

# Overview

## Data Overview

### ORDERDATA

Days

31

Records

295 137<sup>100%</sup>  
connectable to itemmaster

Moved Articles

169<sup>100%</sup>  
connectable to itemmaster

Qty [Pcs]

3 570 419<sup>100%</sup>  
connectable to itemmaster

Orders

75 490<sup>100%</sup>  
connectable to itemmaster

### ITEMMASTER

Records

291

Articles

291

Pickunit
case
layer
pallet
Channel1
Domestic
Export
Channel2
DaySale
DT
Export
Factory
MT drop at DT
NightSale
Channel3
Distributor
DTS
Export
bl.pick_by_weight
No
Yes

Source WH
peak
avg

Assumption

1) We use column 'Sale docs,' as an order

2) we took column ' Blv.qty' as a case pick and we used sku master column case/pallet and layer/pallet to find amount of pallet and layer pick

3) All of outbound transaction can link with sku master file

4) the 2 outbound files, peak and average are different months, so in this dashboard, we recommend to see the result separately, not a combined throughput

5) We added 2 sheets (overview by channel2,overview by channel3) to compare with customer -supporting documents to validate our results

6) Based on SKU master, we can classify picking into 3 groups, pallets, layer and case pick. most picking activities are on pallet and layer

7) We use 18 work hours from 3 shift working from the Additional Inputs sheet of customer's supporting docs

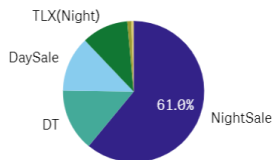
# Overview per day

Overview whole Time Range

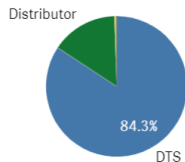
Select:

Order Lines

Channel\_2: Order Lines



Channel\_3: Order Lines



Pick Unit

case

layer

pallet

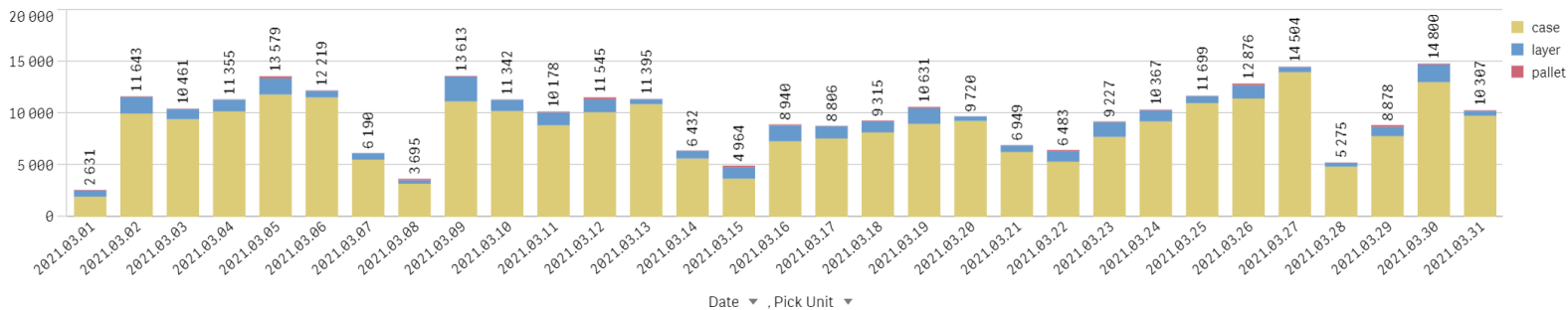
Q bl.source

avg

peak



Order Lines



Overview all time range

UOM	Q	Moved SKUs	Orders	Order Lines	Pick Units	Pieces Equivalent	Cartons Equivalent	Pallets Equivalent
pallet		100	694	2 336	6 929	39 340 370	1 448 934	6 929
layer		157	1 028	31 539	78 247	47 670 351	1 719 168	7 707
case		163	75 399	266 144	402 317	8 765 669	402 317	1 990
Totals		169	75 490	295 137	487 493	95 776 390	3 570 419	16 625

Overview per day

UOM	Q	Moved SKUs	Orders	Order Lines	Pick Units	Pieces Equivalent	Cartons Equivalent	Pallets Equivalent
pallet		20	22	75	224	1 269 044	46 740	224
layer		91	33	1 017	2 524	1 537 753	55 457	249
case		109	2 432	8 585	12 978	282 764	12 978	64
Totals		115	2 435	9 521	15 726	3 089 561	115 175	536

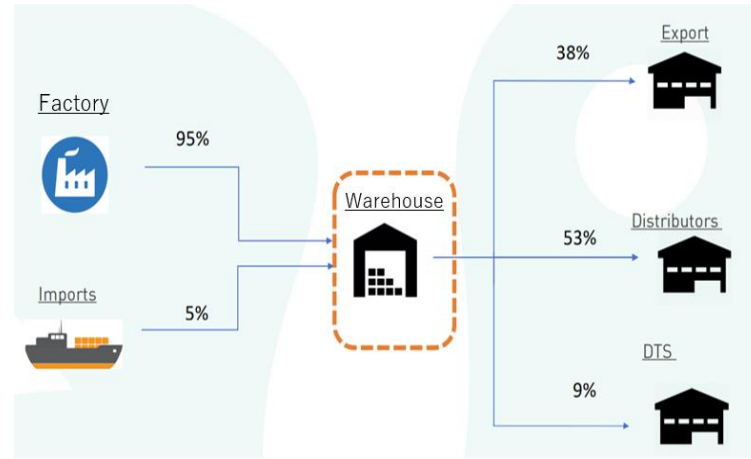
# Comparing case qty with customer docs.

Channel	Jan'21	Feb'21	Mar'21	Apr'21	May'21	Jun'21	Jul'21	Aug'21	Sep'21	Oct'21	Nov'21	Dec'21	Total
DT	1,488,686	1,806,996	2,049,764	1,757,748	1,650,006	1,828,930	1,380,323	1,322,398	1,298,846	1,380,900	1,479,621	1,347,543	18,791,761
Night Sale	177,615	175,297	186,294	227,960	232,208	207,882	196,258	176,204	148,757	165,933	174,786	153,977	2,223,171
Day Sale	38,038	38,799	52,036	53,327	53,660	49,505	41,872	42,656	38,749	39,386	36,196	33,122	517,346
Tesco Express	20,605	21,697	34,250	35,345	33,890	34,297	25,350	25,825	26,407	26,609	27,831	19,475	331,581
Cone+Topping	6,191	6,841	9,627	5,393	3,981	5,669	3,683	2,187	3,946	5,193	4,712	7,340	64,763
Export	952,754	1,025,285	1,398,291	1,036,826	1,151,562	1,280,535	986,847	1,091,544	1,163,123	1,176,893	1,087,237	998,057	13,348,954
Local	1,731,135	2,049,630	2,331,971	2,079,773	1,973,745	2,126,283	1,647,486	1,569,270	1,516,705	1,618,021	1,723,146	1,561,457	21,928,622
Total	2,683,889	3,074,915	3,730,262	3,116,599	3,125,307	3,406,818	2,634,333	2,660,814	2,679,828	2,794,914	2,810,383	2,559,514	35,277,576

## Overview by Channel 2

bl.Channel_2	Moved SKUs	Orders	Order Lines	Pick Units	Pieces Equivalent	Cartons Equivalent	Pallets Equivalent
DaySale	122	8 251	37 334	52 517	1 399 023	55 051	322
DT	127	1 005	42 057	200 466	59 066 255	2 056 691	9 329
Export	101	113	1 539	10 984	30 581 604	1 234 945	5 925
Factory	1	1	1	1	4 968	207	1
MT drop at DT	59	340	2 768	6 084	33 032	6 084	36
NightSale	35	59 802	180 035	182 102	3 944 446	182 102	783
TLX(Night)	55	5 977	31 400	35 328	746 684	35 328	230
Vendor account create for claim purpose	3	1	3	11	378	11	0
Totals	169	75 490	295 137	487 493	95 776 390	3 570 419	16 625

# Comparing case pick with customer supporting document on sheet 'volume Profile'



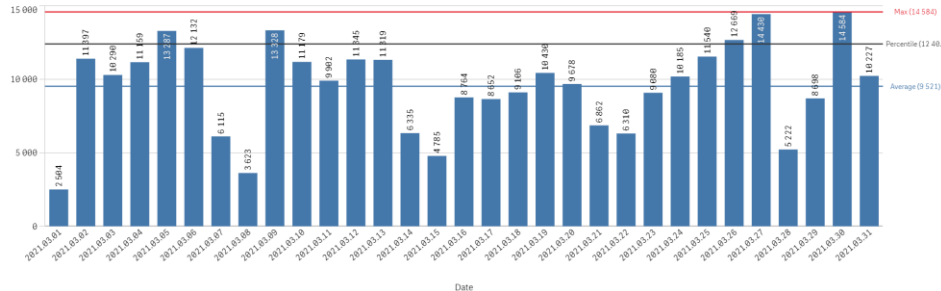
## Overview by Channel 3

bl.Channel_3	Q	Moved SKUs	Orders	Order Lines	Pick Units	Pieces Equivalent	Cartons Equivalent	Layer Equivalent	Pallets Equivalent	Pallets Equivalent %
Distributor		127	1 345	44 825	206 550	59 099 287	2 062 775	94 077	9 365	56.3%
DTS		122	74 030	248 769	269 947	6 090 153	272 481	13 796	1 334	8.0%
Export		101	113	1 539	10 984	30 581 604	1 234 945	60 763	5 925	35.6%
-		4	2	4	12	5 346	218	9	1	0.0%
<b>Totals</b>		<b>169</b>	<b>75 490</b>	<b>295 137</b>	<b>487 493</b>	<b>95 776 390</b>	<b>3 570 419</b>	<b>168 645</b>	<b>16 625</b>	<b>100.0%</b>

# Percentile Order Lines

## All Pick Types

Order Lines



Date

Average

Order Lines

85% Percentile

Max

Daily Values:

9 521

12 401

14 584

Average Hourly Values:

529

689

810



- Hourly Throughput are divided by 3 shifts work hours equivalent to 18 hours
- It is recommended to use high percentile to design since the customer already works for 3 shifts and there is not a big room to extend work hours when encountering peak time

## Case Pick

Order Lines

Average

85% Percentile

Max

Daily Values:

8 585

11 295

13 982

Average Hourly Values:

477

628

777

## Layer Pick

Order Lines

Average

85% Percentile

Max

Daily Values:

1 017

1 530

2 387

Average Hourly Values:

57

85

133

## Pallet Pick

Order Lines

Average

85% Percentile

Max

Daily Values:

75

147

198

Average Hourly Values:

4

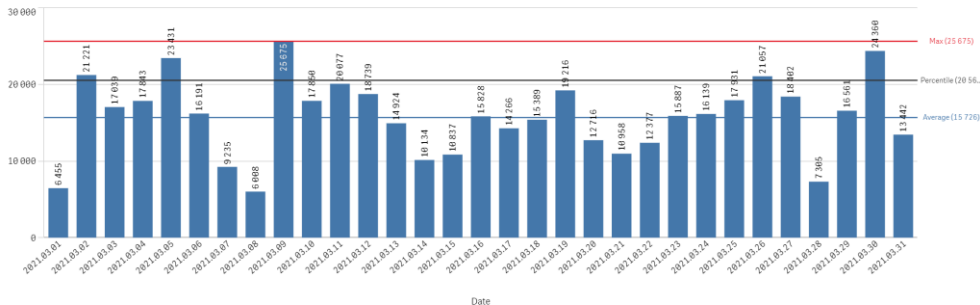
8

11

# Percentile Pick Units

## All Pick Types

Pick Units



	Pick Units		
	Average	85% Percentile	Max
Daily Values:	15 726	20 567	25 675
Average Hourly Values:	874	1 143	1 426

## Case Pick

	Pick Units		
	Average	85% Percentile	Max
Daily Values:	12 978	17 035	19 958
Average Hourly Values:	721	946	1 109

## Layer Pick

	Pick Units		
	Average	85% Percentile	Max
Daily Values:	2 524	3 772	5 645
Average Hourly Values:	140	210	314

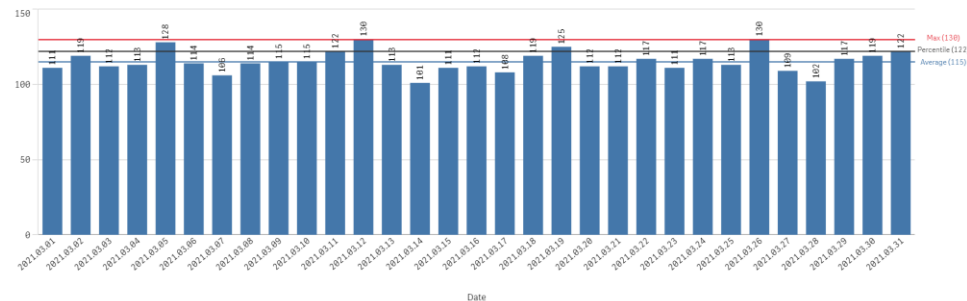
## Pallet Pick

	Pick Units		
	Average	85% Percentile	Max
Daily Values:	224	436	1 120
Average Hourly Values:	12	24	62

# Percentile Moved SKUs

## All Pick Types

Moved SKUs



Moved SKUs			
	Average	85% Percentile	Max
Daily Values:	115	122	130
Average Hourly Values:	6	7	7



\*Hourly Throughput are divided by assumption of 7.5 work hours

## Case Pick

Moved SKUs

	Average	85% Percentile	Max
Daily Values:	109	116	121
Average Hourly Values:	6	6	7

## Layer Pick

Moved SKUs

	Average	85% Percentile	Max
Daily Values:	91	102	111
Average Hourly Values:	5	6	6

## Pallet Pick

Moved SKUs

	Average	85% Percentile	Max
Daily Values:	20	39	47
Average Hourly Values:	1	2	3

# Order Profile- Picks per order

## Order Profile

Select:

bi.source

Pick Units/Order

avg

peak

Binwidth: Pick Units/Order

5

Channel\_3

Channel\_2

Pick Unit

Distributor

DaySale

case

DTS

DT

layer

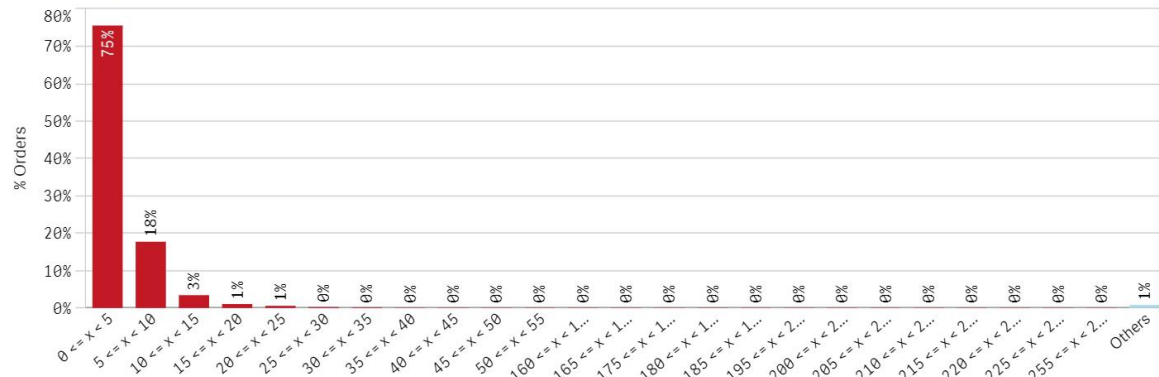
Export

Export

pallet

Pick Units/Order

Pick Units/Order



Percentile

0.50

Min:

1.00

50% Percentile:

2.0

Average:

6.5

Max:

1 524.0





# Order Profile- Pick per order by pick types

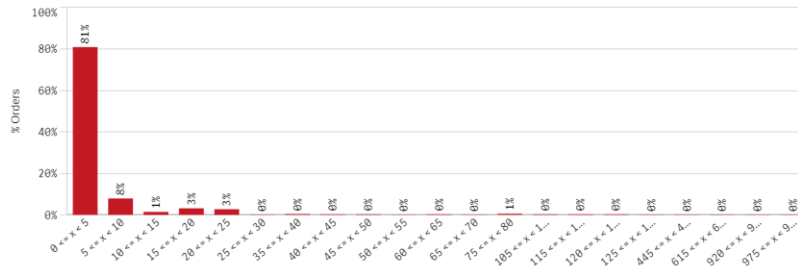
## Pallet Pick

\*Notice an export order number 4519982550 on 2021-03-05 caused the huge amount of pallet picks on that order

## Layer Pick

## Case Pick

Pick Units/Order



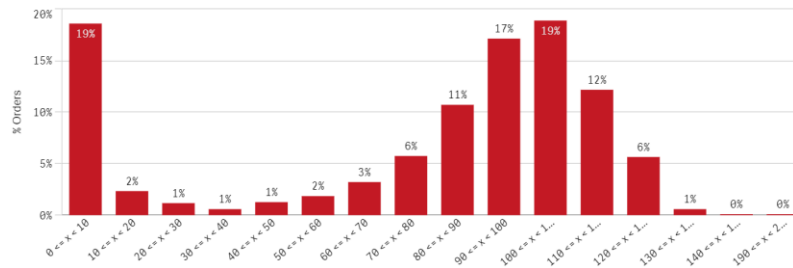
Min:  
1.00

50% Percentile:  
2.0

Average:  
10.0

Max:  
975.0

Pick Units/Order



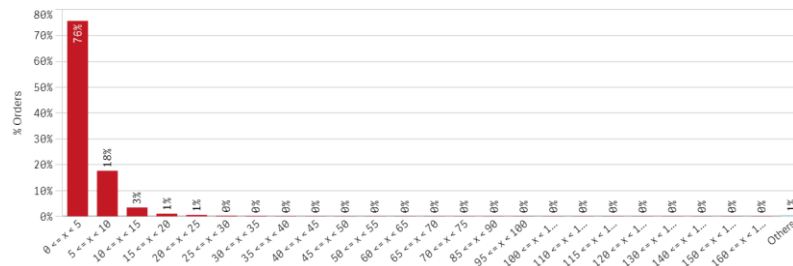
Min:  
1.00

50% Percentile:  
93.0

Average:  
76.1

Max:  
195.0

Pick Units/Order



Min:  
1.00

50% Percentile:  
2.0

Average:  
5.3

Max:  
1179.0

# Order Profile- Line per order

## Order Line Profile

Select:

Pick Units/Order Line

bl.source

avg

peak

Bin width: Pick Units/Order ...

1

Channel\_3

Channel\_2

Pick Unit

Distributor

DaySale

case

DTS

DT

layer

Export

Export

pallet

## Pick Units/Order Line

Percentile

0.50

Min:

1.0

50% Percentile:

1.0

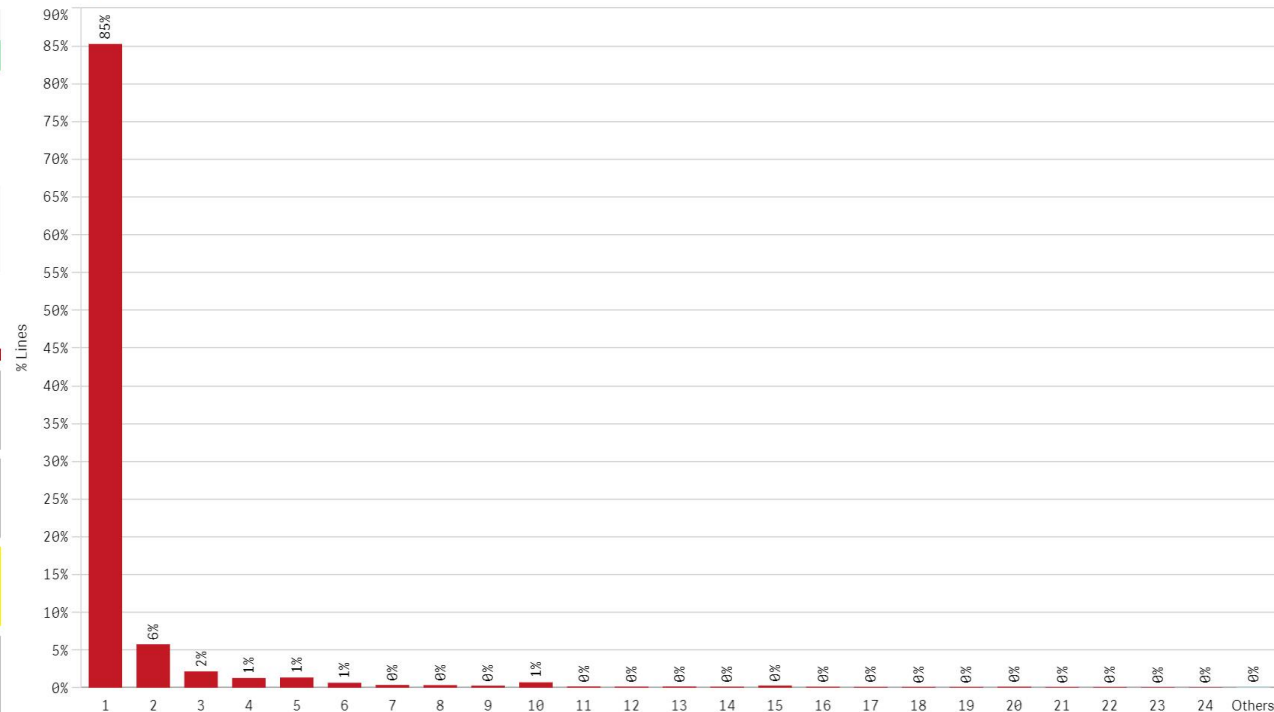
Average:

1.7

Max:

46.0

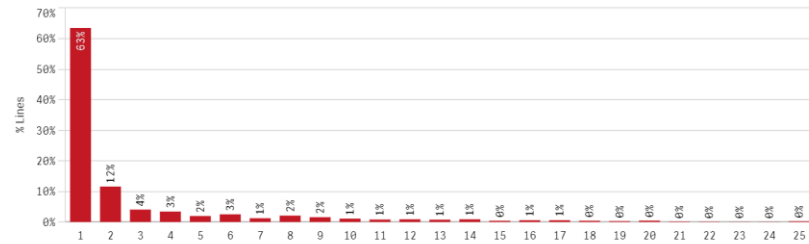
Pick Units/Order Line



# Order Profile- Line per order by pick types

Pallet Pick

Pick Units/Order Line



Min:  
1.0

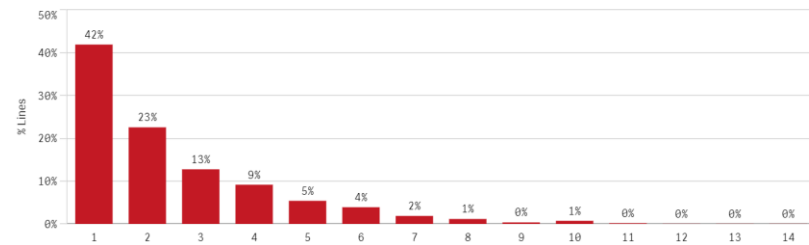
50% Percentile:  
1.0

Average:  
3.0

Max:  
25.0

Layer Pick

Pick Units/Order Line



Min:  
1.0

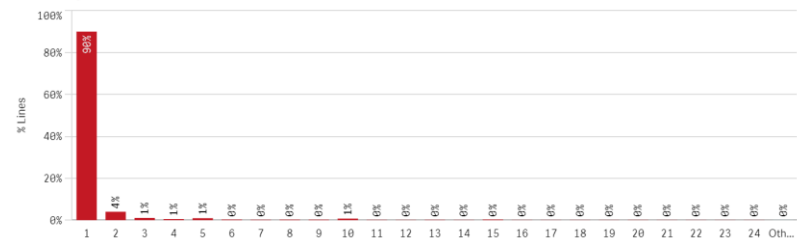
50% Percentile:  
2.0

Average:  
2.5

Max:  
14.0

Case Pick

Pick Units/Order Line



Min:  
1.0

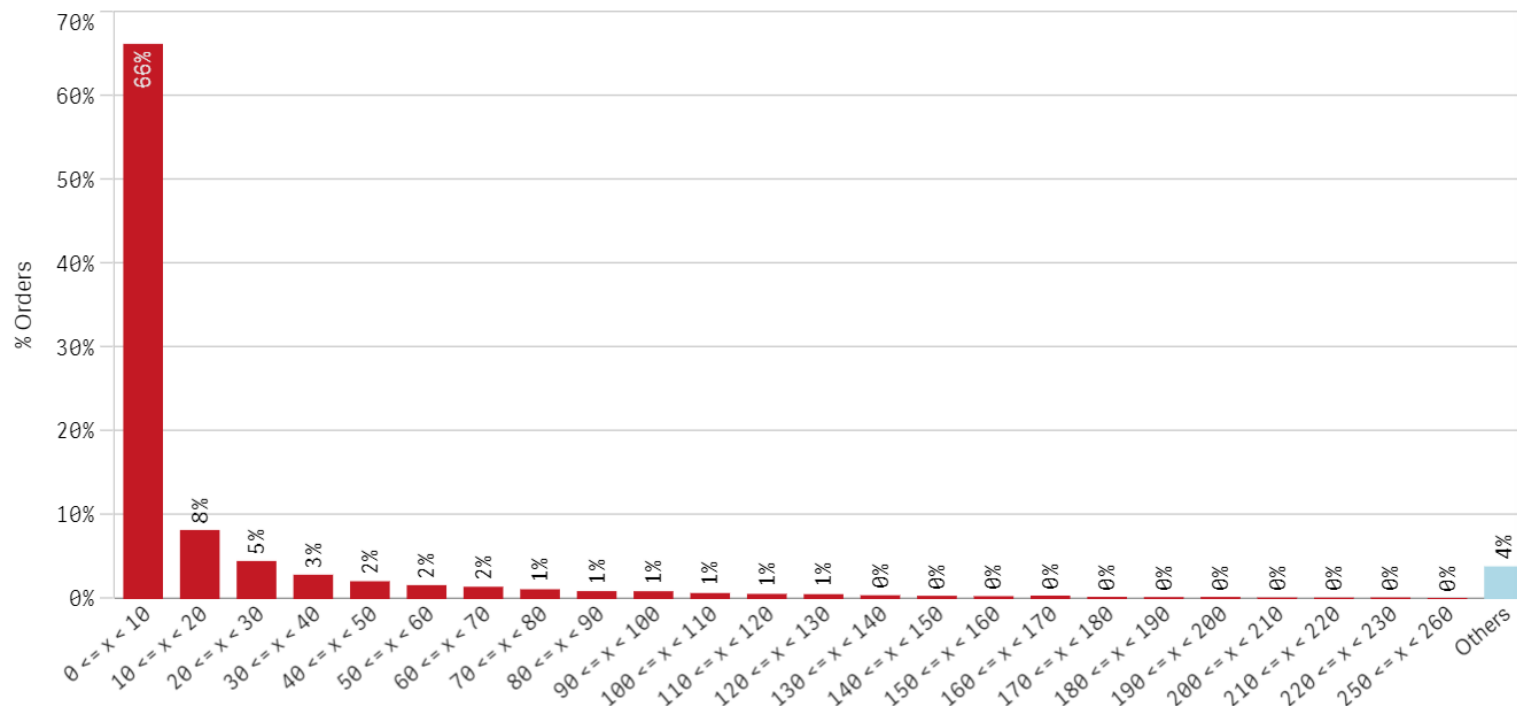
50% Percentile:  
1.0

Average:  
1.5

Max:  
29.0

# Order Profile – Volume (Litres/Order)

Volume/Order [l]



Min:  
1.00

75 Percentile:  
21.2

Average:  
50.7

Max:  
32 885.7

# SKUs – Cases Per Pallet

Cases - Cases per Pallets

**Weighted by:**

SKU master

case

layer

pallet

**Histograms:**

**Binwidth: Pieces per Case**

10

**Statistics:**

**Percentile**

0.6

Min:

60% Percentile:

Average:

Max:

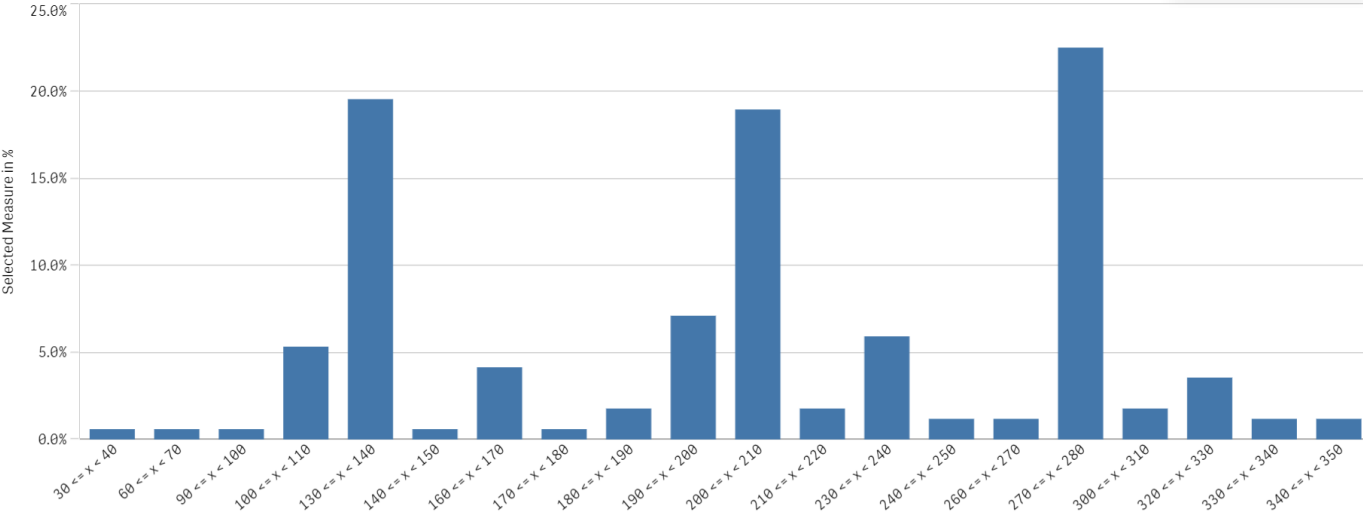
Case per Pallet

30.0

209.8

207.0

348.0



Pieces per Case



# SKUs – Pallets Height

Pallets - Layers

Weighted by:

SKU master

Histograms:

Binwidth: Ti / Hi

4

Binwidth: Pallet Height [cm]

10

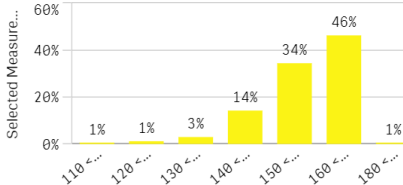
Statistics:

Percentile

0.55

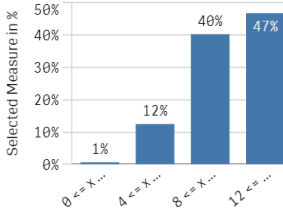
	Cartons / Layer	Layer / Pallet
Min:	6	3
55% Percentile:	23	12
Average:	20	10
Max:	30	15

Pallet Height\*

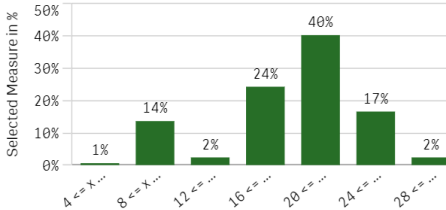


\* Case Height x Hi

Layer per Pallet (Hi)



Cartons per Layer (Ti)



# Current ABC

ABC

Select: ABC Classificat...

Order Lines Order Lines

A: min Order Lines / SKU

2200

B: min Order Lines / SKU

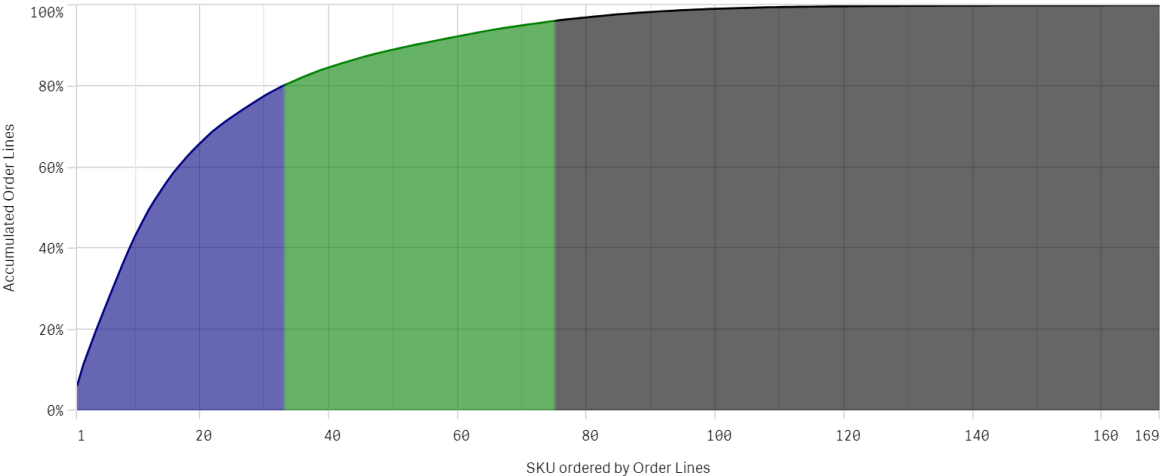
600

Script for Calculation

R Internal

Calculate ABC

ON OFF



Pickunit		
case		
layer		
pallet		
Nr	ItemID	Order Lines
1	67037419	18015
2	67304635	15836
3	68537120	12707
4	67304632	12524
5	68546656	11937
6	68394443	11828
7	67778568	11572
8	67756830	11530
9	67756763	10970
10	68278938	10247
11	67304632	8102

ABC	SKUs	% of total SKUs	% of Order Lines	% of Pick Units	% of Orders	% of Moved Volume
Totals	169	100%	100%	100%	100%	100%
A	33	20%	80%	66%	96%	17%
B	42	25%	16%	25%	19%	18%
C	94	56%	4%	9%	4%	65%

Percentile 0.85

Working Hours 18

Current Day  
Current Design  
Hour

Current Average  
Day  
Current Avg. per  
Hour

Order Lines	Pick Units	Case Equivalent	Pallet Equivalent	Orders	Moved Volume [m³]
12 401 689	20 567 1 143	170 151 9 453	770 43	3 197 178	1 227 69
Order Lines	Pick Units	Case Equivalent	Pallet Equivalent	Orders	Moved Volume [m³]
9 521 529	15 726 874	115 175 6 399	537 30	2 436 136	769 43

# Growth factor 10 years ahead (year on year)

Extrapolation to 2032

Years to Extrapolate

10

Growth Order Lines per Year

Growth Pick Units per Year

0.02

0.02

Growth Orders per Year

Growth SKUs per Year

0.02

0.017



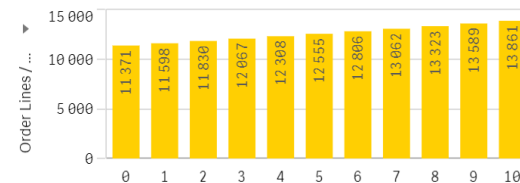
SKU Growth

201

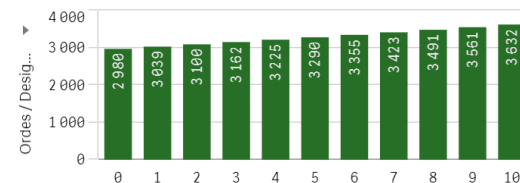
	<u>Order Lines</u>	<u>Pick Units</u>	<u>Orders</u>	<u>Moved Volume [m³]</u>
Design Day	13 862	22 638	3 632	1 078
Design Hour	1 849	3 019	485	144

	<u>Order Lines</u>	<u>Pick Units</u>	<u>Orders</u>	<u>Moved Volume [m³]</u>
Average Day	11 606	19 170	2 969	937
Max. per Hour	1 548	2 556	396	125

Growth Order Lines

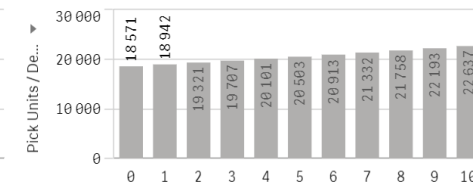


Growth Orders

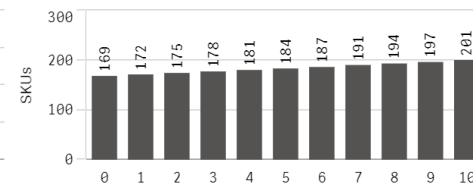


Year	Y2024	Y2025	Y2026	Y2027	Y2028	Y2029	Y2030	Y2031	Y2032	Y2033	Y2034
Count of SKU	279	284	289	294	299	304	309	314	319	324	329

Growth Pick Units



Growth SKUs



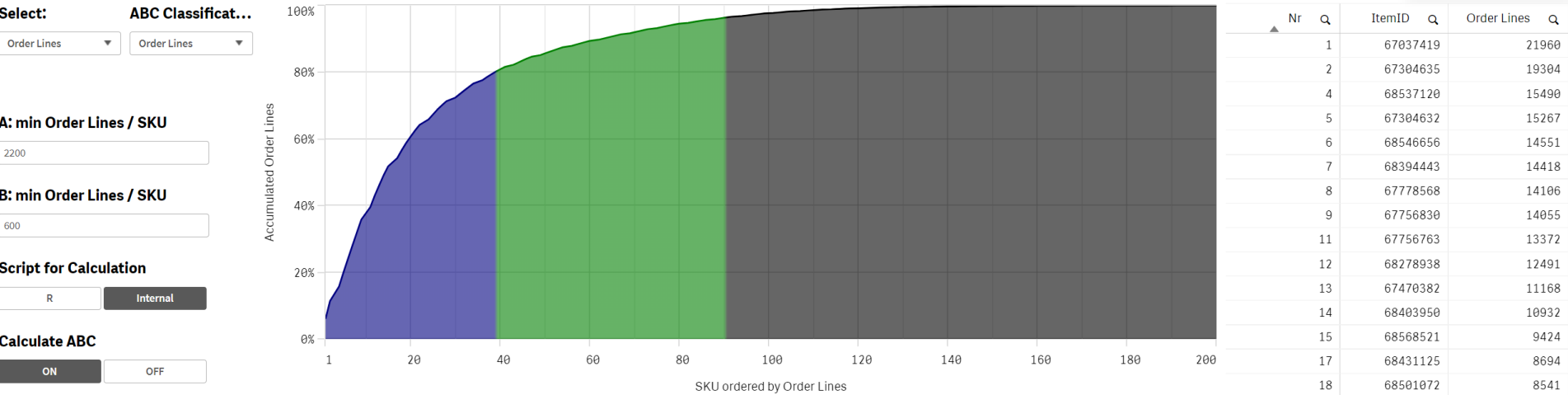
## \*\*\* Remark

We use the growth factor from the customer supporting docs . The total sku growth is 17.9% in Y2032 which can be converted to 1.7% growth year on year for next 10 years. The Order Lines, Order and Pick Unit growth are applied based on supporting docs which is 46% and it's 7.9% year on year. We multiply 2% YoY. Growth on Orders, Order Line and Pick Unit are equal to maintain order structure .



# ABC – Extrapolation Year 2032

ABC - Extrapolated 3rd quartile to 2032



-	Q	SKUs	% of total SKUs	Order...	% of Order Lines	orde...	% of Ord...	PickU...	% of Pick Units	Mvol- Litre...	% of Moved Volu...
E...											
Totals		201	100%	15 117	100%	3 898	100%	25 072	100%	1 496	100%
A		40	20%	12 121	80%	3 722	96%	16 606	66%	258	17%
B		51	25%	2 442	16%	755	19%	6 380	25%	273	18%
C		111	55%	554	4%	168	4%	2 087	8%	965	65%

Working ...

18

Design Day  
Design Hour

Percentile

0.85

Average Day  
Avg. per Hour

Order Lines

15 117

840

Pick Units

25 072

1 393

Case Equivalent

207 413

11 523

Pallet Equivalent

939

52

Orders

3 898

217

Moved Volume [m³]

1 496

84

Order Lines

11 606

645

Pick Units

19 170

1 065

Case Equivalent

140 398

7 800

Pallet Equivalent

655

37

Orders

2 969

165

Moved Volume [m³]

937

53

# Copyright

© 2021 SSI SCHÄFER, all rights reserved

This publication may neither be reproduced, transmitted nor stored in a retrieval system, including but not limited to, written material, printed matter, punch cards, film, microfilm or microfiche, magnetic tapes or discs or any other electronic media form including optically readable tapes or discs, laser discs, and any other form of computer storage, without the prior written consent of SSI SCHAEFER.

Disclosed matters and/or concepts of the present documentation are or will be protected by intellectual property rights.