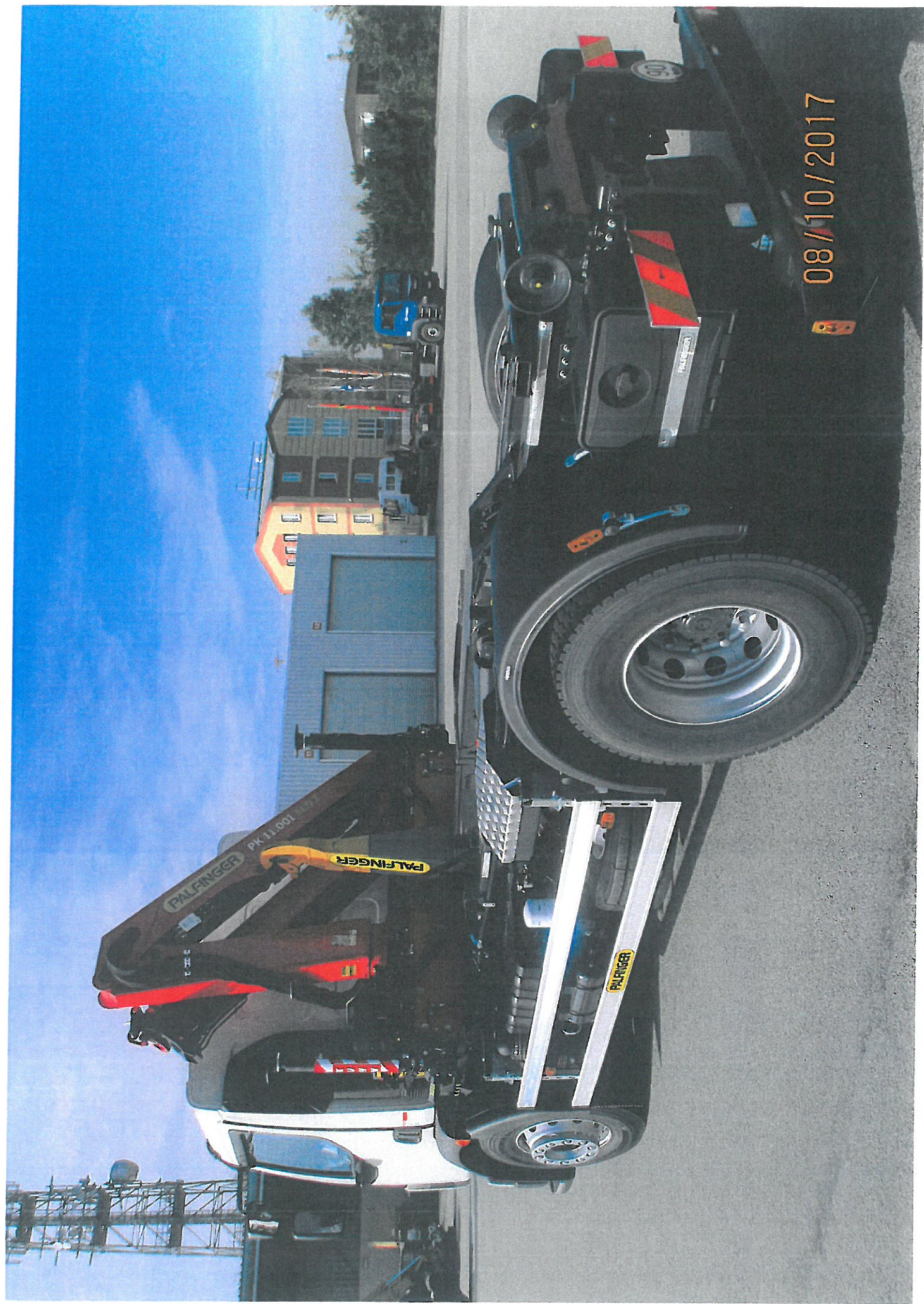


08/10/2017









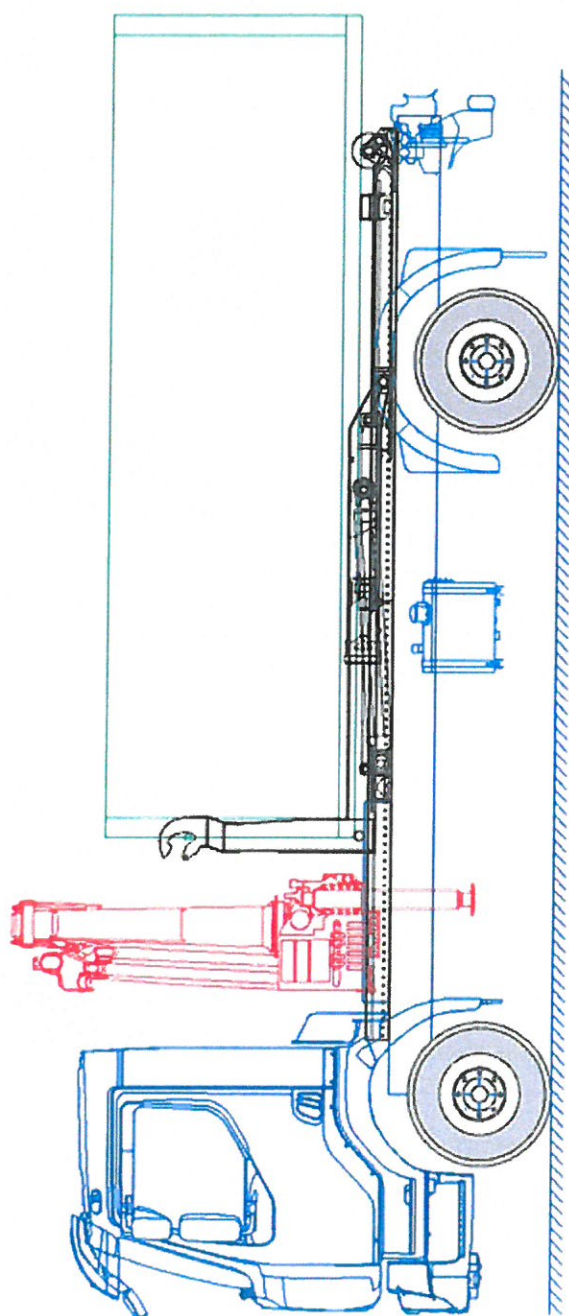






**PALFINGER**

# PROJECT N109-19



## CUSTOMER



Město České Velenice

## CONTACT PERSON



<https://www.velenice.cz/>

## DEALER



Volvo Trucks

## CUSTOMER ADVISER



## PERSON IN CHARGE

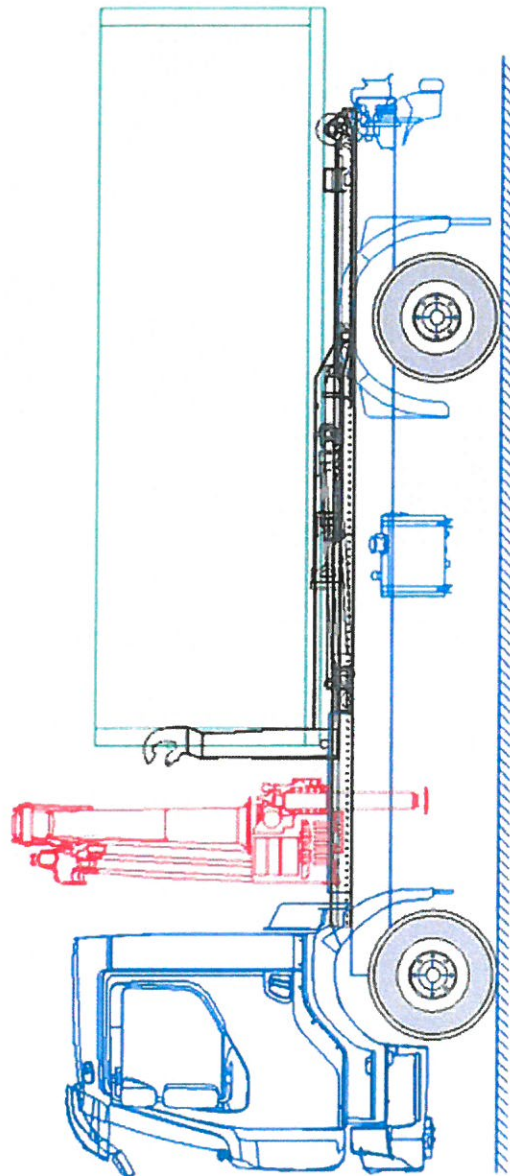
Kuhn-mt.cz  
Okružní ul. 673  
370 01 České Budějovice  
370 01 Ceske Budejovice CZ

## CONTACT PERSON

David Sokolík



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<https://kuhn-mt.cz/>



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14. Kinematics Calculation Hookloader

License:  
CZKUHN-02657H034



Version:  
2017.1.6491.18070

The calculation results are created with the software tool PACWIN.NET. Weights and dimensions are based on the standard chassis equipment or mentioned otherwise. Additional weights due to special equipment must be added to the calculated axle loads.

Before starting with the bodybuilding the chassis has to be weighed, the frame height has to be checked and compared with the result of the calculation. In case of deviations the calculation and position of the equipment has to be corrected.

It is not possible to consider all influences for the stability calculation. It is necessary to carry out required inspections and tests under the relevant laws in the place of registration! The calculation results are additional information only and can not replace such inspections and tests.

The calculation results are non-binding guide values. Changes and variations in production are possible and permissible. Palfinger does not accept any liability or warranty for the correctness and validity of the calculation results.

Výsledky výpočtu jsou vytvořeny softwarovým nástrojem PACWIN.NET. Váhy a rozměry jsou uvedeny na základě standardního vybavení šasi nebo převzatý z jiných zdrojů.

Hmotnosti dodatečného vybavení musí být přidány k výpočtenému zařízením náprav.

Před započatím montáže musí být šasi zvaženo, ověřena výška rámu a vše porovnáno s výsledky výpočtu. Výpočet a umístění vybavení musí být opraveny při odchylkách

**PALFINGER**

## PROJECT INFORMATION AND INDEX

### PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 616A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base (mm):	4.400
Permissible axle load [kg]:	5.800 / 10.900
Load Max [kg]:	16.000
Payload [kg]:	7.728
Crane:	PK12502-SH_B (s106-akd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08 CZ - 4.350

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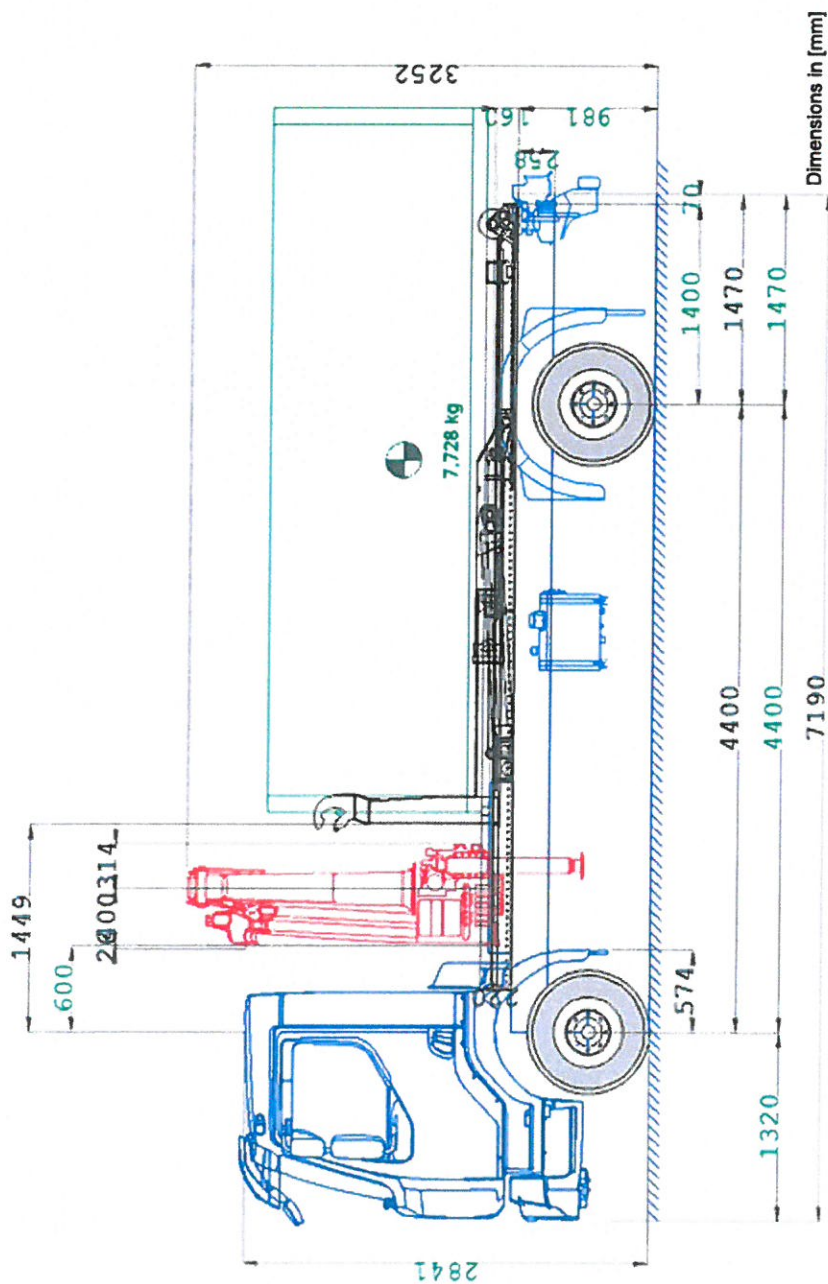


# INSTALLATION DRAWING

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

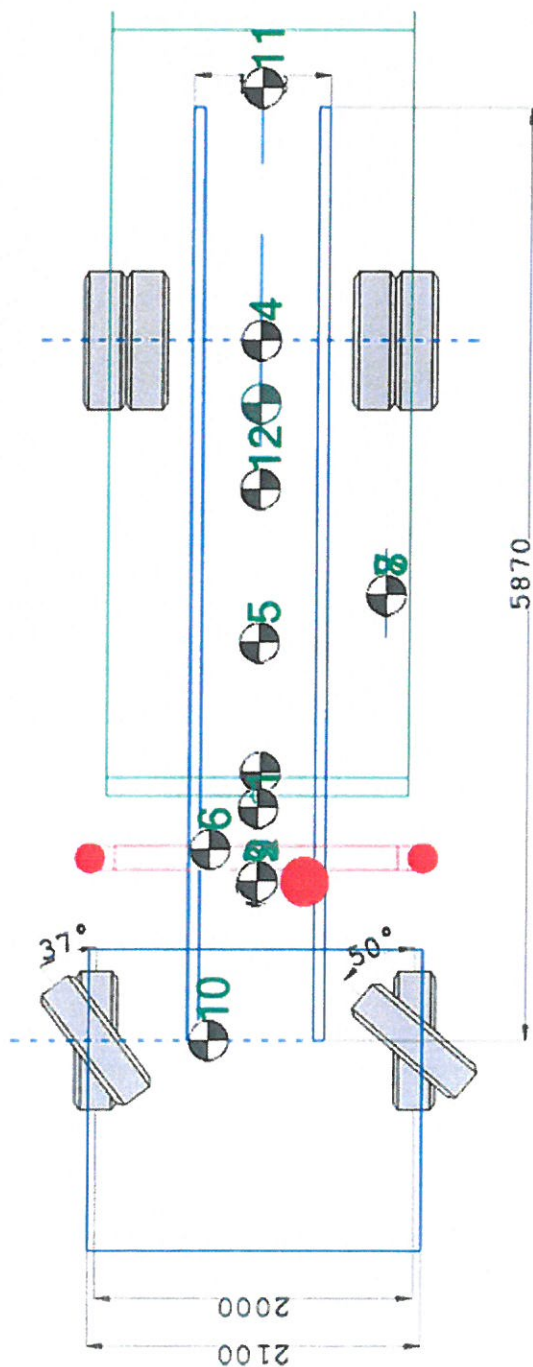
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## Project Information:

Firma KUHN-MT si vyhrazuje právo na změny ve výpočtu.

**TOP VIEW**



Dimensions in [mm]

**Legend:**

- |   |   |
|---|---|
| 1 Volvo FL Version 3 42 R 816A 4,883 kg | 9 platie 120 kg                         |
| 2 Subframe 150 kg                       | 10 spolejzdec 90 kg                     |
| 3 PK12502-SH_B 1,565 kg                 | 11 podjezdová ochrana + závās čep 50 kg |
| 4 blatnky zadní náprava 23 kg           | 12 T08 1,151 kg                         |
| 5 boční zábrany 40 kg                   |   |
| 6 čerpadlo 12 kg                        |   |
| 7 nádrž 140L 81 kg                      |   |
| 8 olej 107 kg                           |   |

**Subframe:**

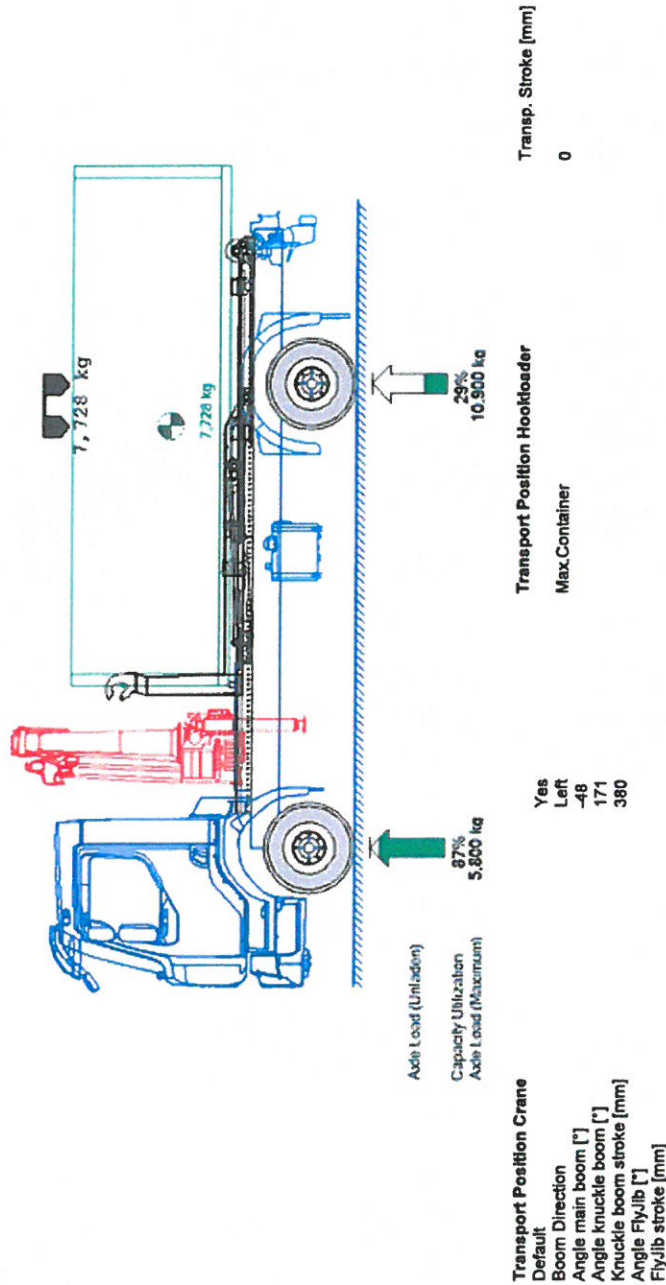
Distance mid of front axle to beginning of subframe: 550mm  
Length: 1,200mm

**PROJECT DATA**

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A
	4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd)
	R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350



# AXLE- & PAYLOAD CALCULATION - GRAPHIC



Result	Weight [kg]	Location [mm]	Front axle [kg]	Rear axle [kg]
Min.Container (3500)	8,272	1,687	62% 5,101	3,171
Payload	3,082	3,402	699	2,383
Payload Loss	4,646	3,402	1,054	3,592
Max.Container (4700)	11,354	2,152	51% 5,800	5,554
Payload	7,728	4,002	699	7,029
Payload Loss	16,000	2,805	36% 5,800	10,200
Recommended COG Payload: 4,002 - 4,401	16,000	-7	36% 5,800	10,900

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A
Cab:	4x2 Euro 6
Wheel Base [mm]:	CAB-DAY (FL)
Permissible axle load [kg]:	4,400
Load Max [kg]:	5,800 / 10,900
Payload [kg]:	16,000
Crane:	7,728
Additional Stabilizer:	PK12502-SH_B (s106-skd)
Container Handling System:	R3X HPSC STZY
Container Handling System:	T08_CZ - 4,350



Name	Weight [kg]	Location [mm]			Front axle [kg]	Rear Axle [kg]	Relevance
		X	Y	Z			
Volvo FL Version 3 42 R 816A	4,883	1,481	0	799	3,282	1,621	*
Subframe	150	1,000	0	1,061	116	34	*
PK12502-SH_B - Mounting Parts	0	1,000	0	1,141	0	0	*
PK12502-SH_B - Static Parts	821	1,084	-112	1,472	619	202	*
PK12502-SH_B - Dynamic Parts	744	846	143	2,230	601	143	*
blatníky zadní náprava	23	4,400	0	1,100	0	23	*
boční zábrany	40	2,500	0	650	17	23	*
čerpadlo	12	1,200	300	700	9	3	*
nádrž 140L	81	2,800	-800	800	29	52	*
olej	107	2,800	-800	800	39	68	A
platě	120	1,000	0	981	93	27	*
podjezdová ochrana + závěs čep	90	0	300	2,000	90	0	A
T08 - Mounting Parts	50	5,990	0	400	-18	68	*
T08 - Hookloader	40	3,440	0	981	9	31	*
	1,111	3,487	0	982	235	876	*
Axle Load (Unladen)	8,272	1,687	-13	1,038	62% 5,101	3,171	
Min.Container (3500)							
Payload	3,082	3,402	0	1,768	699	2,383	
Payload Loss	4,646	3,402	0	1,768	1,054	3,592	
Axle Load (Laden)	11,354	2,152	-9	1,236	51% 5,800	5,554	
Max.Container (4700)							
Payload	7,728	4,002	0	1,768	699	7,029	
Payload Loss							
Axle Load (Laden)	16,000	2,805	-7	1,390	36% 5,800	10,200	
Axle Load (Maximum)	16,000				36% 5,800	10,900	
Recommended COG Payload: 4,002 - 4,401							



# AXLE- & PAYLOAD CALCULATION - DETAIL

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A
	4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s108-akd)
	R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

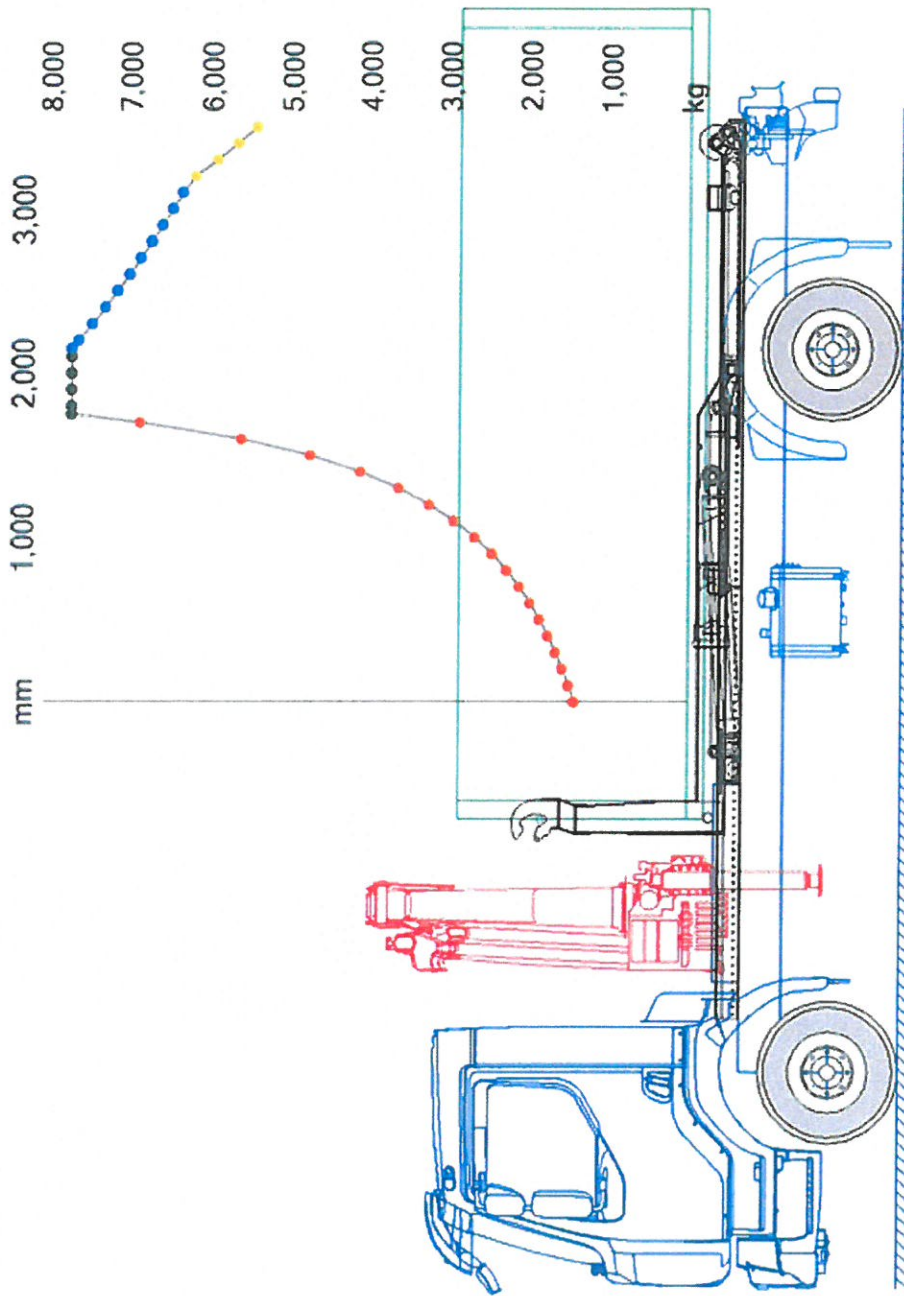


# LOAD DISTRIBUTION CHART

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (\$106-akd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

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Full payload: 7,728 [kg]  
Recommended COG Payload: 2,351 - 2,700 [mm]

Min. Front Axle Load  
Percentage of total weight: 25%

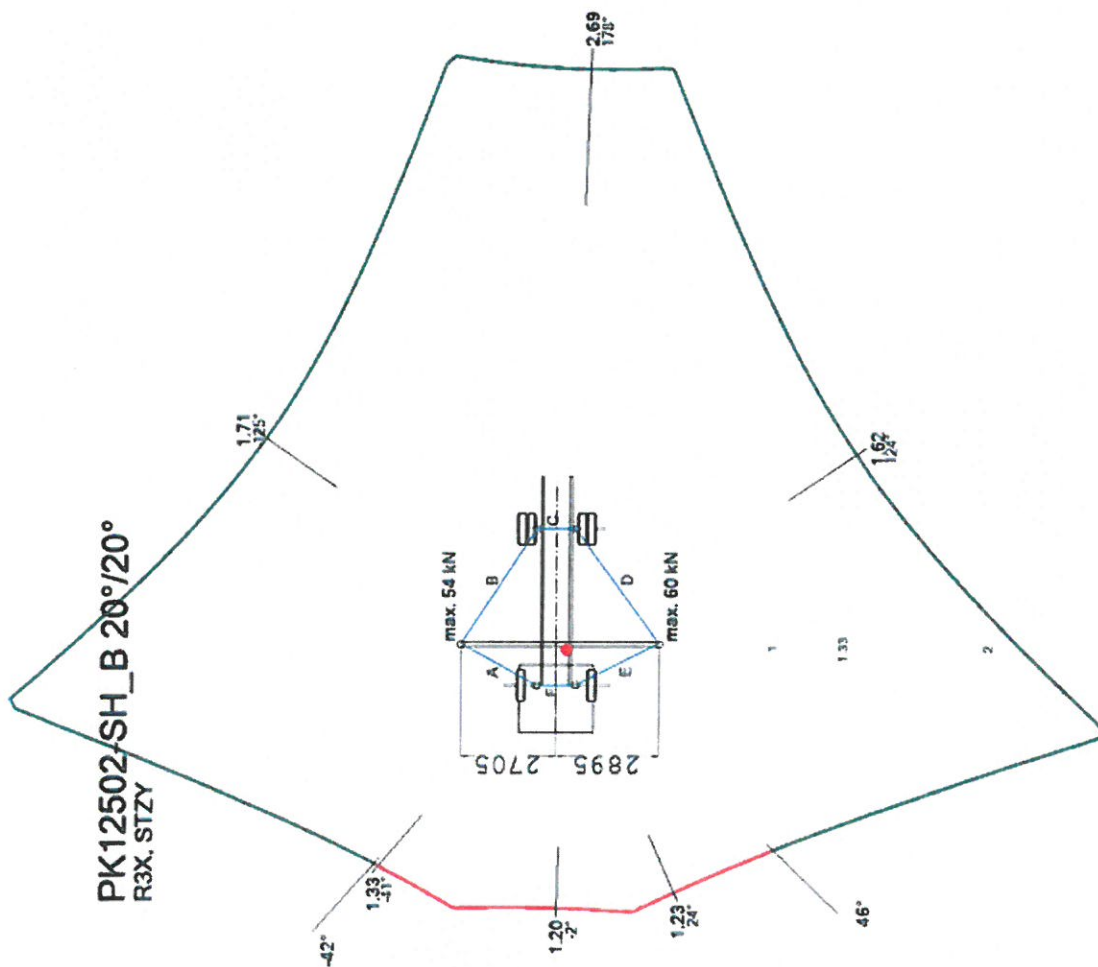


# STABILITY CALCULATION CRANE - GRAPHIC

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base (mm):	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

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**Result**  
A: 1.33  
B: 1.71  
C: 2.69  
D: 1.62  
E: 1.23  
F: 1.20



TL	MS [mt]	MT [mt]	D-TR [mm]	D-LC [mm]	W-CI [kg]	D-CWI [mm]	W-CO [kg]	D-CWO [mm]	F
A	13.69	10.30	1,908	8,235	1,051	1,208	514	3,538	1.33
B	14.73	8.60	1,868	7,124	1,177	2,188	388	3,254	1.71
C	20.12	7.47	2,536	6,311	1,242	2,905	323	2,997	2.69
D	14.79	9.16	1,922	7,519	1,177	1,935	388	3,650	1.62
E	13.52	10.96	1,912	8,703	1,051	1,022	514	3,895	1.23
F	13.16	10.97	1,864	8,711	1,051	977	514	3,903	1.20

Weight Carrier [kg] = 6,510

Legend		Crane Position	
TL.....	Tipping Line	Lifting capacity	
MS.....	Stability moment	Angle main boom [°]	20
MT.....	Tipping moment	Angle knuckle boom [°]	20
D-TR.....	Distance cog. carrier to tipping line	Knuckle boom stroke [mm]	5,850
D-LC.....	Distance load to tipping line	Angle FlyJib [°]	-
W-CI.....	Crane mass inside tipping line	FlyJib stroke [mm]	-
D-CWI.....	Distance cog. crane mass inside to tipping line	Manual Extensions	0
W-CO.....	Crane mass outside tipping line	Lifting capacity [kg]	1,030
D-CWO...	Distance cog. crane mass outside to tipping line	Lifting capacity outreach [mm]	9,708
F.....	Stab. Factor		

Stabilizer	Stabilizer Spread [mm]		Mounting Point [mm]		
	Left	Right	X	Y	Z
R3X.0	2,895	2,705	1,150	0	1,141

Tipping Line		Distance from front axle	
Width		Distance from front axle	
Front Axle	1,100	0	
Rear Axle	1,100	4,400	



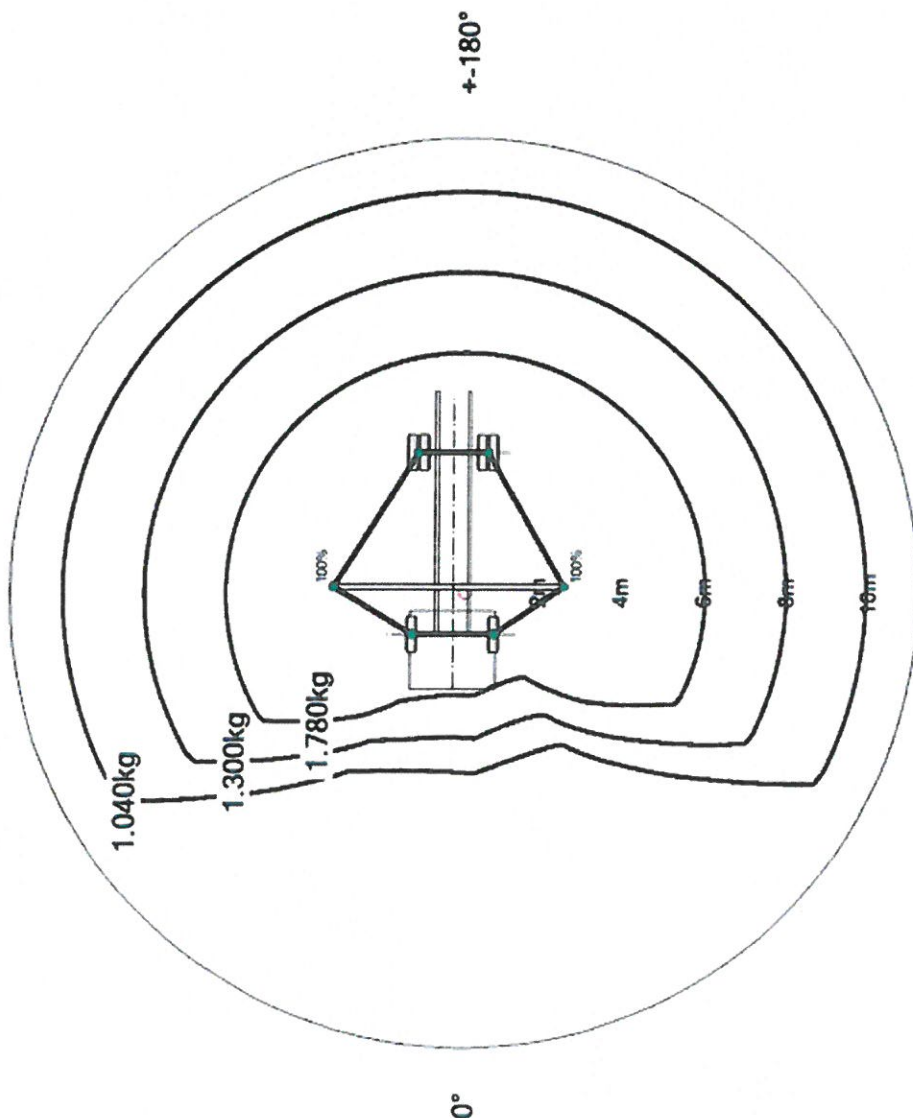
## STABILITY CALCULATION CRANE - DETAIL

### PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A
	4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd)
	R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350



-90°



0°

±-180°

90°

It is not possible to consider all influences for the stability calculation. The calculated lifting values are approximate only and may differ significantly to the actual vehicle.

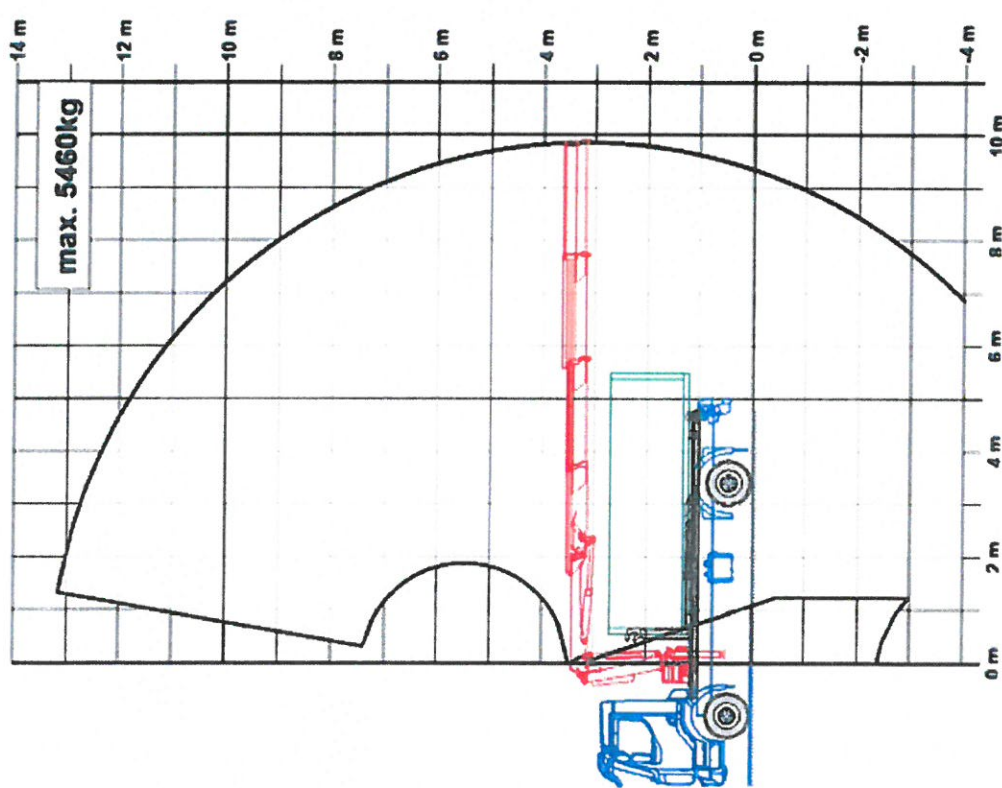
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## HPSC - HIGH PERFORMANCE STABILITY CONTROL

### PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base (mm):	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350





Crane Configuration	
Angle main boom [°]	0
Angle knuckle boom [°]	0
Knuckle boom stroke [mm]	5,850
Angle FlyJib [°]	0
FlyJib stroke [mm]	1,141
Manual Extensions	
Mounting Height [mm]	

Crane performance	
Outreach [mm]	9,860
Lifting Height [mm]	3,155
Lifting Capacity [kg]	978
Working Pressure [%]	100



# LIFTING CAPACITY ANALYSIS CRANE

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (s106-skd) RX HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350



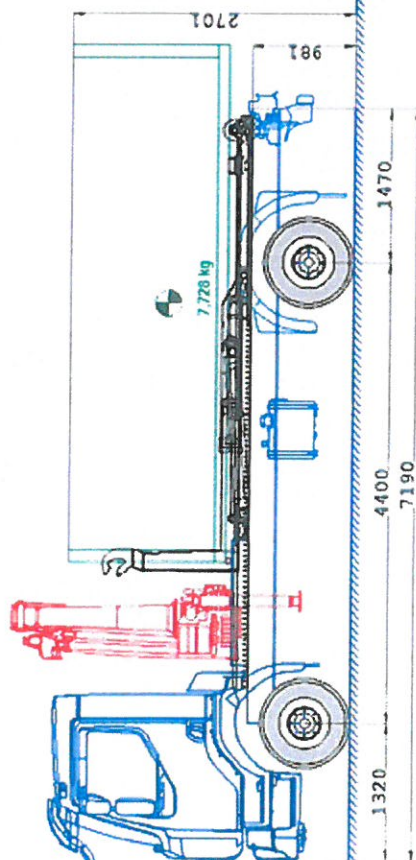


## WORKING POSITION HOOKLOADER

### PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
Payload [kg]:	7,728
Crane:	PK12502-SH_B (\$106-skd) R3X HPSC STZY
Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

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Dimensions in [mm]

Container Type / Name	Max.Container	Horizontal Jib angle [°]
Container inner length	4,700	Loading Angle [°]
Board Height [mm]	1,400	Tipping Angle [°]
Working type	Loading	Jib Stroke [mm]
		Sliding Stroke [mm]

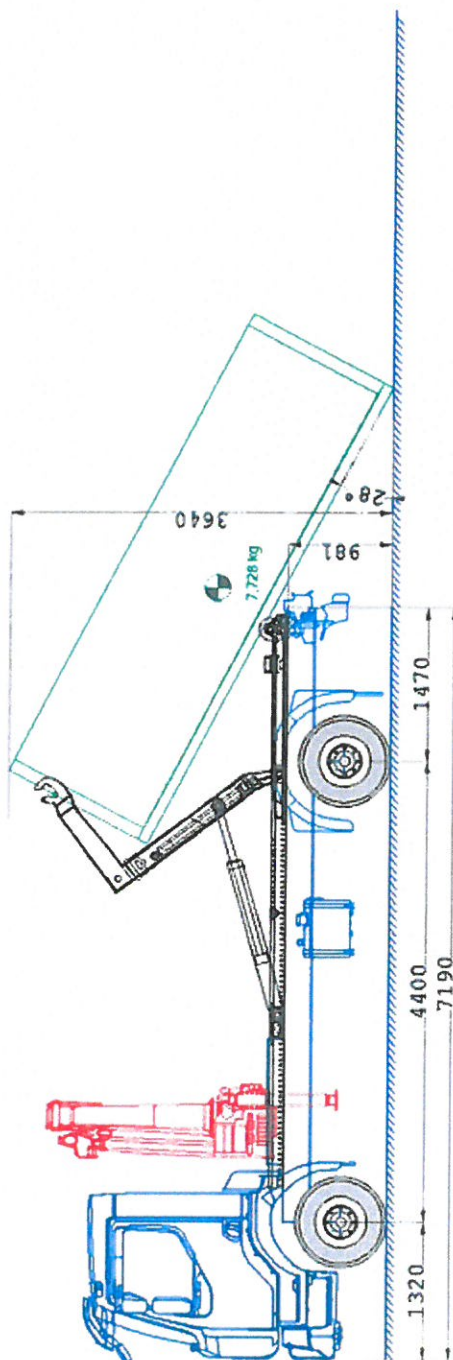


# STABILITY CALCULATION HOOKLOADER

## PROJECT DATA

Project Number:	N109-19
Consignment:	Josef Herda
Installation Type:	Crane / Hookloader
Carrier:	Volvo FL Version 3 42 R 816A 4x2 Euro 6
Cab:	CAB-DAY (FL)
Wheel Base [mm]:	4,400
Permissible axle load [kg]:	5,800 / 10,900
Load Max [kg]:	16,000
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Additional Stabilizer:	
Container Handling System:	T08_CZ - 4,350

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Dimensions in [mm]

<b>Correct stability</b>			
Distance 1st axle to tipping point [mm]	4,400	Hook height [mm]	1,000
Distance COG container to tipping point [mm]	1,860	Container Type / Name	Max.Container
Stability moment [m]	21.42	Container inner length [mm]	4,700
Stabilizer system	Chassis lowered to block	Board Height [mm]	1,400
Stability factor with calculated payload	1.48	Calculated payload [kg]	7,728
Stability factor with max. lifting capacity	1.43	Max. lifting capacity hookloader [kg]	8,000



