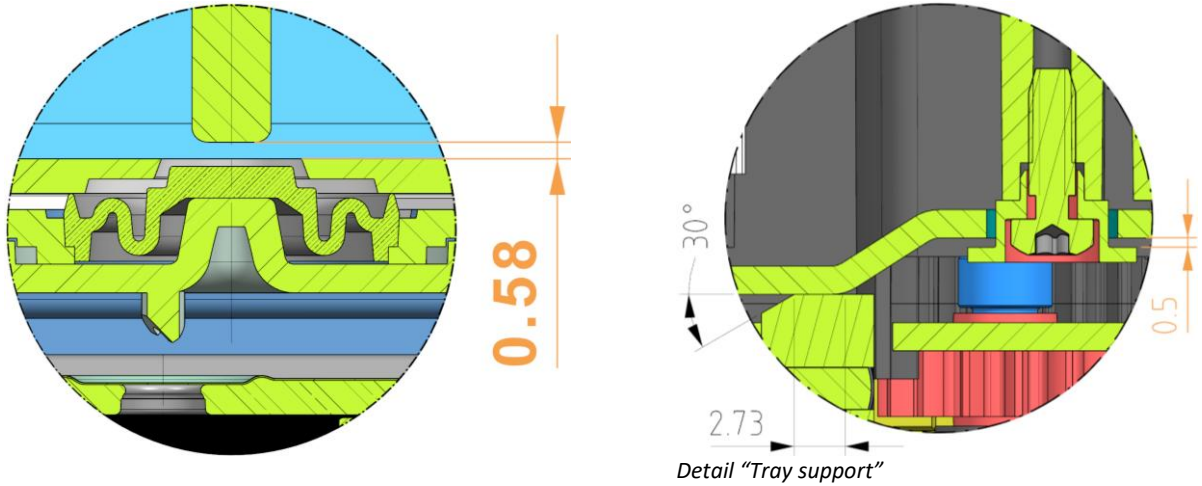


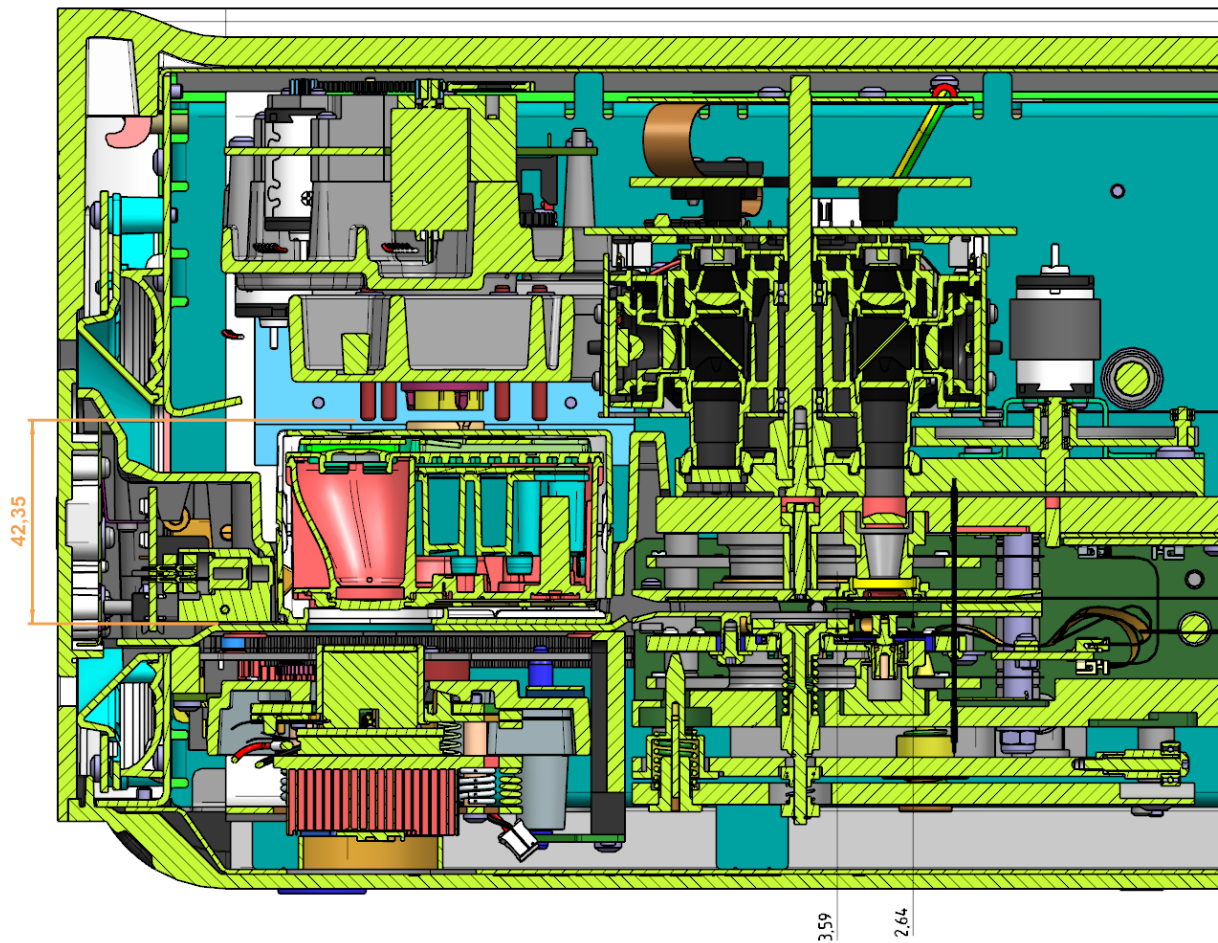
### 3 Cartridge Height (1.0) vs. Piece Pins in INS.

#### a) Play according CAR assembly-dimensions

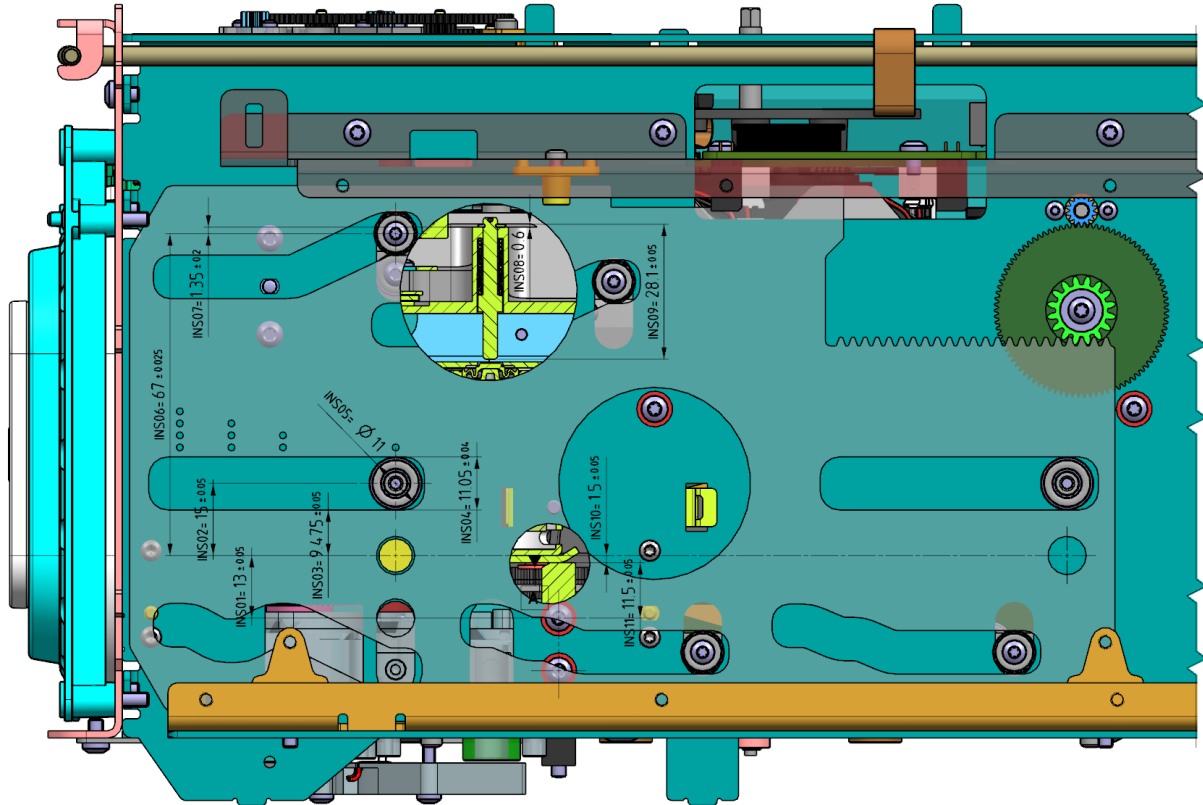
Tray is lifted up by 0.5mm on the last end  
2.73mm of stroke;



Original INS / CAR –situation (8122-299-6000-2A-Apollo Instrument Module);



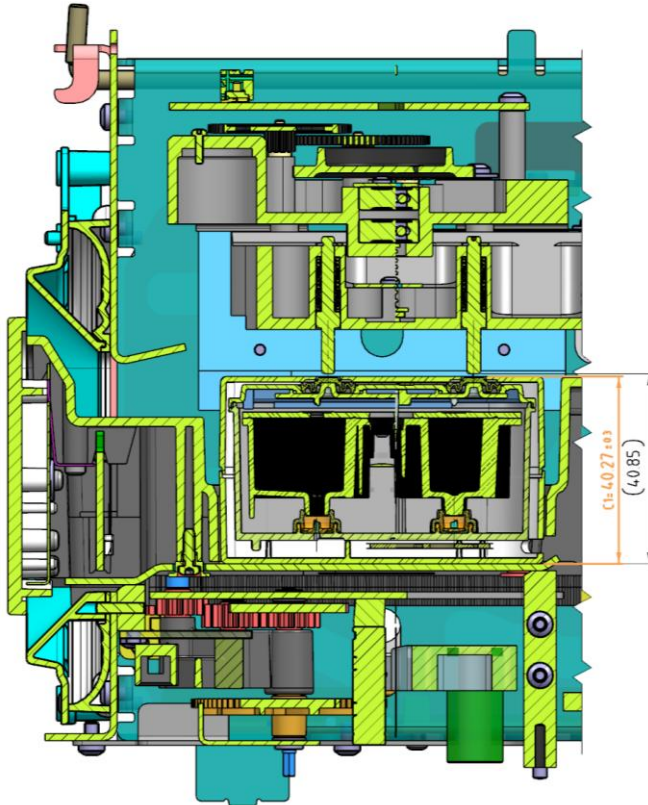
Tolerances in INS;



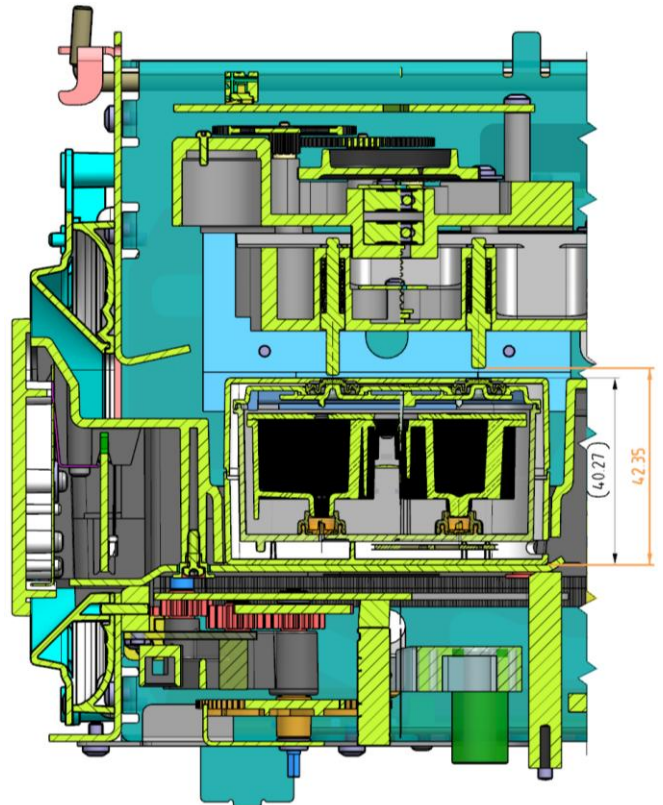
Nominal dimension

8122-299-6111-4C-FRAME PLATE RIGHT	INS01	13	-0.05	0.05	0.050	0.050
8122-299-6111-4C-FRAME PLATE RIGHT	INS02	15	-0.05	0.05	0.050	0.050
8122-299-6119-2B-CAM PLATE	INS03	9.475	-0.05	0.05	0.050	0.050
8122-299-6119-2B-CAM PLATE	INS04	11.05	-0.04	0.08	0.080	0.040
8122-299-6279-1A-GROOVE BALL BEAR	INS05	11	0	0	0.000	0.000
Play INS04 vs INS05	Play	0.025			0.025	0.025
8122-299-6119-2B-CAM PLATE	INS06	67	-0.025	0.025	0.025	0.025
8122-299-6089-2B-FLC LIFT FRAME (MA	INS07	1.35	-0.1	0.1	0.200	0.200
2522-634-04005-CNS-VC-RETAIN RING S	INS08	0.6	0	0	0.000	0.000
4304-050-0682-0B-EXTENDED PIERCE PI	INS09	28.1	-0.05	0.05	0.050	0.050
8122-299-6212-3A-TRAY BOTTOM PLAT	INS10	1.5	-0.1	0.1	0.100	0.100
8122-299-6126-2A-CARTRIDGE REAR RE	INS11	11.5	-0.025	0.025	0.025	0.025

Tolerances in CAR with extended Pierce Pins;



Tolerances in CAR with original Pierce Pins;



Nominal dimension with 4304-050-0682-EXTENDED PIERCE PIN

Nominal dimension with 8122-299-6266-PIERCE PIN

8122-507-4612-0D-C1 ML2 CARTRIDGE	C1	40.270	-0.3	0,3	0.300	0.300
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Summary;

		Dimension	Min. Tolerance	Max. Tolerance	max. Play	min. Play	
<b>Nominal height</b>					<b>0.580</b>	<b>0.580</b>	input fields
<b>Tolerances in parts:</b>							
8122-299-6111-4C-FRAME PLATE RIGHT	INS01	13	-0.05	0.05	0.050	0.050	
8122-299-6111-4C-FRAME PLATE RIGHT	INS02	15	-0.05	0.05	0.050	0.050	
8122-299-6119-2B-CAM PLATE	INS03	9.475	-0.05	0.05	0.050	0.050	
8122-299-6119-2B-CAM PLATE	INS04	11.05	-0.04	0.08	0.080	0.040	
8122-299-6279-1A-GROOVE BALL BEAR	INS05	11	0	0	0.000	0.000	
Play INS04 vs INS05	Play	0.025			0.025	0.025	
8122-299-6119-2B-CAM PLATE	INS06	67	-0.025	0.025	0.025	0.025	
8122-299-6089-2B-FLC LIFT FRAME (MA	INS07	1.35	-0.1	0.1	0.200	0.200	
2522-634-04005-CNS-VC-RETAIN RING S	INS08	0.6	0	0	0.000	0.000	
4304-050-0682-0B-EXTENDED PIERCE P	INS09	28.1	-0.05	0.05	0.050	0.050	
8122-299-6212-3A-TRAY BOTTOM PLAT	INS10	1.5	-0.1	0.1	0.100	0.100	
8122-299-6126-2A-CARTRIDGE REAR RE	INS11	11.5	-0.025	0.025	0.025	0.025	
8122-507-4612-0D-C1 ML2 CARTRIDGE	C1	40.270	-0.3	0.3	0.300	0.300	
<b>combined tolerances:</b>							
<b>Worst case</b>					0.955	0.915	
<b>Statistical</b>					0.398	0.392	
<b>Average of Worst case and Statistical</b>					0.676	0.653	
<b>actual play</b>							
<b>Worst case</b>	<b>Max</b>	1.535			1.535	1.495	
	<b>Min</b>	-0.375			-0.375	-0.335	
<b>statistical</b>	<b>Max</b>	0.978			0.978	0.972	Leading results
	<b>Min</b>	0.182			0.182	0.188	
<b>average</b>	<b>Max</b>	1.256			1.256	1.233	
	<b>Min</b>	-0.096			-0.096	-0.073	

Statistical there is still **0.182mm** play between Cartridge and INS-Pierce Pins.