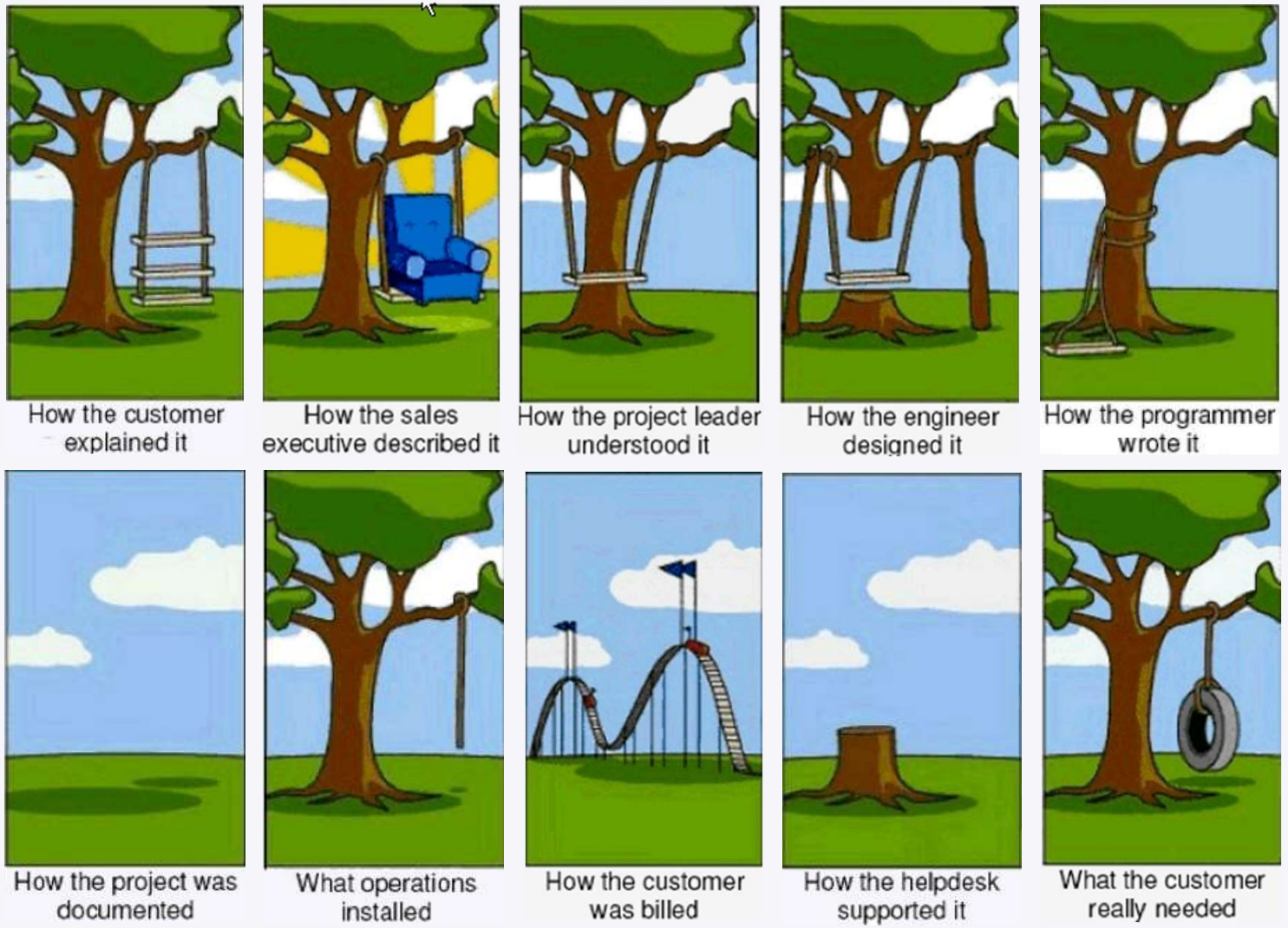
Communication & Is sales a matter of mathematics?

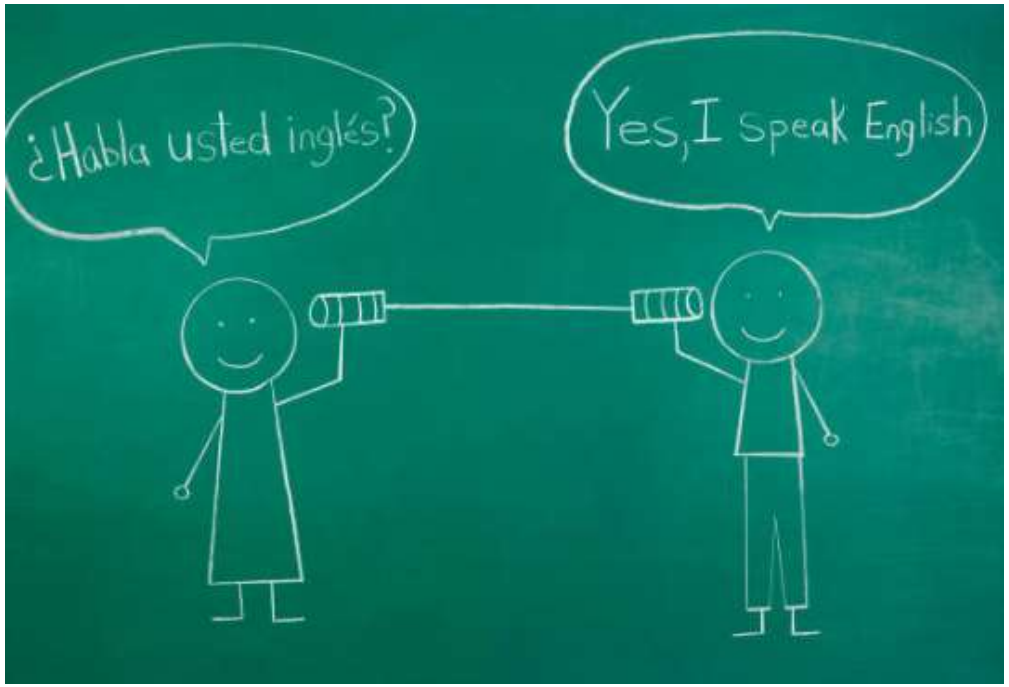
Sunnen AG, Switzerland, October 16/17 2024

How important is transmitting the information which we receive from the customer?

Perhaps you recognize this one?



When we speak English – do we speak the same language?



Very often by transmitting, the wording got different

Try to prevent, unclear, without proper subject and long email chains

It’s the way how we could interpretate things!

To often emails are just forwarded without reading them properly

With this result for the receiver

Most of the communication regarding costumer's request isn’t sufficient

Without proper clear information we can’t proceed, we aren’t

And no, we haven’t

And no, we haven’t either

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So

But where it is?

Solution?

Time for a decent

How to get the info?

Wishful when we think that there are existing buttons for

No stress we have the tools!

1 - Questionnaire application and machines

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Questionnaire honing applications and machines

General	*Date*					
	Customer					
	Address					
	Telephone					
	Email					
	Distributor/Agent					
	Contact Person					

Application	*Name*					
	Drawing or number					
	Material					
	Diameter before honing					
	Diameter after honing					
	Length / honing length					
	Weight					
	Heat treatment or coating					
	Hardness or specifications					

Tolerances	*Diameter*	*before honing*		*after honing*		
	Roughness Ra	*before honing*		*after honing*		
	Roughness Rt	*before honing*		*after honing*		
	Roughness Rz	*before honing*		*after honing*		
	Other roughness tolerances or plateau finish or bearing surface			*after honing*		

Bore Geometry Tolerances	*Straightness*	*before honing*		*after honing*		
	Roundness	*before honing*		*after honing*		
	Cylindricity	*before honing*		*after honing*		
	Perpendicularity	*before honing*		*after honing*		
	Concentricity	*before honing – honing will not influence this*				
	Others					

Production data	*Amount of production*		
	Batch sizes	-	
	Statistical Process Control	*Yes or No*	
	SPC data or tolerances		
	Amount of Shifts		
	Hours per Shift		
	How many workdays / week		
	How many workdays / year		
	Cycle time goal		


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Measuring Method	Straightness	before honing		after honing	
	Roundness	before honing		after honing	
	Cylindricity	before honing		after honing	

Current process if any please fill in otherwise leave it open	Type	
	Brand Name	
	Abrasive type used	
	Abrasive bond type	
	Coolant or honing oil	

Automation required	Yes or No	
	Sunnen or Customer	
	Autonomy of automation	
	Incoming method / loading	
	Exit method / unloading	
	Post honing gaging	
	Gaging compensating?	

Any material which may not be used during the honing?	Honing oil	
	Abrasive type	
	Abrasive bond type	
	Guide shoe material	
	Others	

Please provide a plan/sketch of work piece

Filled in (name)	on	Signature

2 - Sunnen AG analysis report

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ABOVE AND BEYOND HONING

Sunnen AG Analysis Report

1. General Information

Date:

Author

Name	
Distributor	

Customer

Company		City/Country	

Application Information

Bore 1 of

please use one sheet per bore / operation

Workpiece description

Name		Drawing No.	
Industry			

End dia. ID		Material	
Bore length		Hardness	
Bore type		Weight	
Pre-operation			

Tolerances and requirements		Honing operation		
	Pre-operation	Current	Target	Notes
Cycle time (honing)				
Stock removal				
Incoming dia.				
ID Tolerance				
Roundness				
Straightness				
Parallelism				
Cylindricity				
Concentricity				
Perpendicularity				
Surface finish				
Crosshatch angle				
cmk Value (dia)				

Production data

Production per year		Batch size	
Production hours per year		Shifts per day	

Notes

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ABOVE AND BEYOND HONING

2. Current situation

Process today

Current machining process	

Existing cross-grinding process ☐ None

Machine type	
Tooling	
Stones	
Adapter	
Fixture type	
Oil	
Oil filtration	
Brushing	
Measurement method	

3. Proposed solution

Machine type	
Tooling	
Stones	
Adapter	
Fixture type	
Oil	
Oil filtration	
Brushing	
Measurement method	

Notes

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ABOVE AND BEYOND HONING

4. Part handling / Automation

Parts

How get the parts to the system	
How many parts should be honed per cycle	
Required run autonomy	
Can parts be treated as bulk material	
Surfaces where its not allowed to hold or place the parts	
Required cycle time including loading and unloading	

Loading system ☐ None

Type of loading system (e.g. loading chute, chain,..)	
Type of part handling (e.g. loading pin, gripper, ..)	

Unloading system ☐ None

Type of unloading system (e.g. chute, belt,..)	
Type of part handling (e.g. unloading pin, gripper, ..)	

Options ☐ None

Measuring system		
Brushing station		

Fixture details

Fixture type (spring, axial, ...)	

☐ Fixed ☐ Cardanic ☐ Floating base ☐ Floating tool holder

Notes

3 - Sunnen US GH454 form

Save and Email

Machine or System Quotation Request Form

GH-454

FILL OUT ALL LINES; if not applicable use NA, if not known use NK

REQUEST

Request Date:	
Completion Date Required:	
Machine Desired:	
Tooling Type Desired:	
Project Budget:	

COMPANY INFORMATION

Sales Person:		Sub/Distributor Name:	
Company Account # (not applicable to int. distributors):			
Company Name:		Company Contact Name:	
Address:		Company Contact Phone Number:	
City:		Company Contact e-mail:	
State:		Company Part Number:	
Country:		Company Part Name:	
ZIP Code:		Company Part Type:	

INCOMING BORE INFORMATION

Diameter Size:		Straightness Tolerance:	
Diameter Size Tolerance:		Roundness Tolerance:	
Bore Length:		Cylindricity Tolerance:	
		Other Bore Form Tolerance(s):	
Process That Made Bore:		Concentricity Tolerance to Feature:	
Heat Treatment Process:		Runout Tolerance to Feature:	
Surface Plating Process:		Perpendicularity Tolerance to Feature:	
Surface Coating Process:		Surface Finish Parameter(s) and Tolerance(s):	
Approximate Part Weight:			
Material:			
Hardness:			
Approximate Part Weight:			

FINISHED BORE INFORMATION			
Diameter Size:		Straightness Tolerance:	
Diameter Size Tolerance:		*Straightness Measurement Instrument / Technique:*	
Bore Diameter Size Measurement Instrument / Technique:		Roundness Tolerance:	
Statistical Process Control:	**Yes or No**	*Roundness Measurement Instrument / Technique:*	
SPC Parameter(s) and Value(s):		Cylindricity Tolerance:	
		Cylindricity Measurement Instrument / Technique:	
		Other Bore Form Tolerance(s):	
List Tolerances that the SPC			
		Concentricity Tolerance to Feature:	
		Runout Tolerance to Feature:	
		Perpendicularity Tolerance to Feature:	
		Crosshatch Angle:	
		Surface Finish Parameter(s) and Tolerance(s):	

PERFORMANCE			
Capacity Need (include units - parts/hr, parts/day, parts/month, parts/year):		Cycle Time Goal:	
Available hours per shift:			
Available shifts per day:			
Available days per month:			
Available days per year:			

MATERIALS **NOT** ALLOWED FOR HONING PROCESS			
Honing Fluid Type:		Honing Stone Bond Type:	
Abrasive Type:		Guide Shoe Material Type:	
Chemical(s):			

CURRENT BORE SIZING AND FINISHING PROCESS INFORMATION			
Current Bore Sizing and Finishing Process Type:			
Brand Name:			
Abrasive Grit Type (if a honing process):			
Abrasive Bond Type (if a honing process):			
Fluid Type; Brand and Name (if a honing process):			
Will the Company send their gage(s) for application trial and Sunnen runoff?	**Yes or No**		

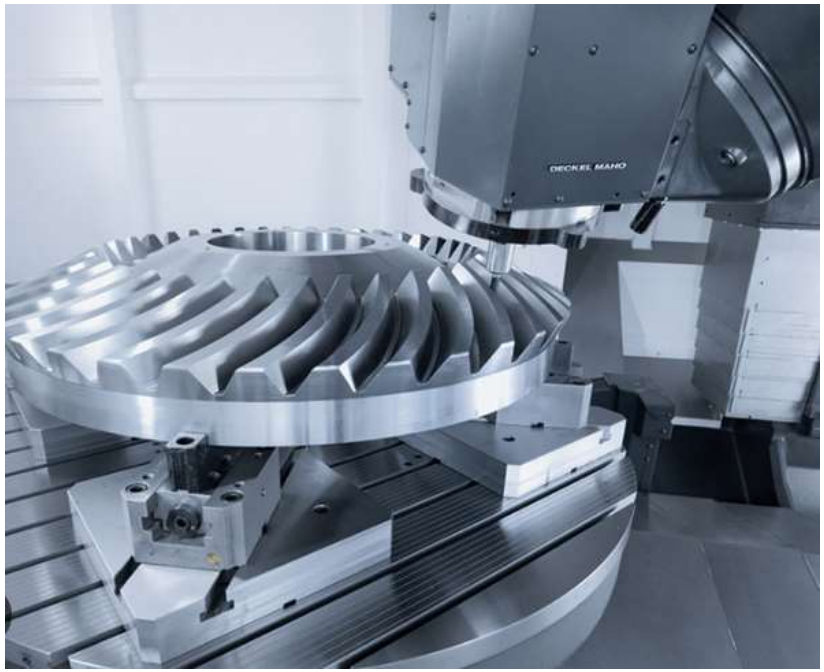
AUTOMATION AND POST GAGING			
Sunnen to Supply Automation:	**Yes or No**	Company Preferred Type of Robot:	
		Company Preferred Robot Brand:	
Sunnen to provide Honing System Automation Ready:	**Yes or No**		
Company Preferred Type of Incoming Part Magazine:			
Company Requirement for Continuous Running Time Unattended:			
How will the parts come to the Honing System:			
Company Preferred Finished Part Exit Method:			
Company Special Part Handling Requirements:			
Sunnen to Supply Post Gaging System:	**Yes or No**		
Post Gaging System to Automatically Compensate Honing Process:	**Yes or No**		
Other:			

Is sales more & more a matter of Mathematics?

Yes, sometimes and depends who you have to deal with

When it is this financial genius that will decide?

Question

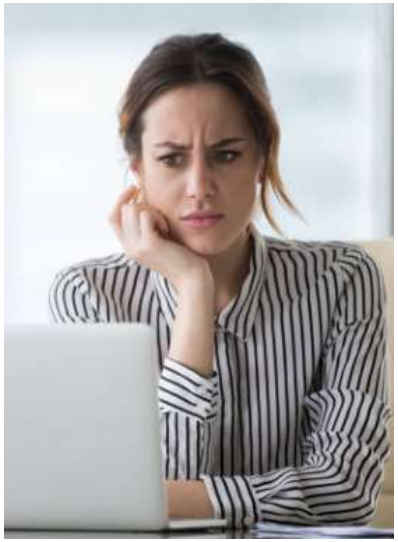


Why is the price so different?

Be prepared because companies are more and more financial driven (Return Of Investment – ROI)

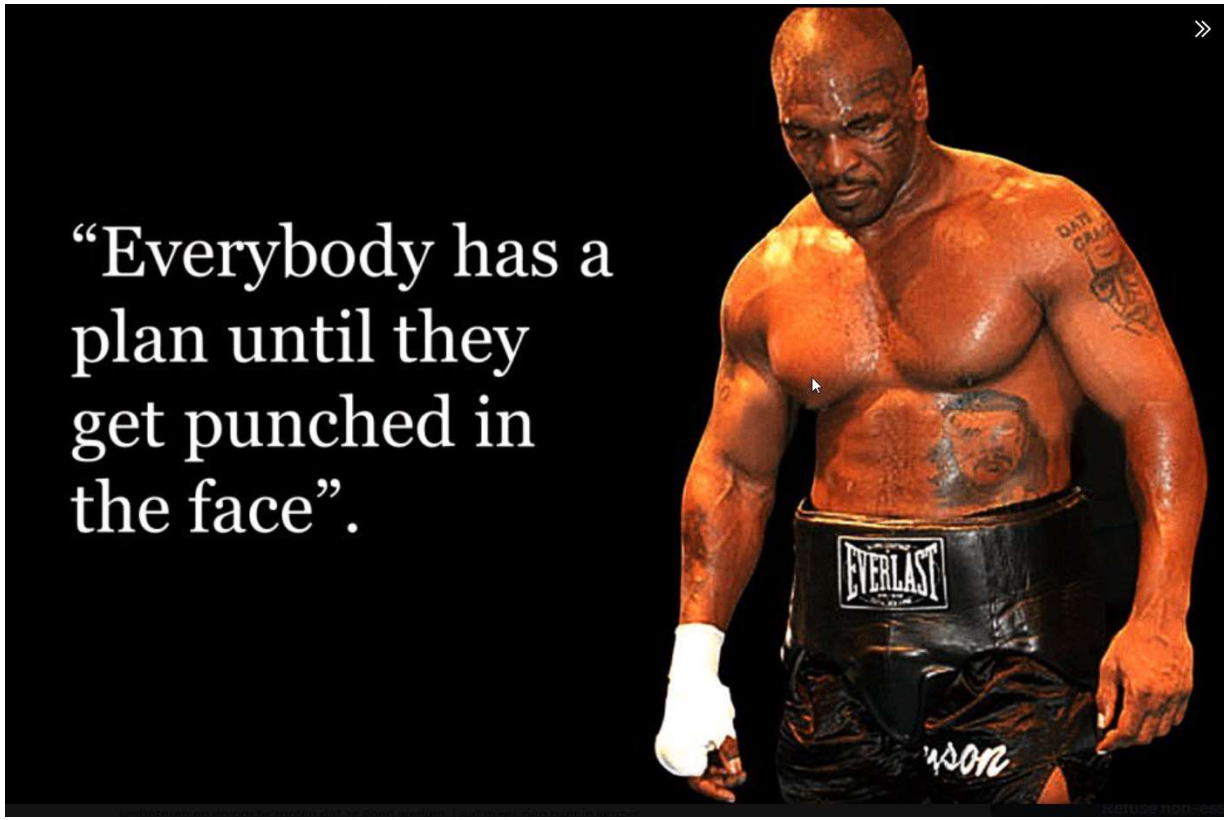
Potentially your competitor is cheaper

Big chance deal will be closed pure on pricing




OOPS!

No panic even the biggest champions loose once!



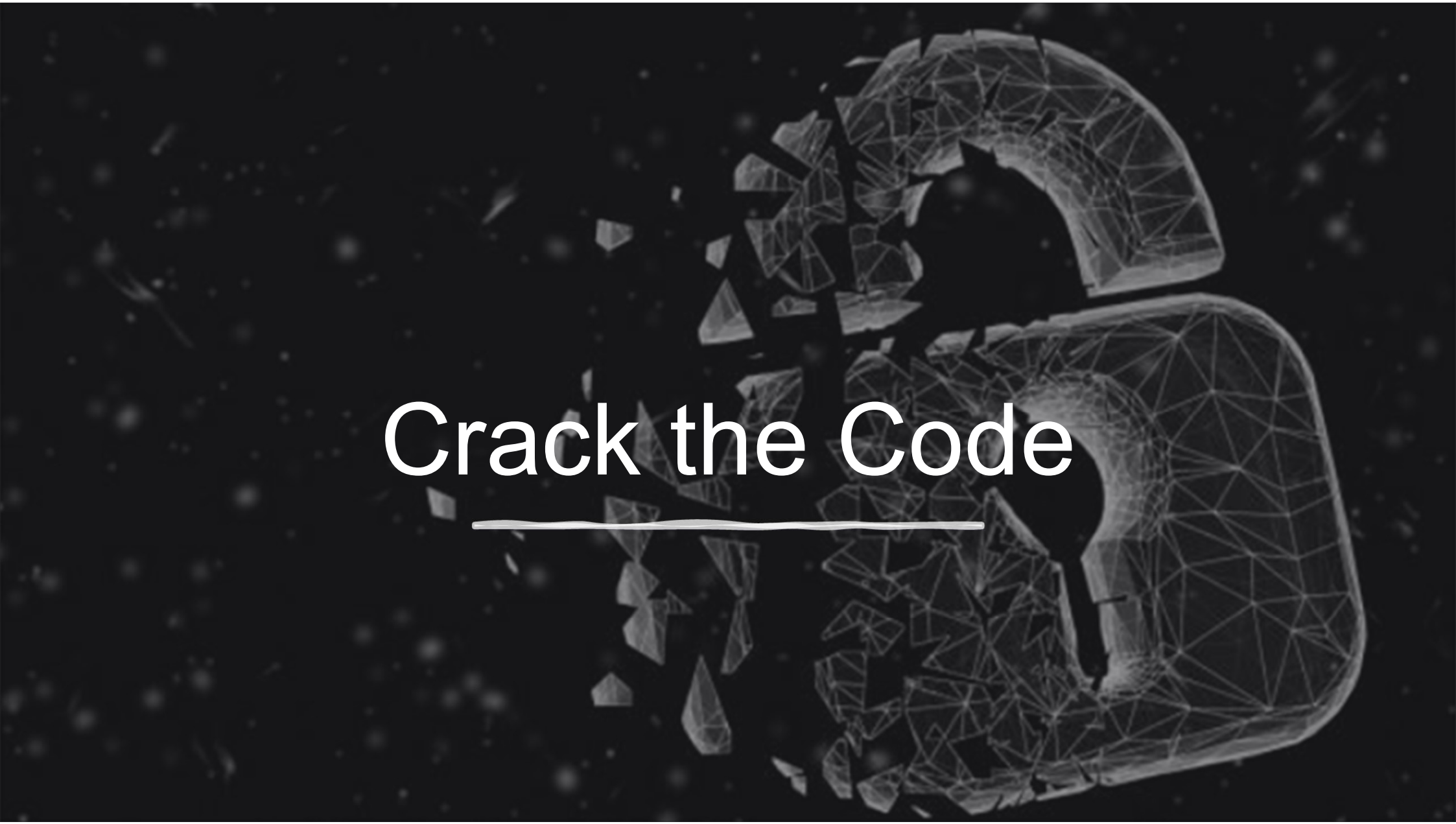
Time for plan “B”

But be careful don’t repeat old methods

Time to

Be the

While talking about a game time for a


Crack the Code

With using Cost, Time & ROI Calculations

Cost Calculations

Case 1 – HES6045 vs Double Loeser system on secondhand lathe frame

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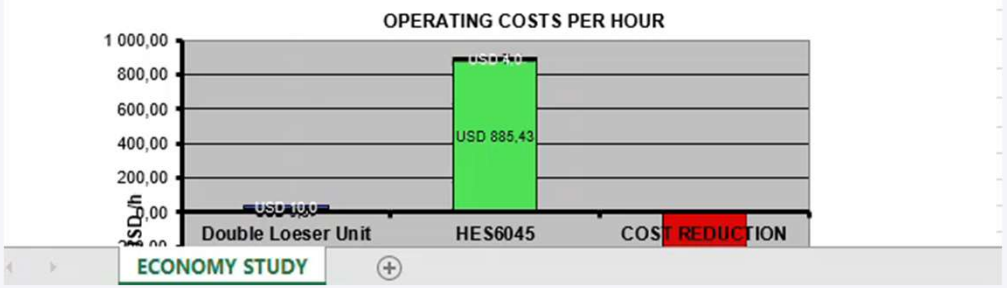
ECONOMY STUDY

PROJECT NAME:	MH_hydraulic	**DATE:**	26.09.2024
PART NAME:	Hydraulic Piston Rod	**PREPARED BY:**	Gunter Peersman

OPERATING COSTS

		Double Loeser Unit		HES6045	
Investment	I	340 000,00	USD	778 000,00	USD
Depreciation time	AD	5	Years	5	Years
Interest rate	Z	3,5	%	3,5	%
Produced parts per year (quantity)	Q	20	parts	20	parts
Operating hours per year	B th	2 000	h/year	2 000	h/year
Required operating hours per year	B	7 495	h/year	191	h/year
Fix costs:					
Depreciation (I / AD)	A	68 000,00	USD/ Year	155 600,00	USD/ Year
Interest to pay / a (I x Z / 100 x 0,5)	ZB	5 950,00	USD/ Year	13 615,00	USD/ Year
TOTAL machine fix costs per year (A + ZB)	M1	73 950,00	USD/ Year	169 215,00	USD/ Year
TOTAL machine fix costs per hour (M1 / B th)	**M2 th**	**36,98**	**USD/ h**	**84,61**	**USD/ h**
TOTAL machine fix costs per required operating hou	**M2**	**9,87**	**USD/ h**	**885,43**	**USD/ h**
Manpower costs:					
Salary costs	L	15,00	USD/ h	15,00	USD/ h
Manpower	MP	100	%	50	%
TOTAL manpower costs (L x MP / 100)	**LG**	**15,00**	**USD/ h**	**7,50**	**USD/ h**
Costs for rent; energy	**P**	**10,00**	**USD/ hour**	**4,00**	**USD/ hour**
TOTAL operating (machine) costs per hour (M2 + LG + P)		**34,87**	**USD/ h**	**896,93**	**USD/ h**
		100	**%**	**2572**	**%**



End

Cost Calculations

Case 2 – HES6045 vs Belt Grinder lathe frame

Info Sander

	Ø	Length	SR	
On a shaft of	200	6000	0,3	636

Stock Removal Volume	566,0377	cm³
SR rate on HES with Hard-Chrome	500	cm³/hour
Honing Time on HES machine Hard-Chrome	1,132075	hour
	67,92453	min

Due Info Erwin

Estimated available work on belt grinding machine	20	hours/week
Working weeks per year	46	
Total working hours per year	920	hours

Experience learn us

	Ø	Length	SR	
On a shaft of	200	6000	0,3	636

Stock Removal Volume	566,0377	cm³
SR rate on belt grinding machine with Hard-Chrome	74	cm³/hour
Grinding Time on Belt Grinding machine Hard-Chrome	7,649159	hour
	458,9495	min

Diamond honing stone		Total volume		Wear Fact	Amount of Stones	Total vol- we can remove	
Height	6,35	10183,5	mm³	350	4	14256,893	cm³
Wide	7,9	10,1835	cm³				
Long	203						

Conventional finish stone							
Height	19,05	73669,21	mm³	25	4	7366,92075	cm³
Wide	19,05	73,66921	cm³				
Long	203						

Pricing Consumables

Ball grinding belt grit 80	16	€/belt	Life Time Ball Grinding Belt	0,05	mm per/belt	or	94,33	cm³	Diamond stones	307	€/st
Ball grinding belt grit 400	12	€/belt							Finishing stones	5,74	€/st
Standard grinding belt 80 grit	6,9	€/belt	Life Time Standard grinding belt 80 grit	0,01	mm per/belt	or	18,86	cm³			
Finish band Scotch Brite	40	€/belt	Life Time Finish belt Scotch Brite	0,03	mm per/belt	or	56,6	cm³			

End

Cost Calculations

Case 3 – Fuchs Ecocut vs MB30 – 5’000-liter tank

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SUNNEN SWISS AUTOMATION

ECONOMY STUDY

PROJECT NAME:	Richter Karhula Oy	**DATE:**	24/01/2020
PART NAME:	Honing Oil	**PREPARED BY:**	Gunter Peersman

OPERATING COSTS

		2 x Fuchs Ecocut HFN 16 LE		Sunnen MB30	
Investment	I	10 296,80	EUR	25 742,00	EUR
Depreciation time	AD	6	Years	6	Years
Interest rate	Z	1,7	%	1,7	%
Produced parts per year (quantity)	Q	2 000	bores	2 000	bores
Operating hours per year	B th	2 000	h/year	2 000	h/year
Required operating hours per year	B	762	h/year	431	h/year
Fix costs:					
Depreciation (I / AD)	A	1 716,13	EUR/ Year	4 290,33	EUR/ Year
Interest to pay / a (I x Z / 100 x 0,5)	ZB	87,52	EUR/ Year	218,81	EUR/ Year
TOTAL oil fix costs per year (A + ZB)	M1	1 803,66	EUR/ Year	4 509,14	EUR/ Year
TOTAL oil fix costs per hour (M1 / B th)	**M2 th**	**0,90**	**EUR/ h**	**2,25**	**EUR/ h**
TOTAL oil fix costs per required operating hour	**M2**	**2,37**	**EUR/ h**	**10,45**	**EUR/ h**
Manpower costs:					
Salary costs	L	60,00	EUR/ h	60,00	EUR/ h
Manpower	MP	100	%	100	%
TOTAL manpower costs (L x MP / 100)	**LG**	**60,00**	**EUR/ h**	**60,00**	**EUR/ h**
Costs for reject	**P**	**0,00**	**EUR/ h**	**0,00**	**EUR/ h**
TOTAL operating (machine) costs per hour (M2 + LG + P)		62,37	EUR/ h	70,45	EUR/ h
		100	**%**	**113**	**%**

End

Cost Calculations

Case 4 – For new machine project SV2410 abrasive cost per part had to match actual cost

Production overview piston pins - modified by Sunnen AG

ODØ	Length ID		Weight	Area	Amount	Tools		Quatity per stone set	Diameter	Length	Strock Rem.	Volume in cm³ & amount of parts	Total volume with GH2581 cm³	Cost price Stone Set	Stone dimension width cm	Stone dimension Heigth cm	Stone dimension Length cm	Total in cm³ per stone	Set of	Total cm³ per set	Ratio	Total volume to remove with one set in cm³	Stone sets per year for XXXX-	Total cost price for XXXX-2 for yearly production	Stock removal rate in cm³/h	Hours needed to produce
72	122	24	3,46	0,035	40			Not passed																		
72	120	25	3,37	0,035	40				25	120	0,6	72	1755,045	1739,7												
72	131	25	3,68	0,038	453				25	131	0,6	890,145														
90	174	25	8,01	0,062	50	MMT - Special GHSS Connection	XXXX-1	783	25	174	0,6	130,5														
90	174	25	8,01	0,062	160				25	174	0,6	417,6														
120	204	25	17,32	0,100	80				25	204	0,6	244,8														
130	147,5	28	68,04	0,247	48			Not passed																		
72	128	28	3,47	0,037	10				28	128	0,6	21,504	15906,9576	1739,7	0,32	0,47	6,7	1,0077	6	6,0461	250	1511,52	10,524	18308,28	80	198,84
65	132	28	2,80	0,034	45	MMT - Special GHSS Connection			28	132	0,6	99,732														
90	154	28	6,94	0,056	89				28	154	0,6	230,2608														
75	128	30	3,73	0,039	167				30	128	0,6	384,768														
90	159,9	30	7,09	0,058	1624				30	159,9	0,6	4674,1968														
100	163	30	9,14	0,067	50	GHSS1190-14280	XXXX-2	4239	30	163	0,6	146,7														
120	206	30	17,14	0,100	421				30	206	0,6	1561,068														
95	194	35	9,32	0,072	56				35	194	0,6	228,144														
120	204	35	16,56	0,100	980				35	204	0,6	4198,32														
125	212	35	18,81	0,108	423				35	212	0,6	1883,196														
150	272	35	35,66	0,164	434				35	272	0,6	2479,008														
90	164	35	9,88	0,059	24			Use GHSS1190-14280																		
									Diameter	Length	Strock Rem.	Volume in cm³ & amount of parts	Total volume with GH2581 cm³	Cost price Stone Set												
98	184	40	9,08	0,072	413		GH2581		40	184	0,6	1823,808	45920,952	1739,7	0,32	0,47	7,6	1,143	6	6,8582	250	1714,56	26,783	46594,28	160	287,01
115	200	40	14,33	0,093	140		GH2581		40	200	0,6	672														
120	210	40	16,56	0,102	40		GH2581		40	210	0,6	201,6														
100	213	40	11,03	0,083	89		GH2581		40	213	0,6	454,968														
120	213	40	16,80	0,103	390		GH2581		40	213	0,6	1993,68														
110	232	40	15,01	0,099	165		GH2581	7589	40	232	0,6	918,72														
150	257	40	33,10	0,156	134		GH2581		40	257	0,6	826,512														
150	257	40	33,10	0,156	4870		GH2581		40	257	0,6	30038,16														
150	282	40	36,32	0,168	1123		GH2581		40	282	0,6	7600,464														
95	208	42	9,31	0,076	25		GH2581		42	208	0,6	131,04														
152	250	42	32,88	0,156	200		GH2581		42	250	0,6	1260														
150	250	44	31,68	0,153	64		GH2582	64	44	250	0,6	422,4	422,4	1739,7	0,32	0,47	7,6	1,143	6	6,8582	250	1714,56	0,2464	428,59	160	2,64
105	203,5	45	11,29	0,084	90		GH2583		45	203,5	0,6	494,505	8535,4506	1739,7	0,32	0,47	7,6	1,143	6	6,8582	250	1714,56	4,9782	8660,60	160	53,347

Sunnen HES – honing time calculator

Operation select from drop down list	Diameter in mm	Length in mm	Stock Removal in mm	Volume in cm³	Honing Time in hours	Honing time in minutes	Time to change part in min	Time to change stones in min
Roughing In mild steel	200	5000	0,4	628,93	0,70	61,93	30	10
Roughing or de-chroming hard chrome	200	5000	0,02	31,45	0,06	3,77	30	10
Hard chrome polishing	200	5000	0,004	6,29	0,04	2,52	30	10
Nickel polishing	360	7200	0,05	203,77	0,82	48,91	30	10
Wolfram Carbide Roughing	360	7200	0,01	40,75	0,16	9,78	30	10
Wolfram Carbide Finishing	200	8000	0,1	251,57	2,10	125,79	30	10
Inconel	150	4500	0,3	318,40	0,64	38,21	30	10
HVOF / Al203-TiO2 Roughing	200	6000	0,15	283,02	0,35	21,23	30	10

Stone life time & cost price per bore

CBN/Diamond stick 6,35 x 6,35 x 203mm

Bore Ø	Bore length in mm	Stock removal in mm	Stock removal in mm³	Abrasive	Amount of stones length	Stone length in mm	Stone width in mm	Stone height in mm	Stone qty. on stone	Total stone volume in mm³	Bores / stone set
200	10000	0,5	1572327,044	CBN/Diamond stick 6,	1	203	6,35	6,35	4	32741,87	9,370723194

Cost per stone set	Cost per bore
1697,8	181,18

Multiply factor	450

Conventional stick / SolGel 19,05 x 19,05 x 203mm

Bore Ø	Bore length in mm	Stock removal in mm	Stock removal in mm³	Abrasive	Amount of stones length	Stone length in mm	Stone width in mm	Stone height in mm	Stone qty. on stone	Total stone volume in mm³	Bores / stone set
200	10000	0,5	1572327,044	Conventional stick / S	1	203	19,05	19,05	4	294676,83	84,33650875

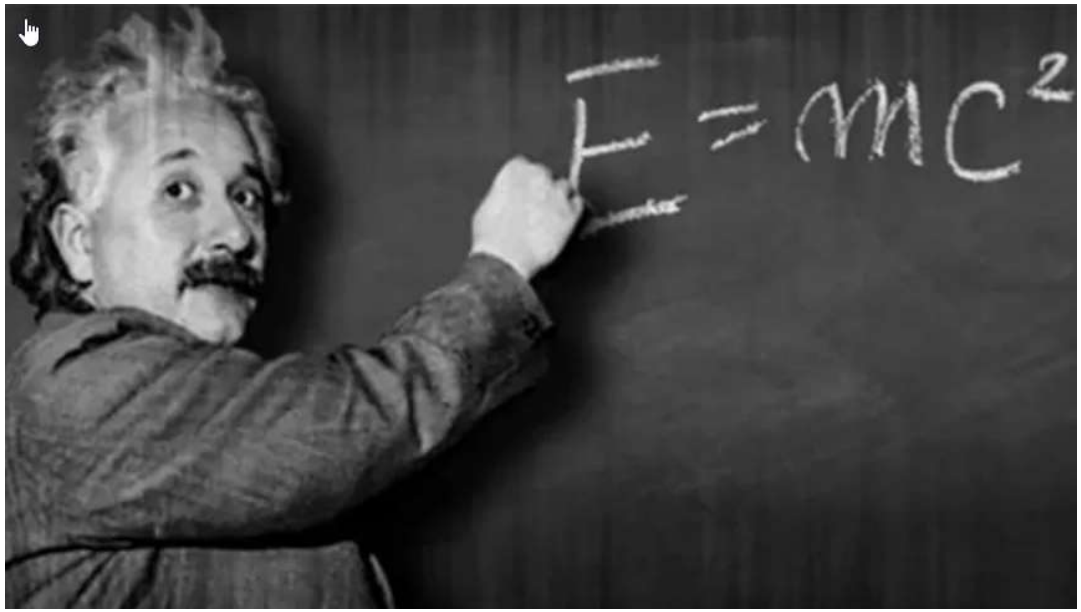
Cost per stone set	Cost per bore
45,72	0,54

Multiply factor	25

636 – the magic number and the formula – Ø x L x stock removal / 636 = cm^3

Knock-outs your competitor – they can’t, and they don’t want to give the cm^3/h stock removal rate and honing time for their machines.

But what if?



You have in front of you a mathematic genius and perhaps he wants to test you….

With the question – where is this 636 coming from?

Explain and impress the customer

$$\frac{3{,}14/4 \times L \times \text{stock removal} \times (\text{start } Ø + \text{final } Ø)}{1'000}$$

$$=$$

$$\frac{\text{start } Ø \times L \times \text{stock removal}}{636}$$

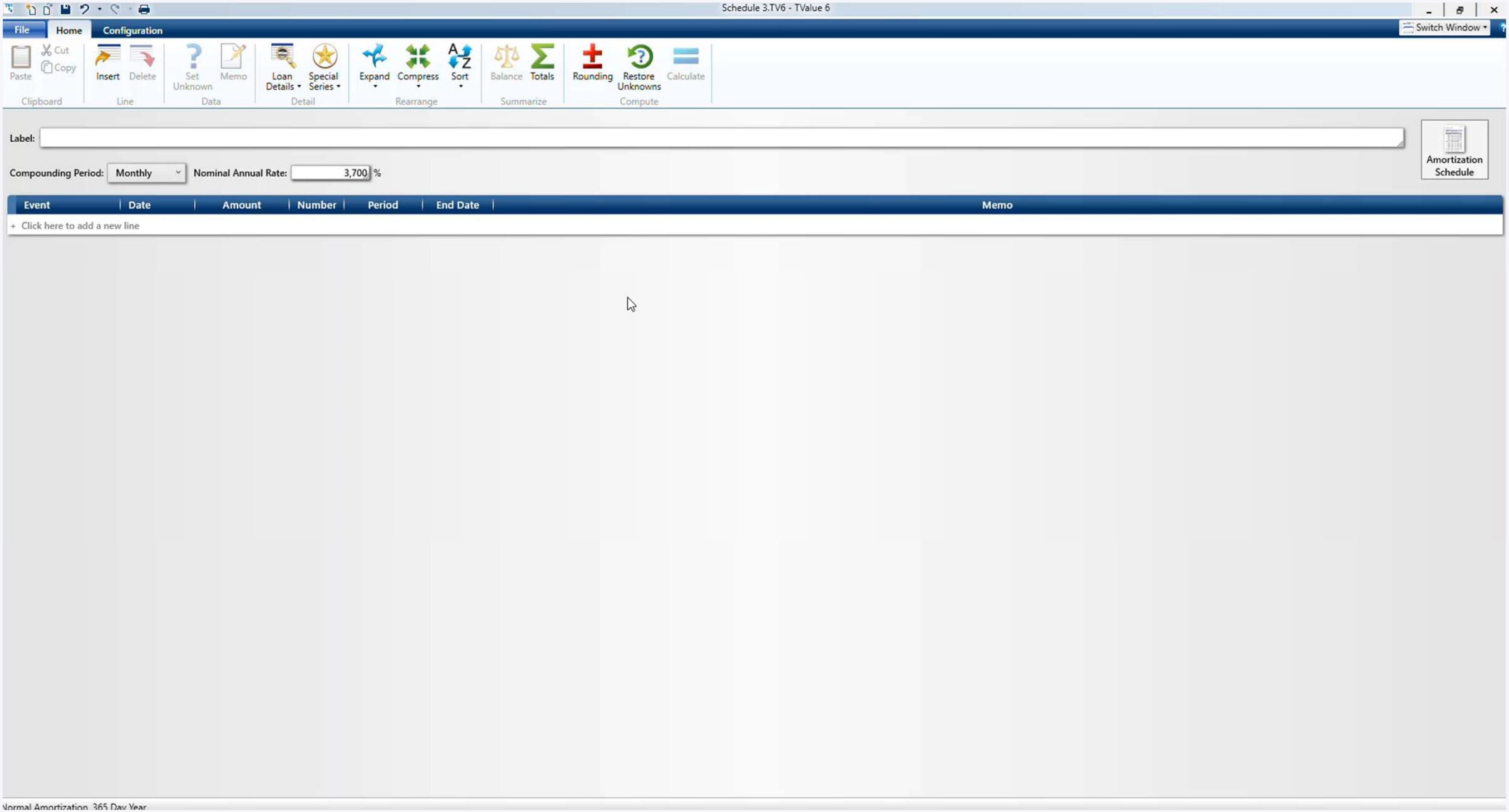
Or 636 replaces 3,14/4 and convert direct mm3 to cm^3

Maybe still after all these calculation the customer doubts for example capital expense

What about a lease?

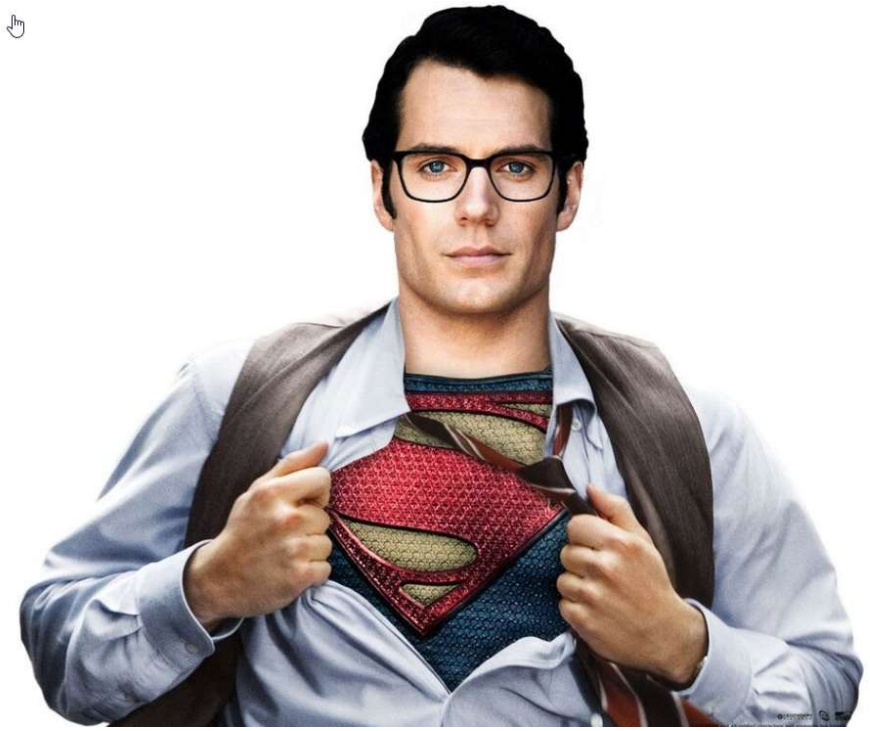
SUNNEN®

TValue 6
amortization software


Schedule 3.TV6 - TValue 6
File
Home
Configuration
Switch Window
Cut
Copy
Paste
Clipboard
Insert
Delete
Line
Set Unknown
Memo
Data
Loan Details
Special Series
Detail
Expand
Compress
Sort
Rearrange
Balance
Totals
Summarize
Rounding
Restore Unknowns
Calculate
Compute
Label:
Amortization Schedule
Compounding Period:
Monthly
Nominal Annual Rate:
3,700
%
Event
Date
Amount
Number
Period
End Date
Memo
Click here to add a new line
Normal Amortization, 365 Day Year

So maybe after you have proved

Customer could start to believe that you are not a regular day to day salesman



And as we have ladies in our team!

Technical 

Return on investment 

Financial 

Result?

Stop with Excuses

Instead of we take the vehicle that leads to perfection

The Red Bull RB19 – 23 from the 24 races in 2023 – a win percentage of 95,45% - the most successful car in the F1 history

SUNNEN

So, keeping develop yourself


Prevent that
Customer say
GO AWAY!

But Impress them and go for the

Because We only want to play in the Champions League

And putting our name on that Cup

But always:

So finally,
time to go to the customers, work with the customer
and stay with the customer because:

THANKS!