

# Wear analysis of liner and piston rings



Name: Vessel2  
 IMO:  
 Date:

Engine type: 7RTA72  
 Engine ID: :-)  
 Running hours: 87.496

# piston rings: 4  
 liner D [mm]: 720

Cylinder Unit ID	1	2	3	4	5	6	7	8	9	10	11	12
R-hrs	60.854	60.854	63.813	60.854	11.941	74.097	74.027					
LINER DATA	Direction	liner wear [mm]										
	0°	1,24	2,49	2,50	1,99	2,35	3,08	2,21				
	90°	1,88	2,01	2,45	1,80	2,15	1,83	2,02				
	180°	1,36	2,06	2,78	1,91	2,27	2,76	2,15				
	270°	1,95	1,89	2,32	2,16	2,24	1,97	1,83				
	F-A	2,60	4,55	5,28	3,90	4,62	5,84	4,35				
	E-M	3,83	3,90	4,77	3,96	4,38	3,80	3,86				
	Ovality	-1,23	0,65	0,51	-0,06	0,24	2,04	0,49				
		Wear rate [mm/1000 hrs] - Lifetime in Rhrs										
	W-Rate	0,053	0,069	0,079	0,065	0,377	0,065	0,055				
Lifetime	48.000	22.000	9.000	28.000	3.000	14.000	30.000					
RING DATA	Position	coating thickness [µm]										
	T	5	10	12	3	1	375	160				
	MT	7	30	10	1	9	0	10				
	MB	7	10	7	2	3	2	8				
	B	9	15	1	0	1	12	83				

Recommended liner limits & colour code			
Max wear [0,8% D]	5,76	mm	75% of max
Max. ovality [0,1% D]	0,72	mm	
High wear rate warning	0,192	mm per 1000Rhrs	
Low wear rate warning	0,038	mm per 1000Rhrs	

Piston ring colour code	
>275µm	like new
100<->275	normal
<100 µm	worn
<12 µm	no coating

Comment: **Piston 1,2 & 3 show piston rings with sharp edges.**

rev7

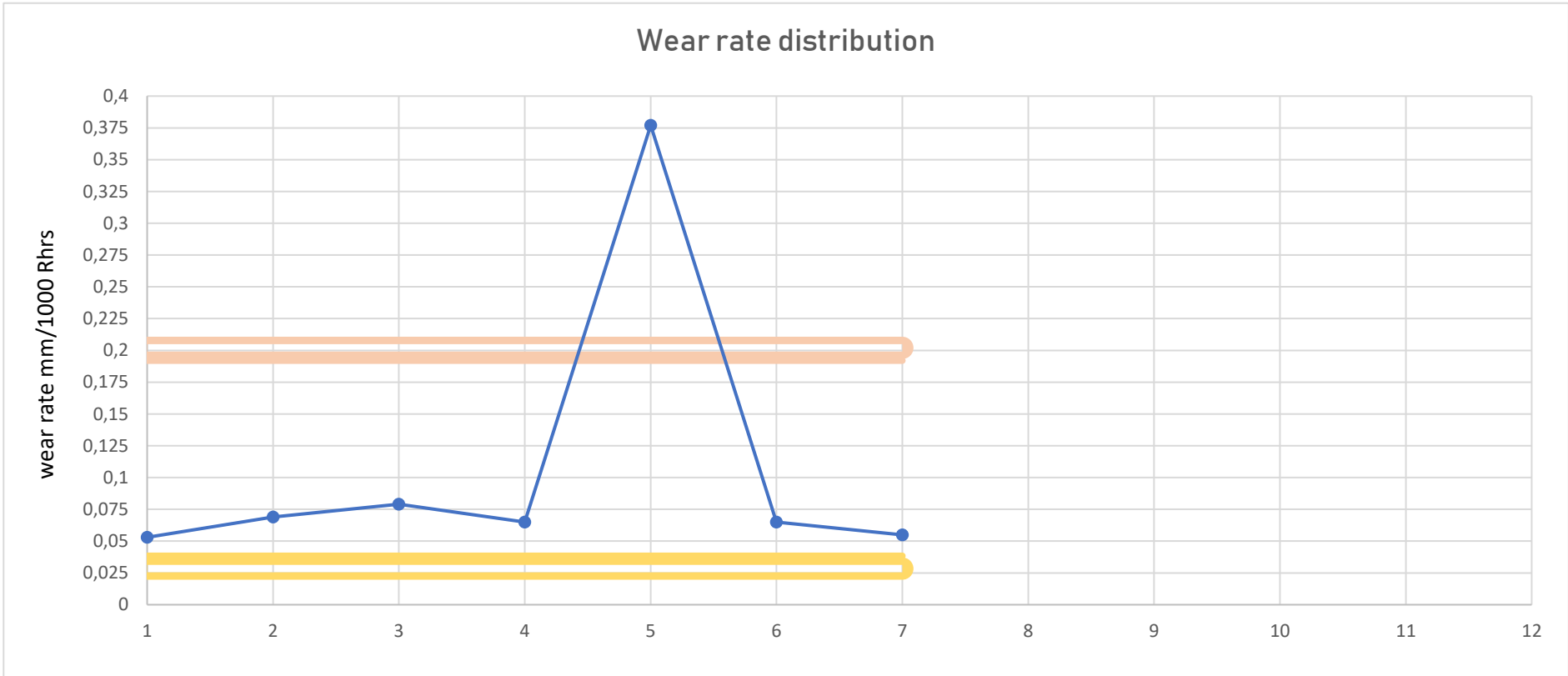
# Wear analysis of liner - distribution



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High wear rate warning **0,192** mm per 1000Rhrs

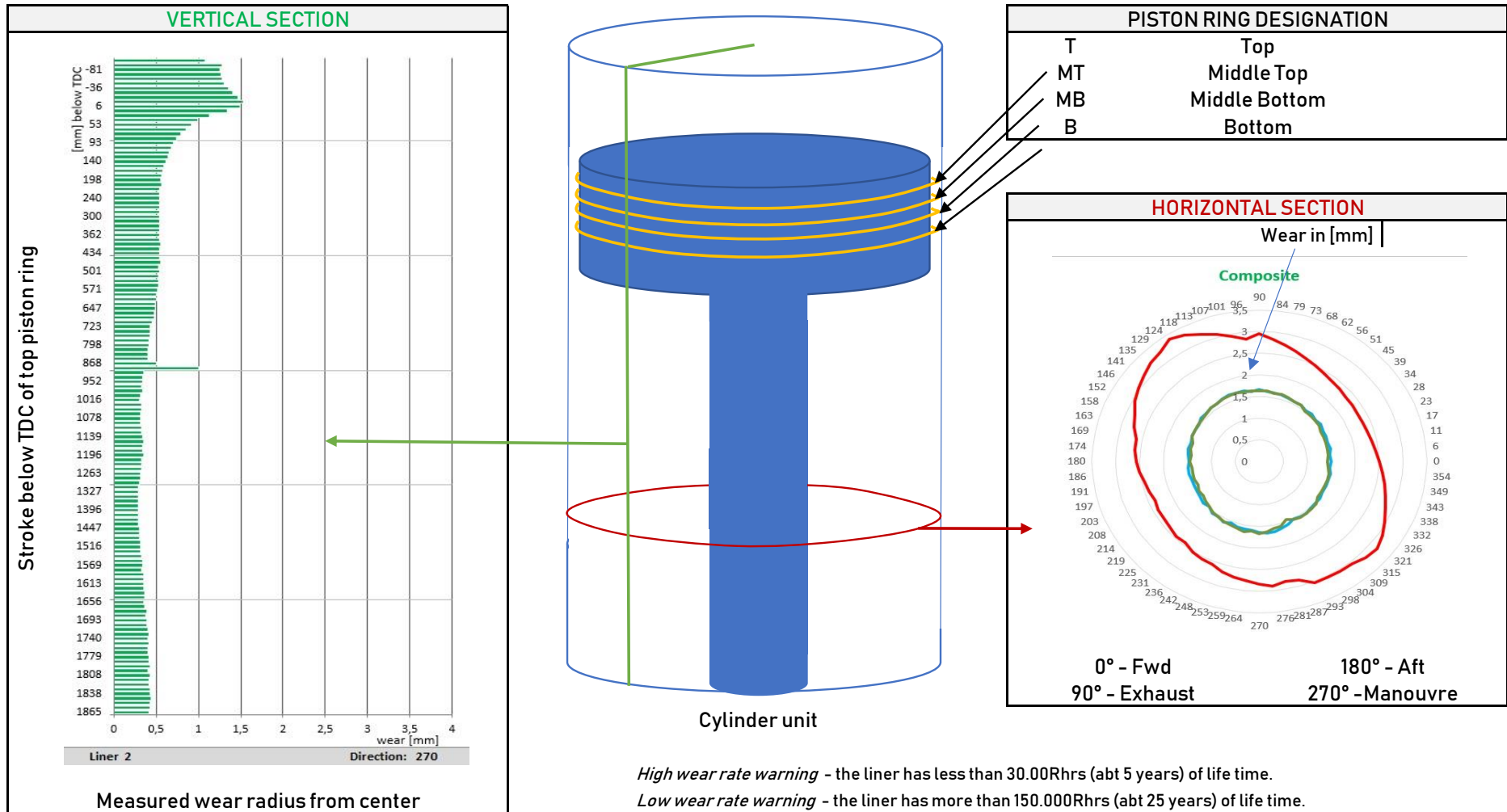
Low wear rate warning **0,038** mm per 1000Rhrs

liner D [mm]: 720

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# Designations

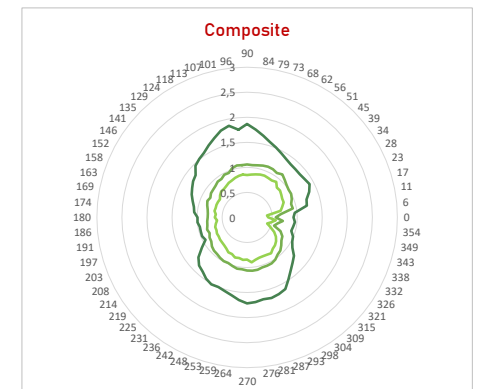
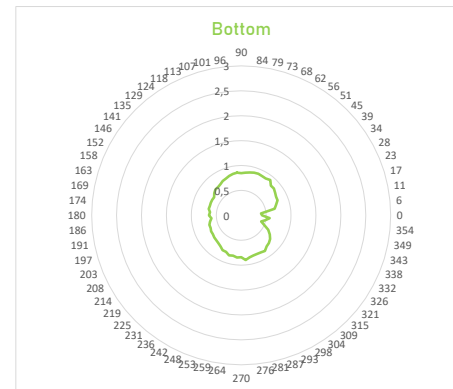
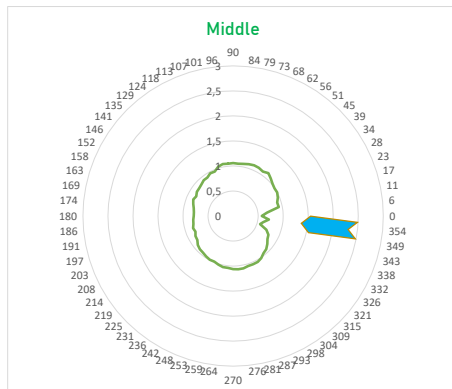
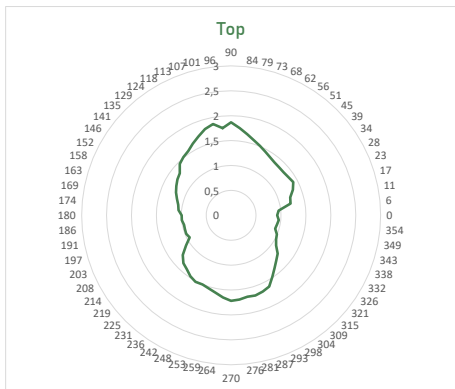
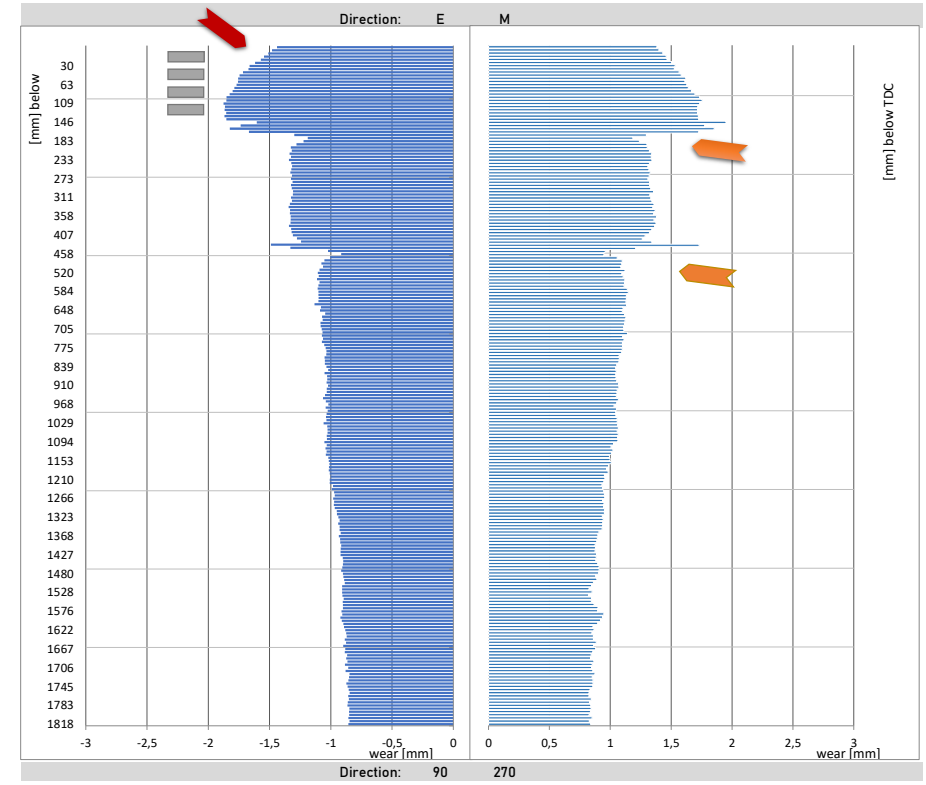
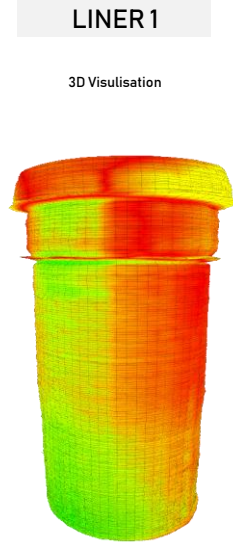
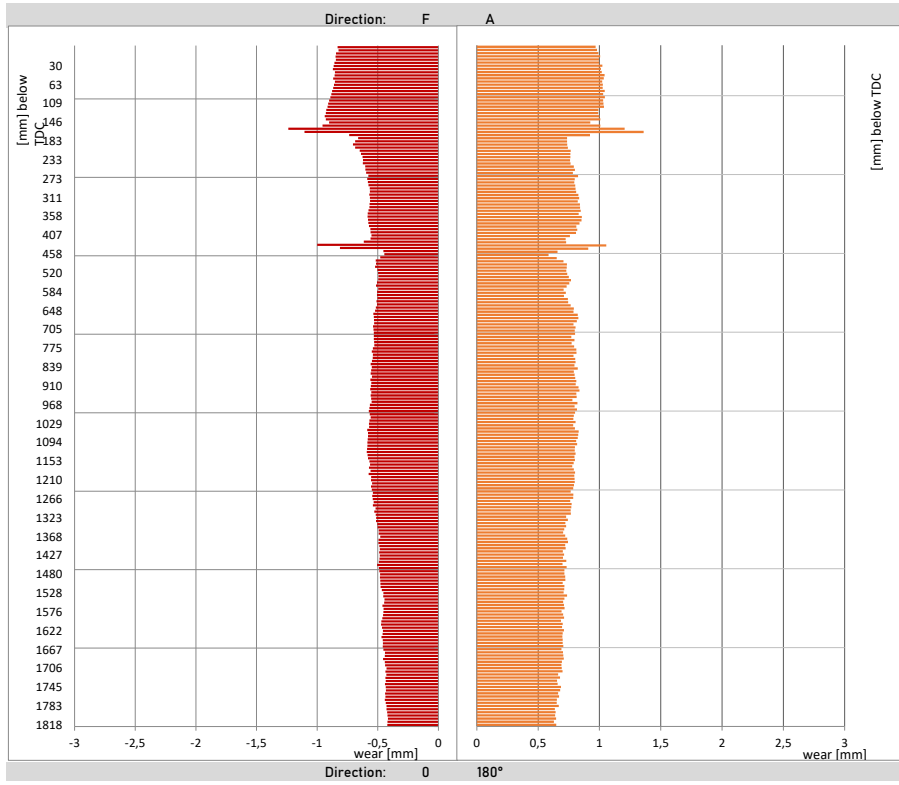
Explanation of abbreviations used in the data sheets.



*High wear rate warning* - the liner has less than 30.00Rhrs (abt 5 years) of life time.  
*Low wear rate warning* - the liner has more than 150.000Rhrs (abt 25 years) of life time.

*Resolution:* All measurements have a resolution of 0.01mm  
*Precision:* All measurements have a statistical error of +/- 0.02mm.

*Temperature compensation:* All measurements are compensated for liner and gauge temperature.



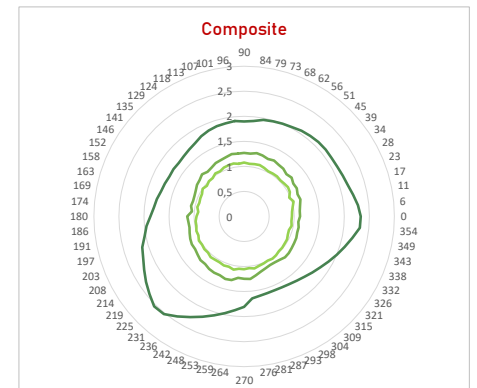
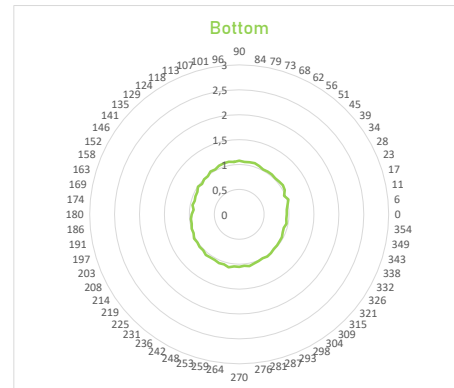
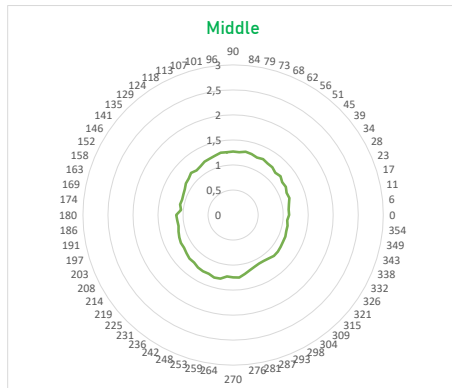
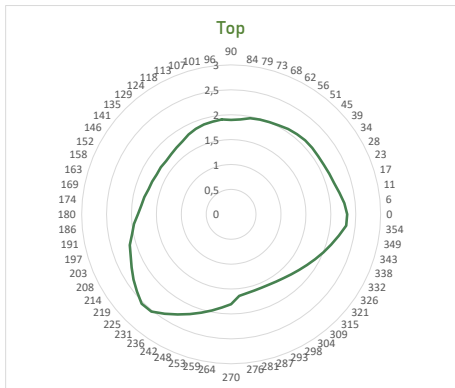
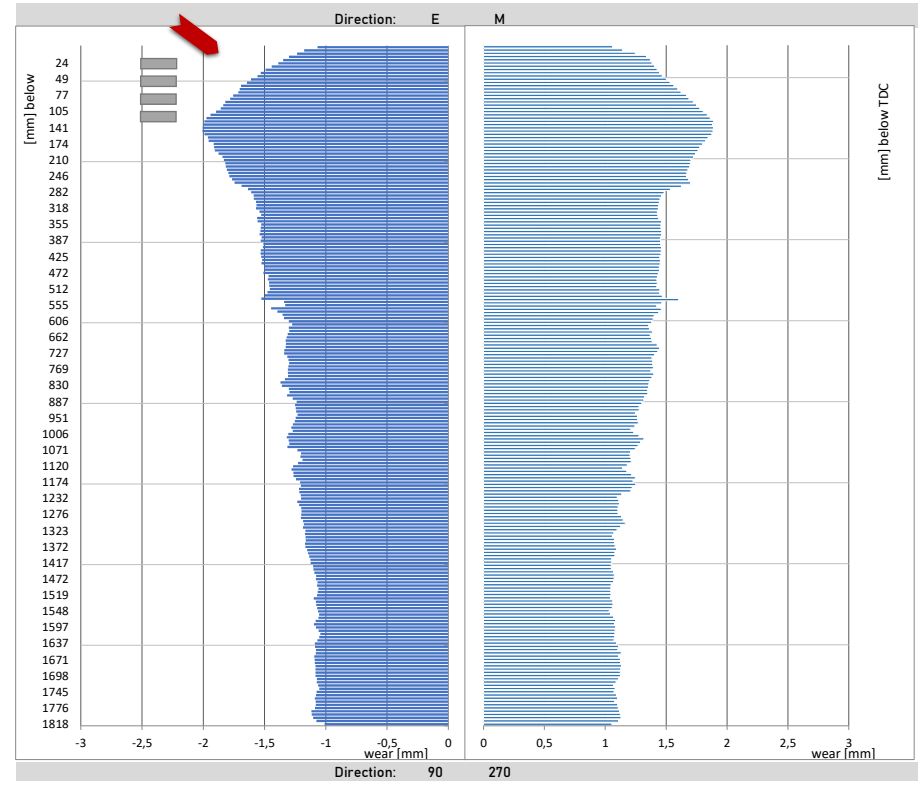
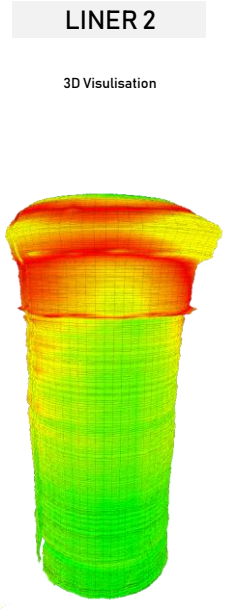
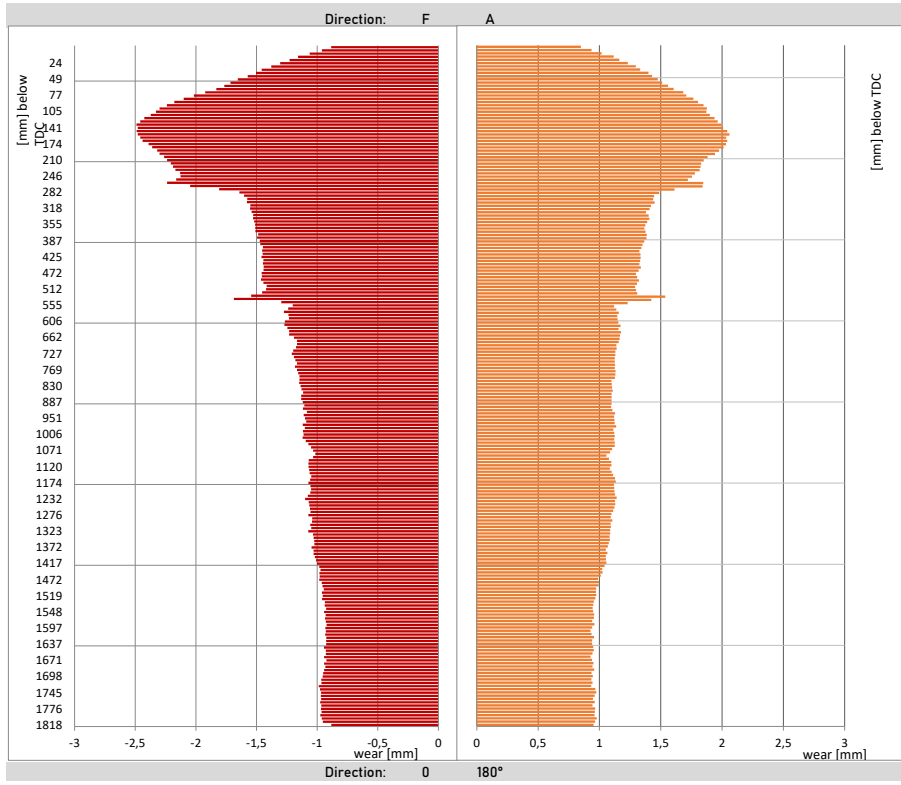
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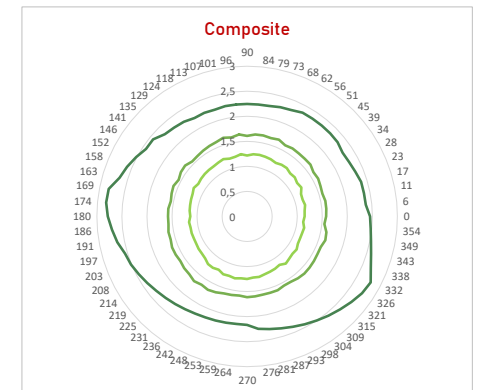
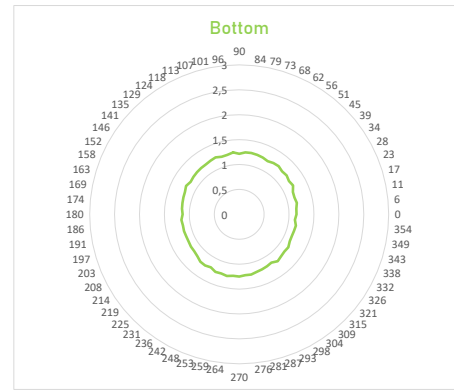
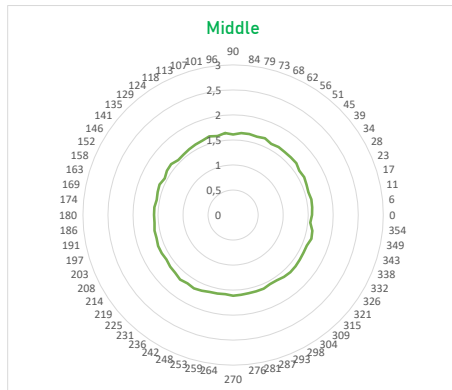
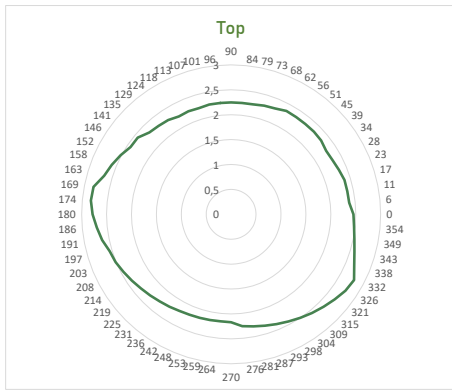
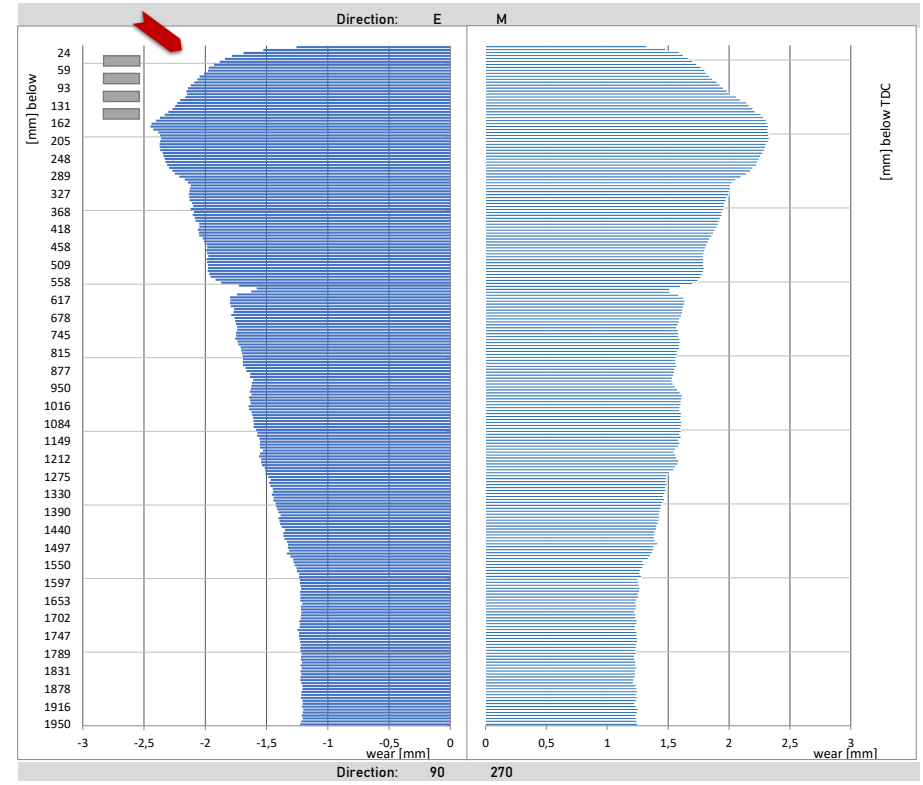
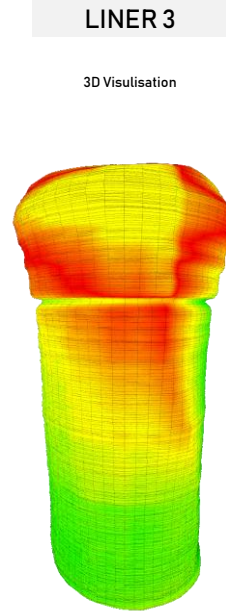
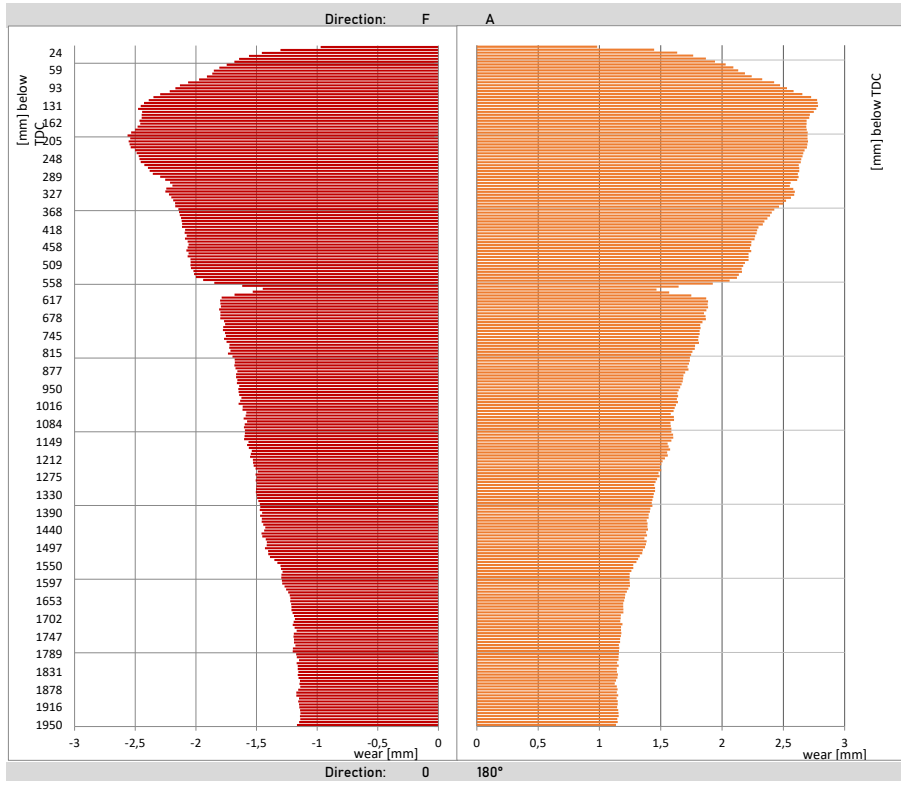
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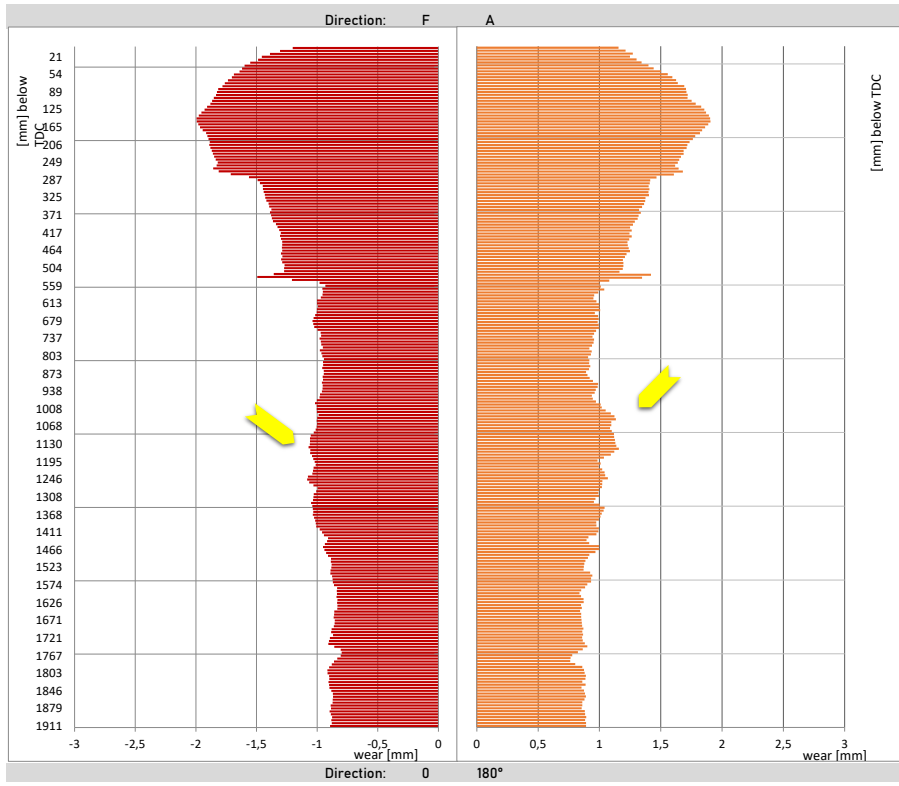
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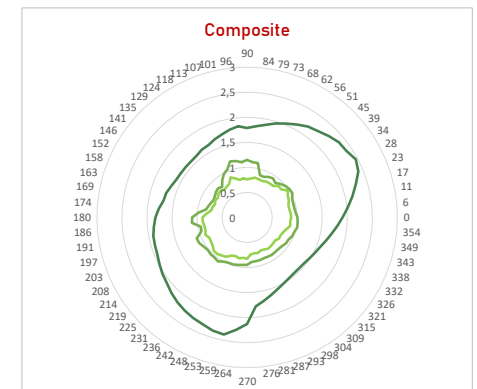
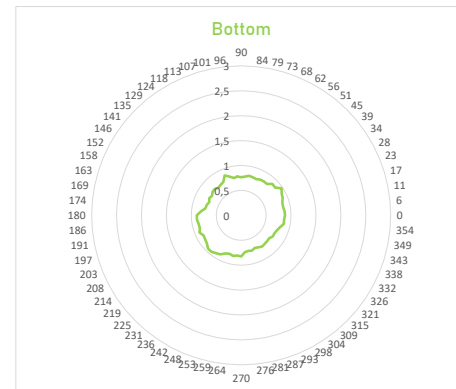
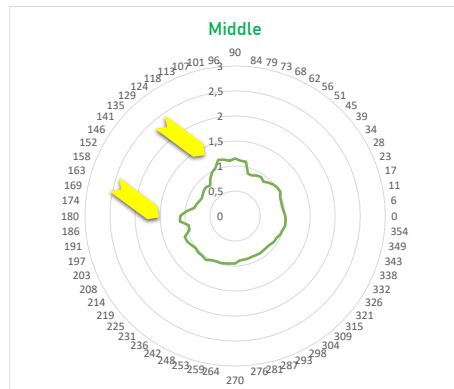
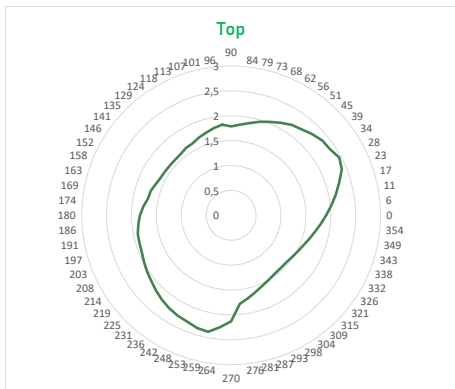
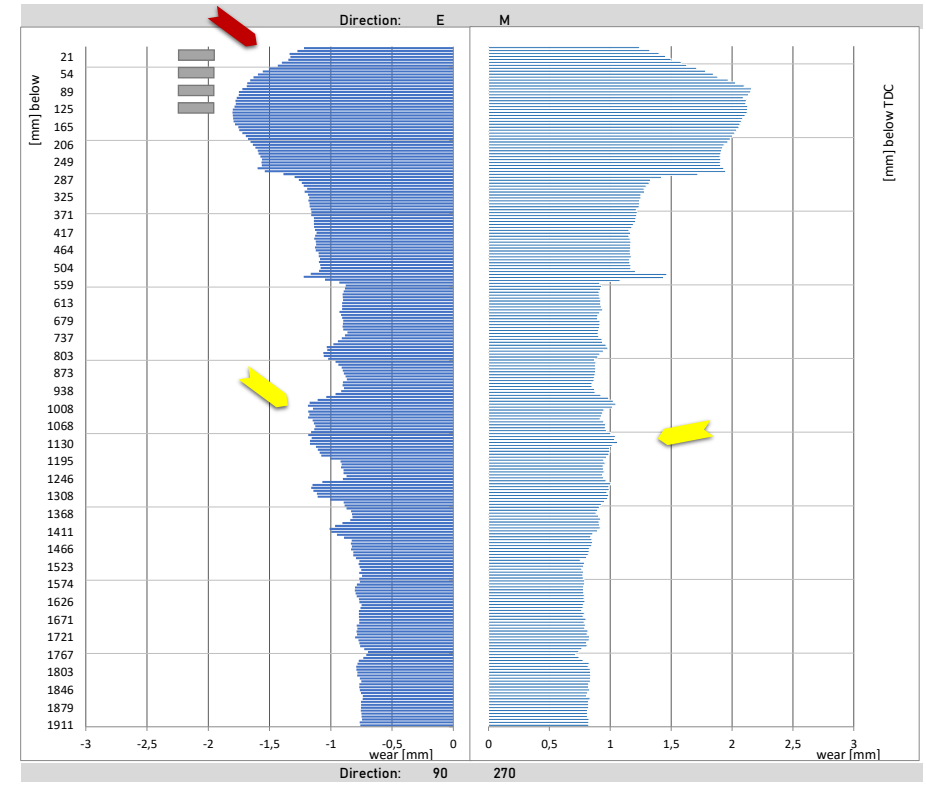
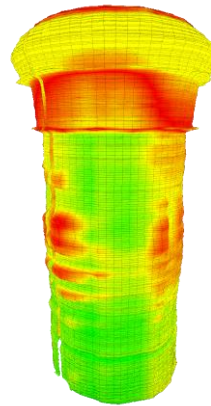
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### LINER 4

3D Visualisation



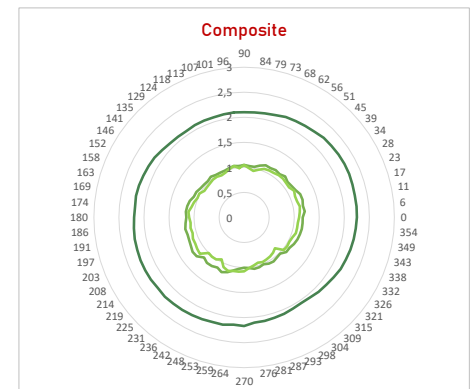
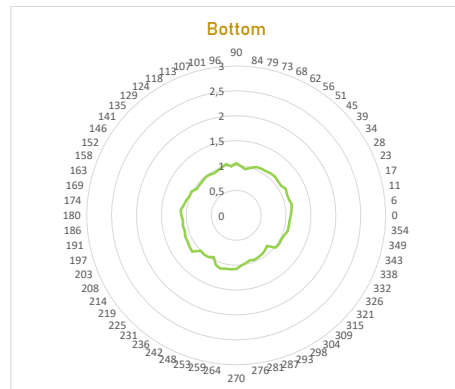
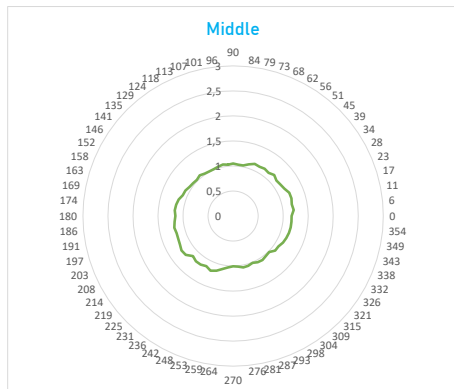
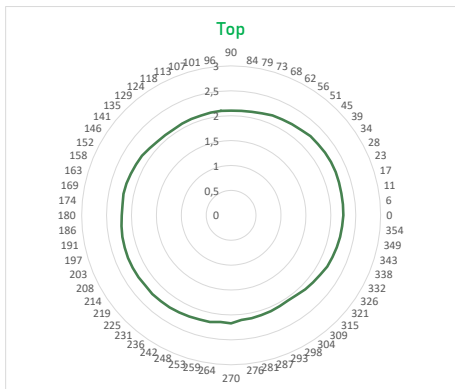
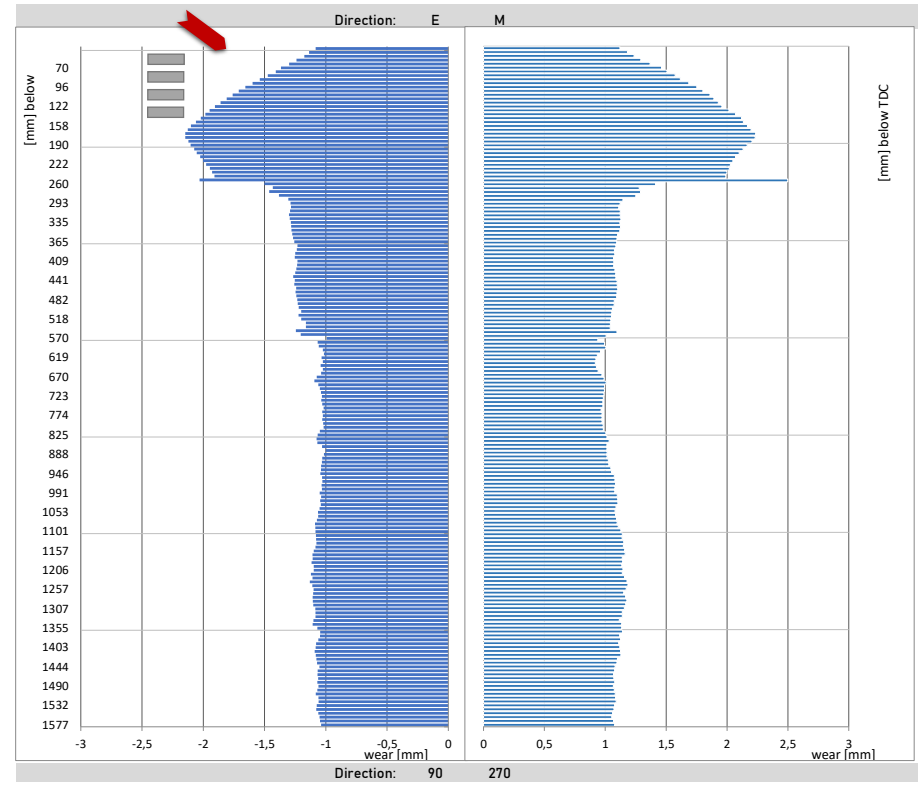
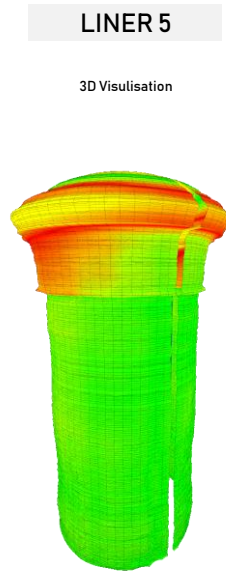
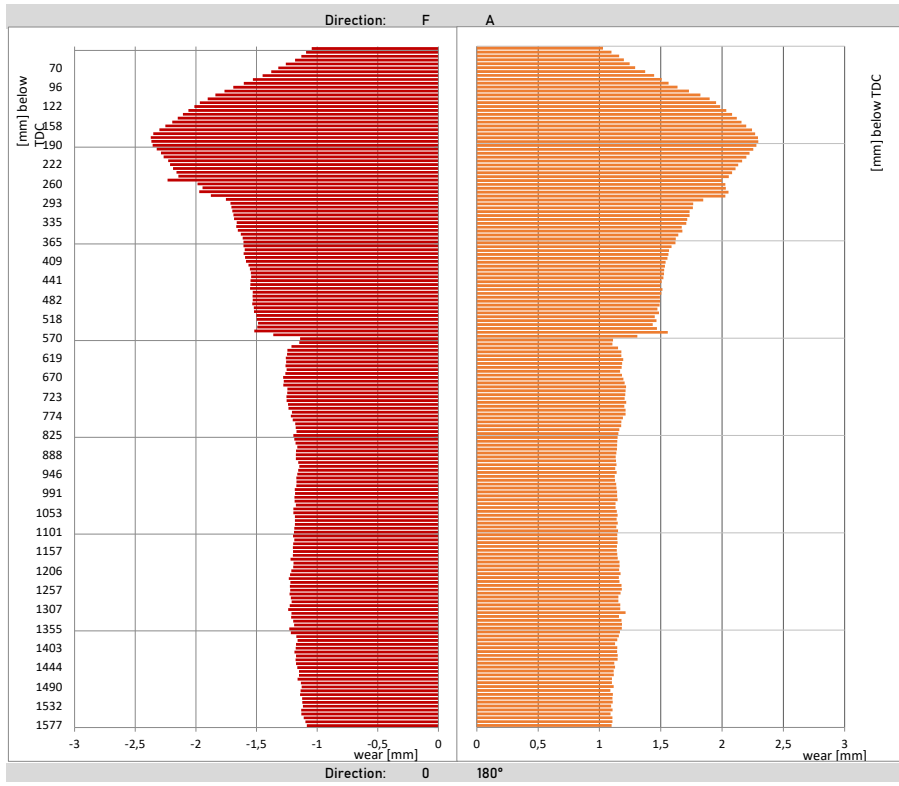
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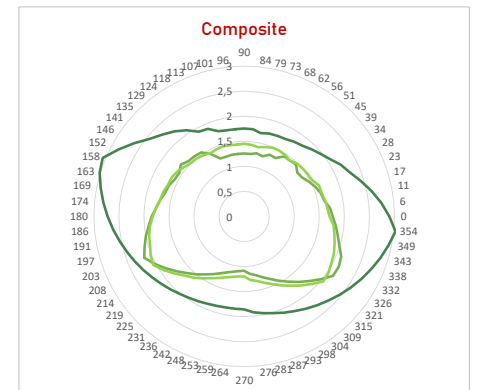
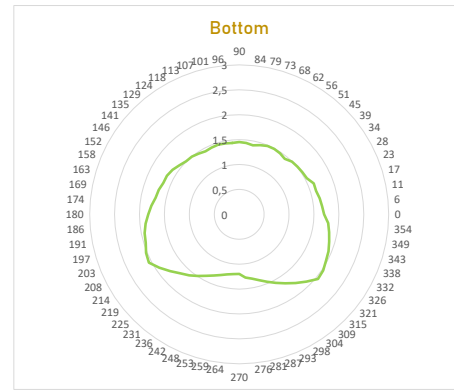
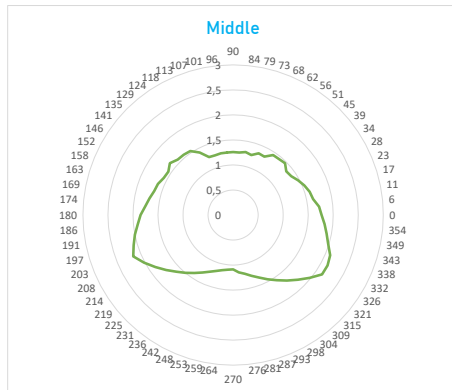
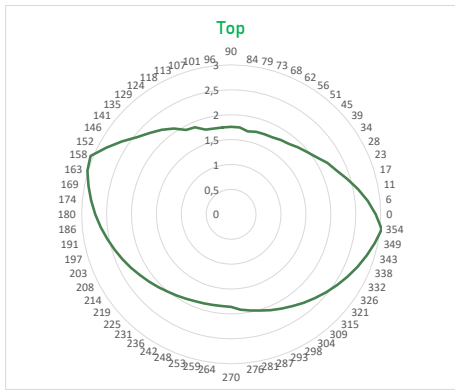
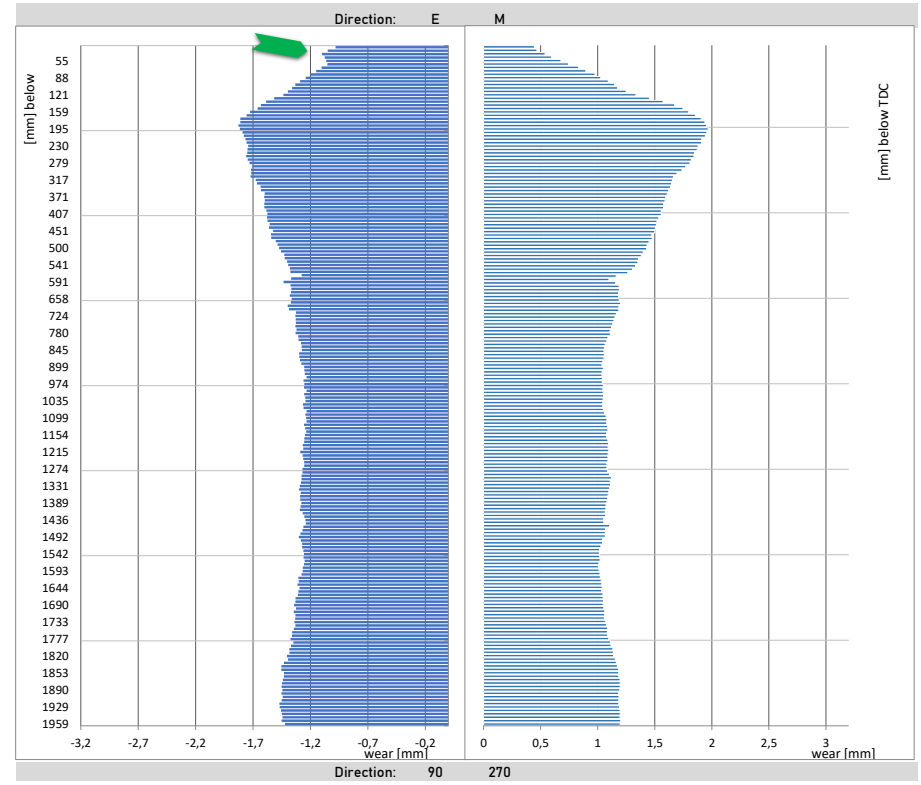
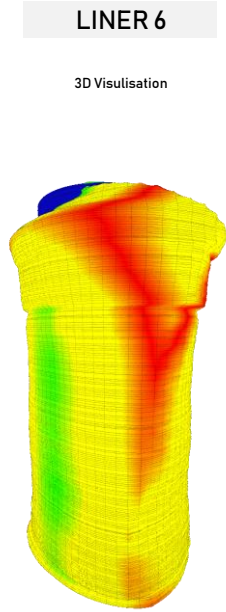
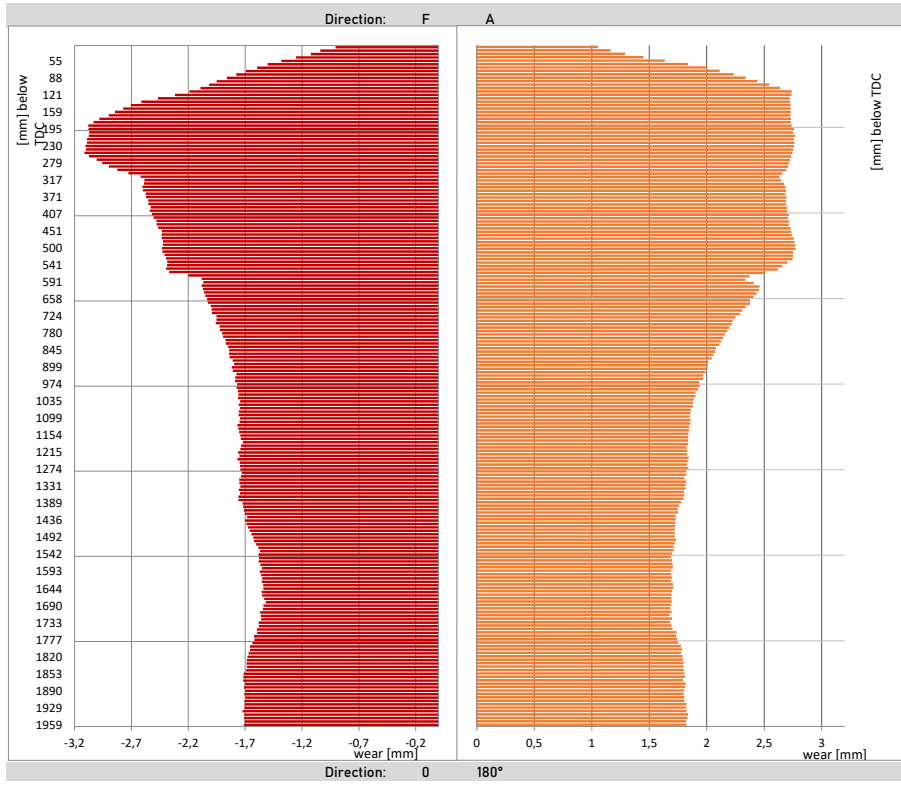
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