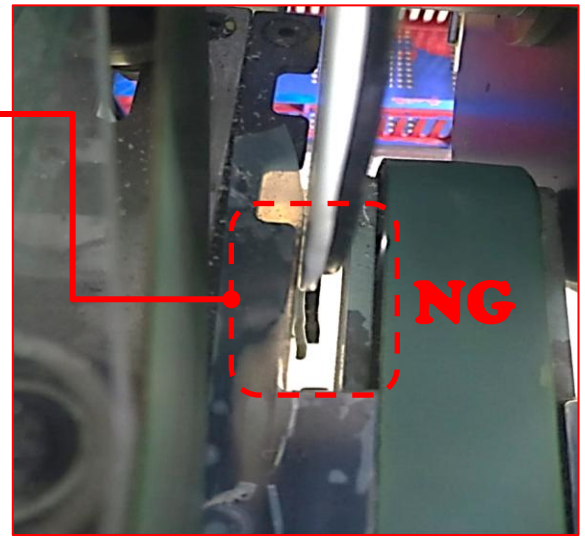
Steker

1st Countermeasure: Pouch Tergores

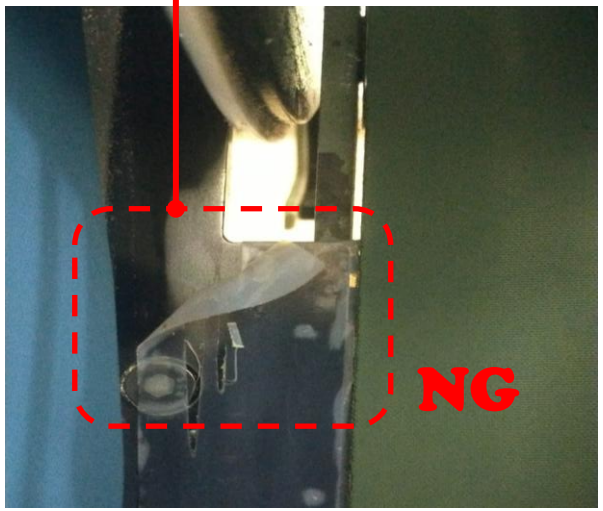
❑ Action

- Ganti Teflon Tape Kondisi Teflon tape aus, laju SFG jadi terhambat karena Teflon tape aus





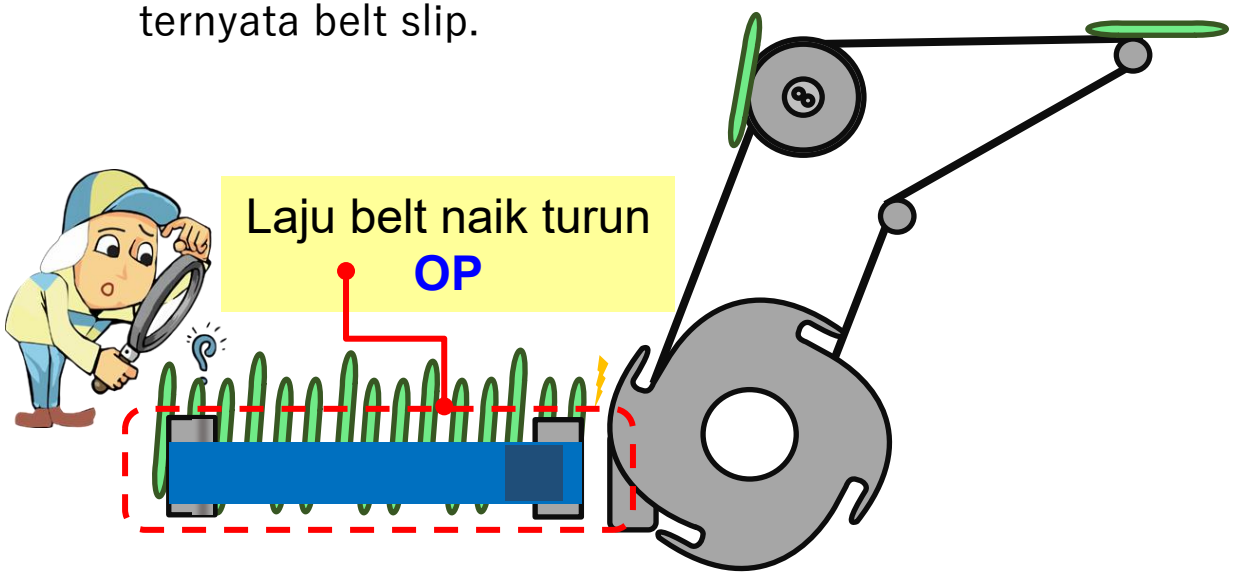
Ratakan Baling-Baling Steker

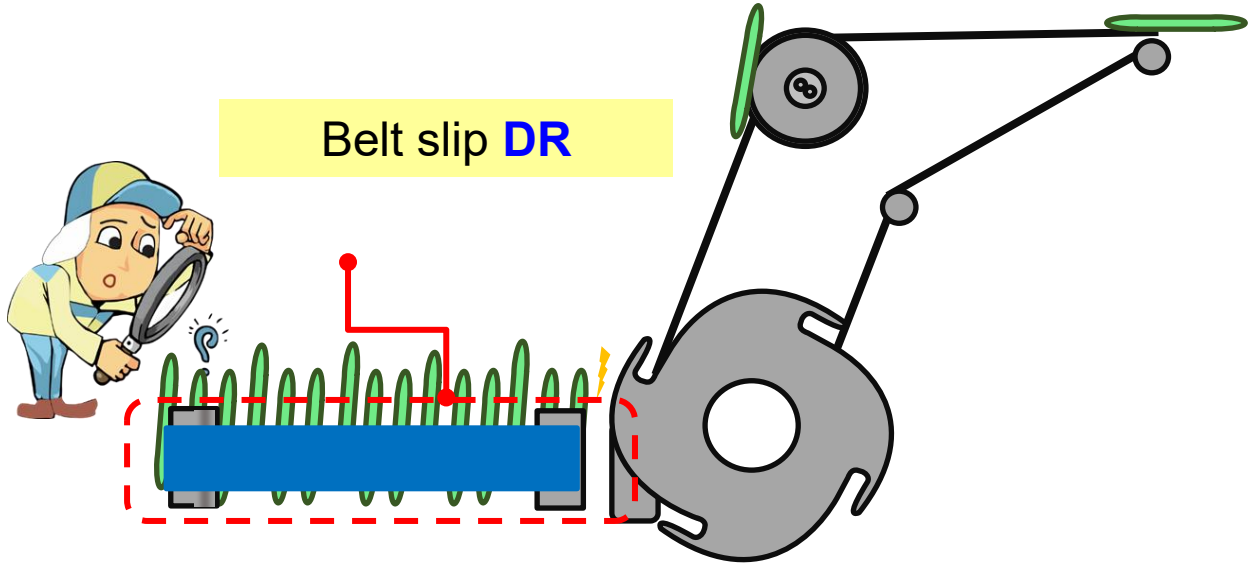


Ganti Teflon Tape

- Baling-baling steker terlalu rapat dengan base conveyor setelah steker,analisa SFG bisa terjepit di area tersebut

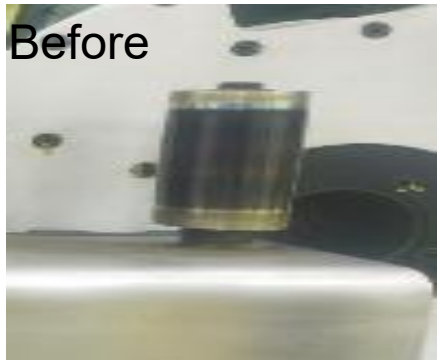
- Setelah cover di buka penyebab SFG tertahan ternyata belt slip.

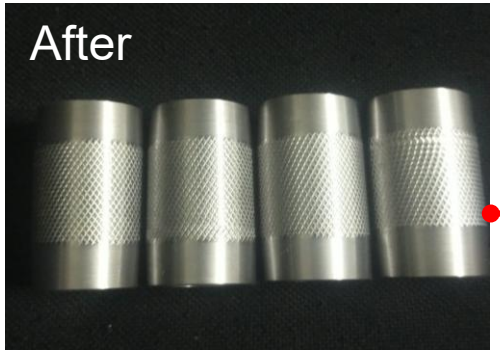




2nd Countermeasure:
Pouch Seal Tergores

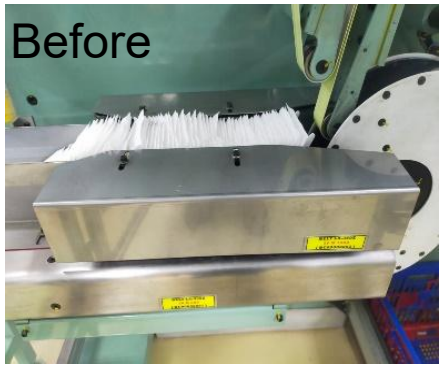
- Modifikasi Roll Belt dari Rata Polos menjadi Crow Grib

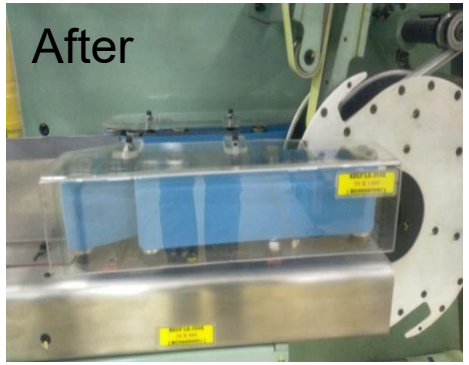




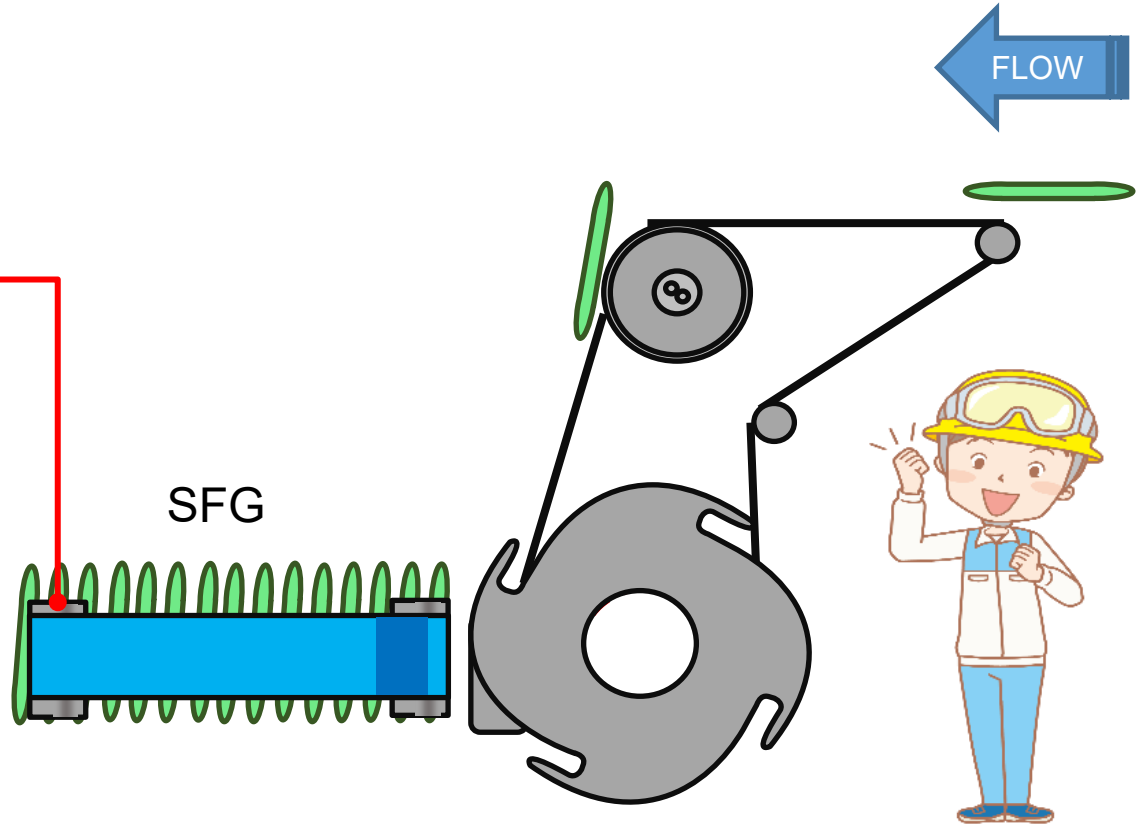
Menjaga belt agar tidak slip ketika belt sudah licin dan menjaga kondisi belt untuk tetap di center tengah

- Modifikasi Cover Belt Menjadi Transparan





Memudahkan aktifitas patrol ketika belt selip taupun bearing roll rusak

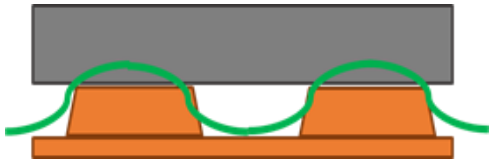


Setelah Pergantian roll kondisi pouch seal Tergores berkurang dan laju SFG lebih rapi dan stabil.

❑ Pouch Terbuka

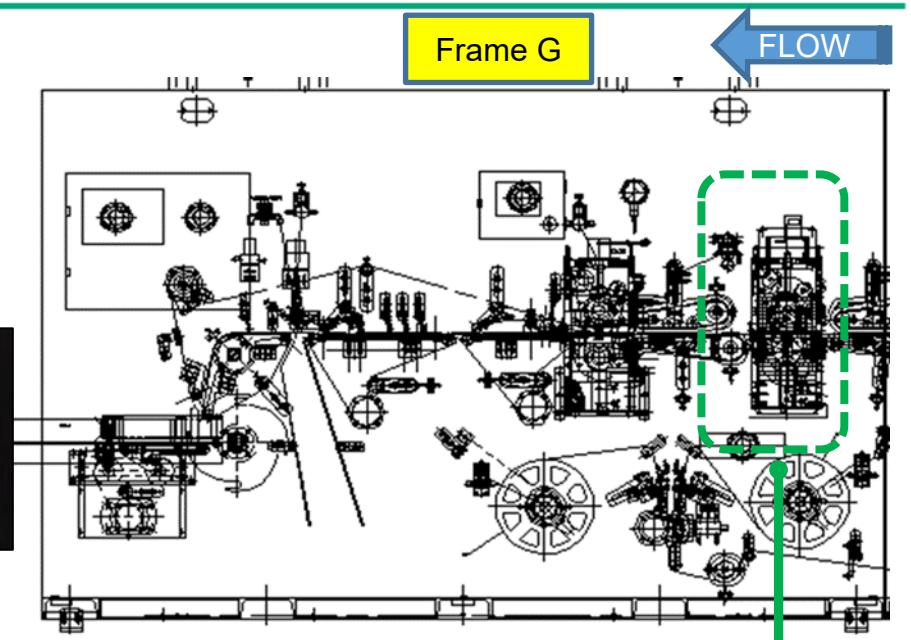
Adalah SFG yang out spek yang tidak masuk standart QA,karna Pouch seal kebuka terjadi karna proses pengesilan pada unit pouch seal tidak optimal ada beberapa penyebabnya.

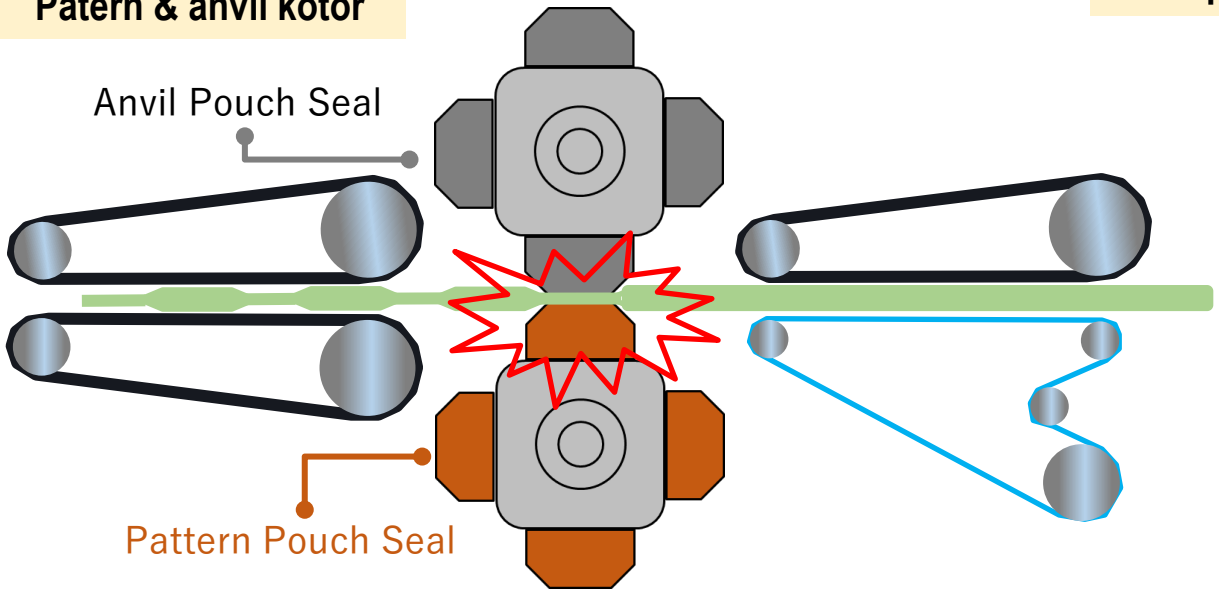
Patern & anvil kotor



Patern & anvil Aus

Temp PS Ubnormal

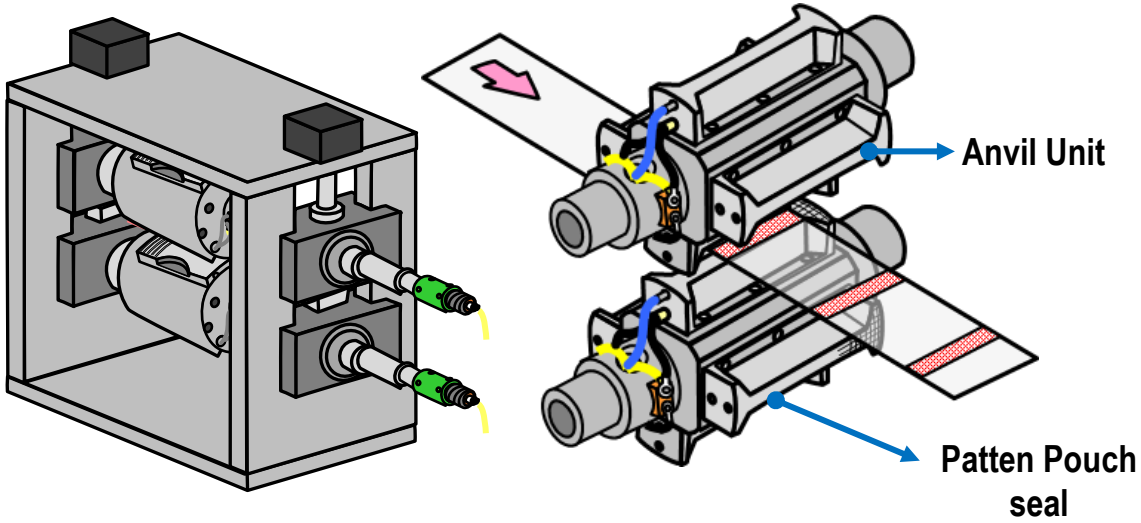




Pouch Seal

❑ Pouch Terbuka

Pouch Seal, yaitu Pengemasan dilakukan dengan men-seal kedua ujung material Ind.Film yang membungkus SFG, matrial melewatkan produk di antara Roll datar dan Roll tipe gunungan, yang telah dipanaskan, kemudian di seal.Untuk merekatkan matrial membutuhkan *Air Cilinder* dan *Heating part*



Material Unit Pouch Seal spare MC 22

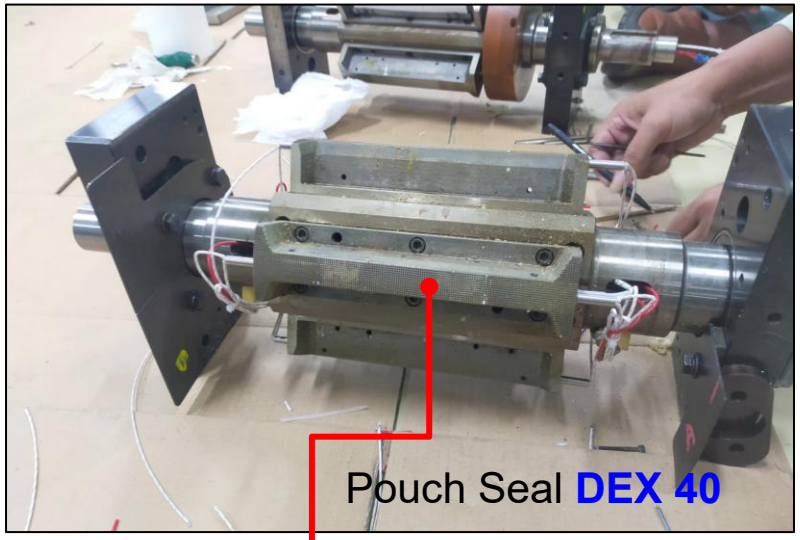
Seal block: SKH51Hrc 61±1

Seal block: DEX 40 Hrc 65±1

Spesification	Current	New
Block Size (mm)	0.5	←
Material Supplier	Hitachi Metal	Daido Metal
Material	SKH51 (High Speed Tool Steel)	DEX40 (Powder High Speed Tool Steel)
Hardness	61	65
Price (MRp)	200	275
Applicant	KI	KIT
Lead Time	40 Days	2 Month

1rd Countermesure:
Pouch Seal Open

Pada **akhir maret** dilakukan pergantian unit pouch seal type **DEX 40** karena unit sebelumnya temp dan clearance sudah maximal & sering masalah Pouch seal lemah dan terbuka



Temp Setting 150° C
Clearance -7 Micron

P : Patern
A : Anvil

P / A	OP	Center	DR
1	115/114	119/119	117/117
2	117/116	120/121	119/118
3	117/115	120/121	120/118
4	116/117	118/121	116/118

Range Nilai setting dengan nilai actual temp terlalu jauh rata-rata range **±30 - 35**

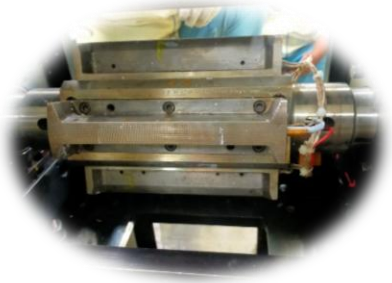
Rata-rata Nilai Range Di Semua Unit Seal di HHC
±15 -20

Setelah pergantian unit pouch seal **DEX 40** terjadi masalah nilai actual temp dengan nilai setting range terlalu jauh nilai setting **150° C** actual **118° C dan Pouch Seal lemah**

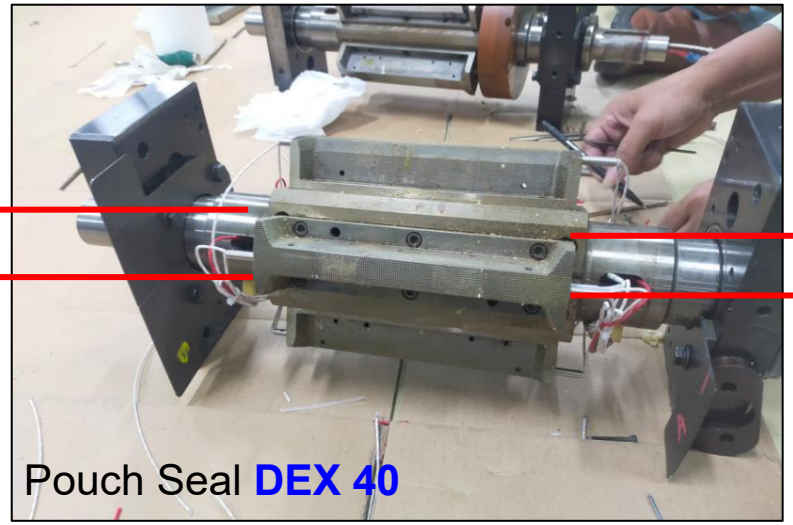
1rd Countermesure: Pouch Seal Open

❑ Action

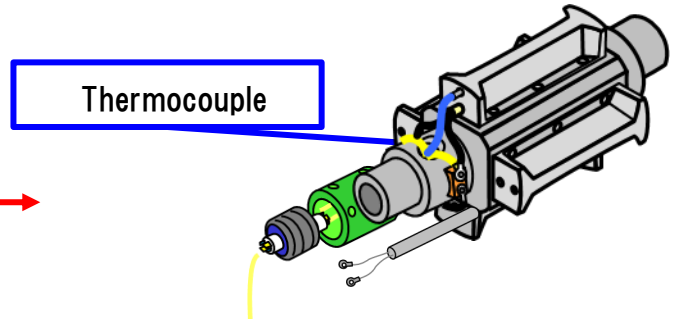
Ganti temp Control



Chek kondisi kabel heater



Reset Auto tuning



Ganti Thermocouple

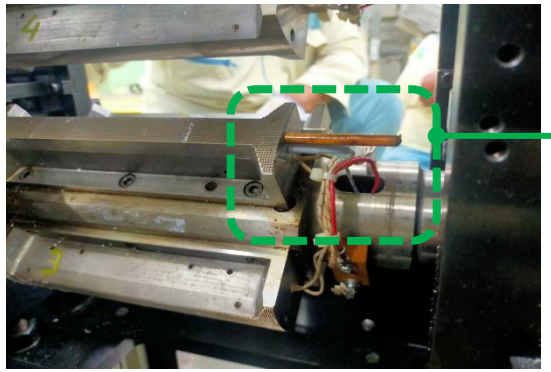
Dari beberapa aktivitas yang kami lakukan hasil masih sama saja range temp masih lumayan jauh kemudian setting temp 160° C & Clearane -13 micron Pouch Seal OK tetapi actual Temp masih **125° C±**

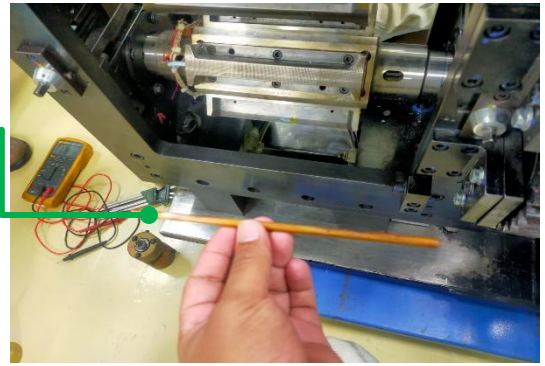
1rd Countermesure: Pouch Seal Open

❑ Action

➢ Melepas BAR heater

BAR Heater itu sendiri berfungsi sebagai konduktor untuk menyebarkan panas supaya merata



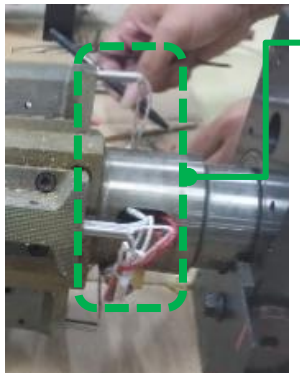


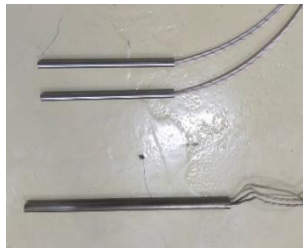
Temp Setting 160° C
Clearance -13 Micron

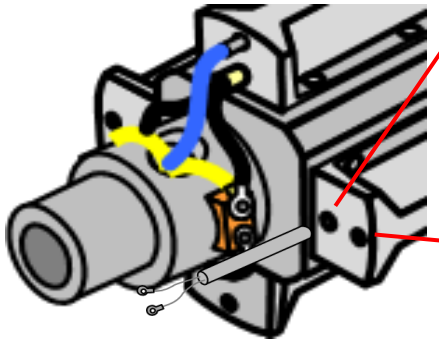
P : Patern
A : Anvil

P / A	OP	Center	DR
1-4	125/132	131/135	126/130

➢ Ganti type Heater dan pasang di hole pada patern tempat BAR di pasang buat HEATER **NOTE** walaupun hasil bagus tapi unsave codition karna heater menonjol keluar sehingga berbahaya ketika OP cleaning patern







Temp Setting 145° C
Clearance -13 Micron

P : Patern
A : Anvil

P / A	OP	Center	DR
1-4	115/118	121/127	116/118

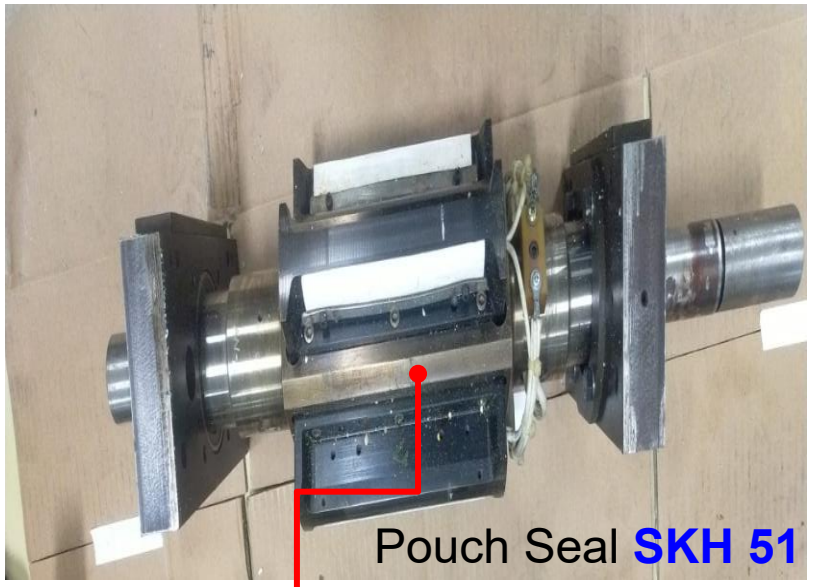
Ganti Spek Heater dari
300 W 220 V Ø 7.9 X 195 mm
8 pcs

240 W 220 V Ø 6.0 X 120 mm
16 pcs

Kembali pasang Heater current dengan nilai setting 160° C -20 micron

2nd Countermesure: Pouch Seal Open

Pada bulan **April** dilakukan pergantian unit pouch seal type **SKH 51** karena Pouch seal **DEX 40 sudah maximal dan sering pouch seal lemah dan DEX 40** proses Grinding



Temp Setting 150° C
Clearance -20 Micron

P : Patern
A : Anvil

P / A	OP	Center	DR
1	125/130	130/135	127/132
2	127/131	131/137	127/131
3	126/129	131/138	126/130
4	125/130	130/138	127/130

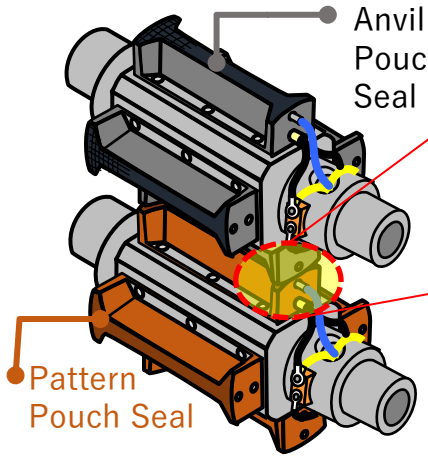
Range Nilai setting dengan nilai actual temp OK rata-rata range **±15 - 20**

Rata-rata Nilai Range Di Semua Unit Seal di HHC **±15 -20**

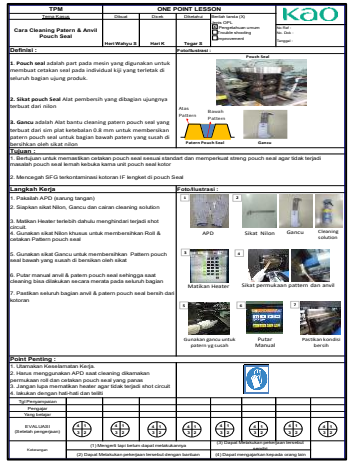
Awal running kondisi setting clearance sudah -20 micron temp 150° C SFG baru OK karna nilai setting sudah tinggi menyebabkan patern dan anvil pouch seal mudah kotor

3rd Countermesure: Pouch Seal Open

- Penambahan alat bantu buat cleaning patern pouch seal biar lebih cepat dan maximal



Pattern pouch seal cepat kotor



TPM — ONE POINT LESSON — kao

Judul Materi: Cara Cleaning Patern & Anvil Pouch Seal

Dibuat: Heri Wahyu S | Diceck: Heri K | Diketahui: Tagor S

Definisi :

1. Pouch seal adalah part pada mesin yang digunakan untuk membuat cetakan seal pada individual kij yang terletak di seluruh bagian ujung produk.

2. Sikat pouch Seal Alat pembersih yang dibagian ujungnya terbuat dari nilon

3. Gancu adalah Alat bantu cleaning patern pouch seal yang terbuat dari sim plat ketebalan 0.8 mm untuk membersikan patern pouch seal untuk bagian bawah patern yang susah di bersihkan oleh sikat nilon

Tujuan :

1. Berfungsi untuk memastikan cetakan pouch seal sesuai standart dan memperkuat sterng pouch seal agar tidak terjadi masalah pouch seal lemah ketika kema unit pouch seal kotor

2. Mencegah SFG terkontaminasi kotoran IF lengket di pouch Seal

Langkah Kerja

1. Pakaiah APD (karung tangan)
2. Siapkan sikat Nilon, Gancu dan cairan cleaning solution
3. Matikan Heater terlebih dahulu menghindari terjadi shot circuit
4. Gunakan sikat Nilon khususe untuk membersihkan Roll & celakan Pattern pouch seal
5. Gunakan sikat Gancu untuk membersihkan Pattern pouch seal bawah yang susah di bersikan oleh sikat
6. Putar manual anvil & pattern pouch seal sehingga saat cleaning bisa dilakukan secara merata pada seluruh bagian
7. Pastikan seluruh bagian anvil & pattern pouch seal bersih dari kotoran

Foto/Ilustrasi :

1 APD; 2 Sikat Nilon; 3 Gancu; 4 Cleaning solution; 5 Matikan Heater; 6 Sikat pembukaan pattern dan anvil; 5 Gunakan gancu untuk pattern yg susah; 6 Putar Manual; 7 Pastikan kondisi bersih

Point Penting :

1. Utamakan Keselamatan Kerja
2. Harus menggunakan APD saat cleaning dikarenakan permukaan roll dan cetakan pouch seal yang panas
3. Jangan lupa mematikan heater agar tidak terjadi shot circuit
4. lakukan dengan hati-hati dan teliti

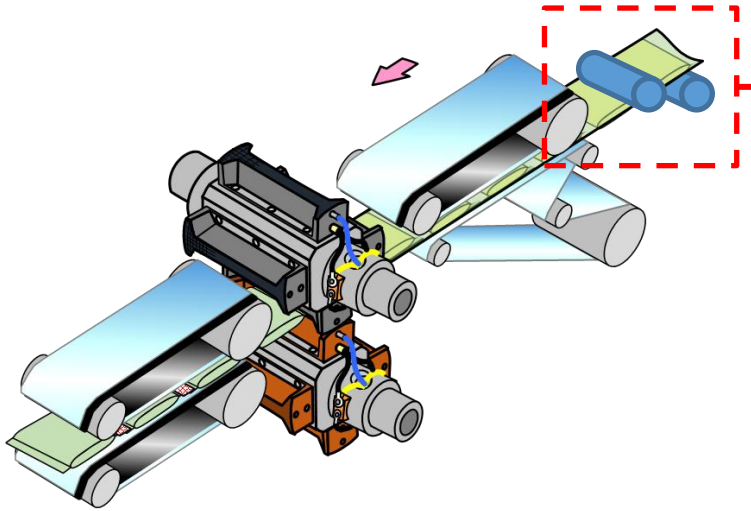
Tgl Pelaksanaan / Pengguna / Yang bertugas

EVALUASI (Ketelah pengerjaan): (1) Mengerti tapi belum dapat melakukannya; (2) Dapat melakukan pekerjaan tersebut dengan bantuan; (3) Dapat melakukan pekerjaan tersebut dengan mandiri; (4) Dapat mengajarkan kepada orang lain

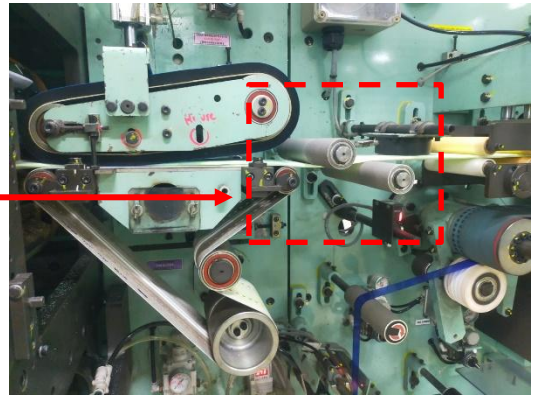
Keterangan

- Penambahan alat bantu cleaning patern pouch seal untuk memaximalkan cleaning dan mempercepat waktu cleaning
- Di buatkan OPL cara cleaning patern & anvil pouch seal

- Penambahan Roll sebelum Pouch seal



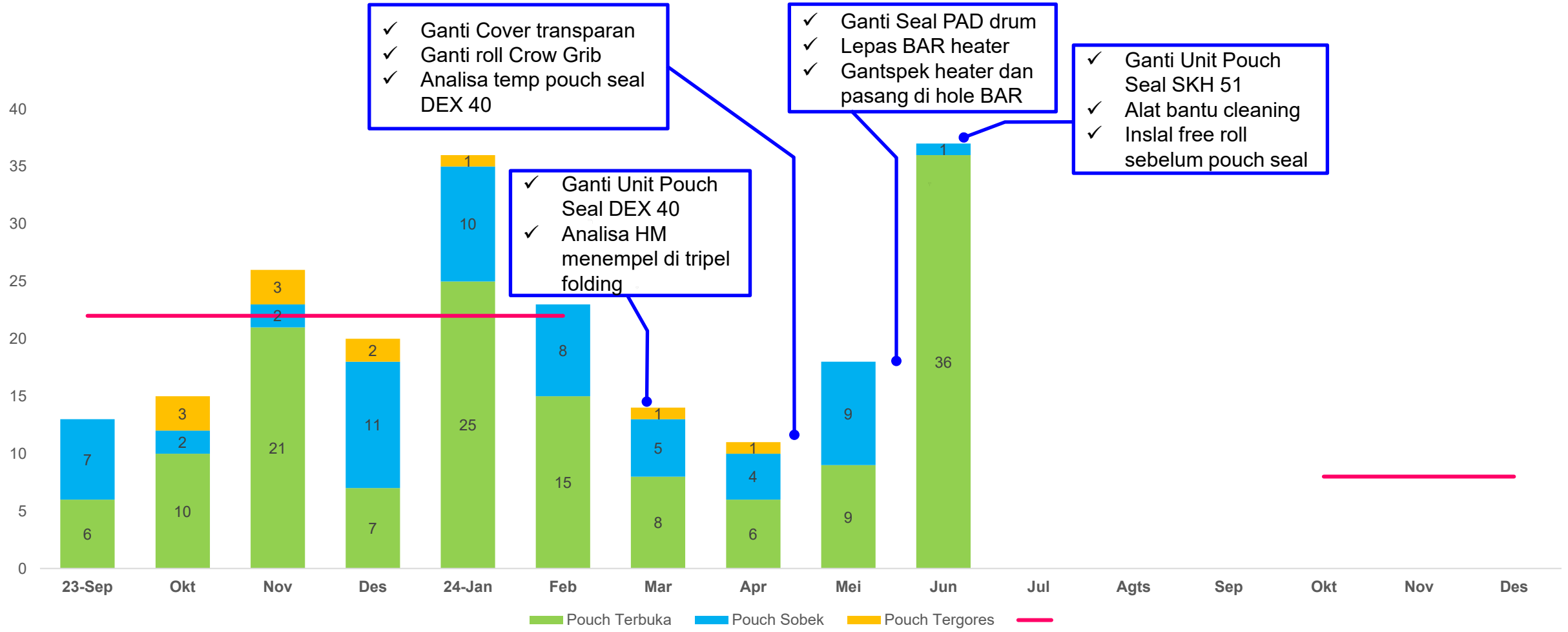
Mengurang



Penambahan Roll Sebelum Pouch seal

- Penambahan free roll untuk mengurangi angin di dalam SFG sebelum di seal dan menjaga laju SFG lebih stabil sebelum pouch seal

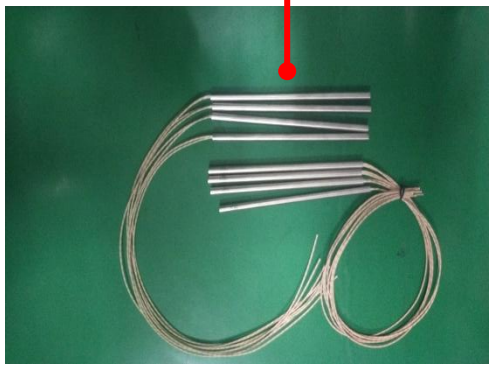
Keep Stability Individual Film Process On LSSG Product



Masalah I/F SFG Open sempat menurun, namun target belum tercapai
Jadi kami melakukan beberapa analisa PDCA kembali.

3rd Countermesure: Pouch Seal Open

Pada bulan **Juli** dilakukan pergantian unit pouch seal type **DEX 40** dan **Hearter Baru** karena Pouch seal **SKH 51 sudah maximal dan sering pouch seal lemah**



Ganti spek heater
500 W 220 V Ø 7.9 X 195 mm

Temp Setting 150° C
Clearance -20 Micron

P : Patern
A : Anvil

P / A	OP	Center	DR
1	126/132	132/135	128/132
2	127/130	134/137	129/131
3	127/129	131/136	126/130
4	125/130	134/138	127/130

Range Nilai setting dengan nilai actual temp **OK**
rata-rata range **±15 - 20**

Rata-rata Nilai Range Di Semua Unit Seal di HHC
±15 -20

Melanjutkan permasalahan range temp dari nilai setting dengan nilai actual temp yang terlalu banyak untuk unit spare pouch seal material DEX 40. unit di pasang pada pertengahan bulan juli

Thank You