300WM 180gr Nosler Partition VV N165 74 grn

User Data:

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Comment	**300WM 180gr Nosler Partition VV N165 74 grn**				
Cartridge / Caliber	**.300 Win. Mag.(W)**		**Bullet**	**.308, 180, Nosler PART SP 16331**	
Maximum Average Pressure, allowed	4300 bar	62366 psi. (Piezo CIP)		with flatbase	
Groove Caliber	7,82 mm	0,308 in.	Bullet Weight	11,66 gm	180,0 gr.
Case Capacity, overflow	6,09 cm?	93,8 gr. H2O	Bullet Length	32,0 mm	1,260 in.
Case Length	66,55 mm	2,620 in.	Bullet Seating Depth	10,04 mm	0,395 in.
Cartridge O.A. Length	88,52 mm	3,485 in.	Barrel/Tube Length	610,01 mm	24,016 in.
Shot Start / Init Pressure	250,0 bar	3626 psi.	Cross Section Area of Bore	0,4732 cm?	0,07335 in.?
Propellant type	**Vihtavuori N165**				
Charge Weight	4,795 gm	74,0 gr.	Load Density	0,855 gm/cm?	216,2 gr./in.?
Heat of Explosion, Potential	3500 J/gm	226,8 J/gr.	Energy Density of Charge	2994 J/cm?	49063 J/in.?
Propellant Solid Density	1,58 gm/cm?	399,57 gr./in.?	Used Ratio of Specific Heats cp/cv	1,241	
Burning Rate Factor Ba	0,424 1/s		Weighting Factor	0,5	
Burning Function Limit Z1	0,485		Prog.-/ Degressivity Factor a0	1,156	
Factor b	1,741		Bulk Density	0,910 gm/cm?	230,1 gr./in.?

Calculated and Estimated Data:

Bullet Shank Seating Depth	10,04 mm	0,395 in.	Capacity Displaced by Seated Bullet	0,484 cm?	0,0295 in.?
Useable Case Capacity	5,606 cm?	0,3421 in.?	Bullet Travel at Muzzle Exit	553,5 mm	21,79 in.
Loading Ratio("Density") / Filling	94.0 %		Charge Fraction Burnt at Shot Start	1,59 %	
Predicted Data:					
Maximum Chamber Pressure	3288 bar	47686 psi.	Bullet Travel at Pmax	68,0 mm	2,68 in.
at Muzzle Exit:					
Bullet Velocity	844,0 m/s	2769 fps.	Pressure at Muzzle	797 bar	11554 psi.
Bullet Energy	4155 Joule	3065 ft.lbs.	Bullet Barrel Time	1,314 ms	
Propellant Burnt	98,1 %		Ballistic Efficiency	24,8 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
Real maximum (peak) of pressure is reached while bullet moves within barrel.
End of combustion occurs after the bullet's base passes muzzle.