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DESIGN FORMULAS FOR ASA ROLLER CHAIN SPROCKETS

ASA Roller Chain – Chains & Sprockets

Symbol	Description	Formula	Result
N	# of teeth	Given	20
P	Chain pitch	Given	0.75
Dr	Roller diameter	Given	0.469
Cl	Pitch line clearance minimum	$07(P-Dr)+.002$	0.0217
CIM	Pitch mine clearance maximum	$Cl+.003(Dr)+.005$	0.0281
Rm	Seating curve radius minimum	$5025(Dr)+.0025$	0.2372
RM.	Seating curve radius maximum	$Rm+.0015(Dr)+.0025$	0.2404
D	Pitch diameter	$P/(\sin(180/N))$	4.7943
MM	Minor diameter maximum	$D-Dr$	4.3253
Mm	Minor diameter minimum	$MM- (.001 * P * \text{SQRT}(N) + .003)$	4.319
J	J dimension	$.3 * P$	0.225
DO	Outside diameter	$P(.6 + \cot(180/N))$	5.1852

