



Gear pumps

Pompe cu roti dintate

Caracteristici Tehnice

Technical Specifications

Pompe cu roți dintate

Caracteristici

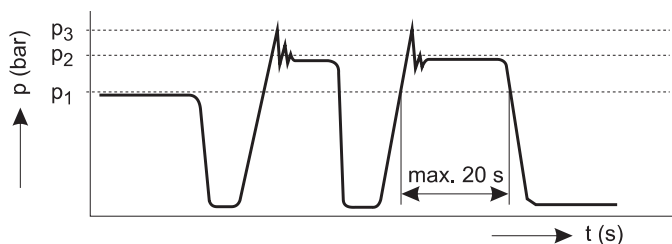
Se definesc următoarele niveluri de presiune:

- p1 -presiunea maximă în regim permanent
- p2 -presiunea maximă în regim intermitent
- p3 -presiunea maximă de vârf (la comutări)

Specifications

The pressure levels in the graph:

- p1 -max. continuous pressure
- p2 -max. intermittent pressure
- p3 -max. peak pressure



Size PRD 1

Displacement		cm ³ /rev	1	1.25	1.75	2.25	2.75	3.25	3.75	4.25	5	6	8	
inlet pressure		bar	min 0.7; max 3 (absolute)											
max. continuous pressure , p ₁			180						170		150			
max. intermittent pressure , p ₂			210						200		175			
max. peak pressure , p ₃			230						210		190			
min. rot. speed at press. (bar):	100	rev/min	800						500					
	150		1000						800		700			
	p ₂		1500						1000					
max. rot. speed at p ₁			4000						3500		3000		2500	
max. rot. speed			5000						4000		3000			

Size PRD 2

Displacement		cm ³ /rev	4	5.5	8	11	14	16	19	22.5	26			
inlet pressure		bar	min 0.7; max 3 (absolute)											
max. continuous pressure , p ₁			250						210		180		170	
max. intermittent pressure , p ₂			280						230		210		190	
max. peak pressure , p ₃			300						250		230		210	
min. rot. speed at press. (bar):	100	rev/min	600			500								
	180		1200		1000		800							
	p ₂		1400		1200		1000				800			
max. rot. speed at p ₁			3000				2500		2000					
max. rot. speed			4000			3500		3000		2500				



Size PRD 3
Seria

Displacement		cm ³ /rev	22.5	28	32	38	45	56	63	70
inlet pressure		bar	min 0.7; max 3 (absolute)							
max. continuous pressure , p ₁			180				150		140	
max. intermittent pressure , p ₂			210				180		170	
max. peak pressure , p ₃			230				200		190	
min. rot. speed at press. (bar):	100	rev/min	500							
	140		600							
	p ₂		800				600			
max. rot. speed at p ₁			2500		2300		2100		1500	
max. rot. speed			3000		2800		2600		2000	

Pompe cu roți dintate

Curbe caracteristice

Pentru calculul caracteristicii unei pompe cu roți dințate se definesc următoarele mărimi:

V_g (cm ³ /rot)	-volumul geometric al pompei
n (rot/min)	-turația arborelui de antrenare
Q (l/min)	-debitul
p (bar)	-presiunea de lucru
M (Nm)	-cuplul de antrenare
P (kW)	-puterea mecanică la arborele pompei
η_v (%)	-randamentul volumic
η_m (%)	-randamentul mecanic
η_t (%)	-randamentul total

Între acești parametri există următoarele relații:

$$Q = \frac{V_g \cdot n}{10^5} \cdot \eta_v; V_g = \frac{10^5 \cdot Q}{n \cdot \eta_v}; n = \frac{10^5 \cdot Q}{V_g \cdot \eta_v}$$

$$P = \frac{Q \cdot p}{6 \cdot \eta_t} = \frac{10^{-3} \cdot V_g \cdot n \cdot p}{6 \cdot \eta_m}$$

$$M = 1.59 \frac{V_g \cdot p}{\eta_m}$$

Diagramele următoare permit efectuarea de calcule aproximative, cu valori medii ale randamentului:

$$\begin{aligned} \eta_v &= 93\% \\ \eta_m &= 90\% \\ \eta_t &= 83.7\% \end{aligned}$$

Diagrams

The following parameters are defined for the calculation of a gear pump characteristic:

V_g (cm ³ /rev)	-pump displacement
n (rev/min)	-driving shaft speed
Q (l/min)	-flow
p (bar)	-operating pressure
M (Nm)	-driving moment
P (kW)	-mechanical input at pump shaft
η_v (%)	-volumetric efficiency
η_m (%)	-mechanical efficiency
η_t (%)	-total efficiency

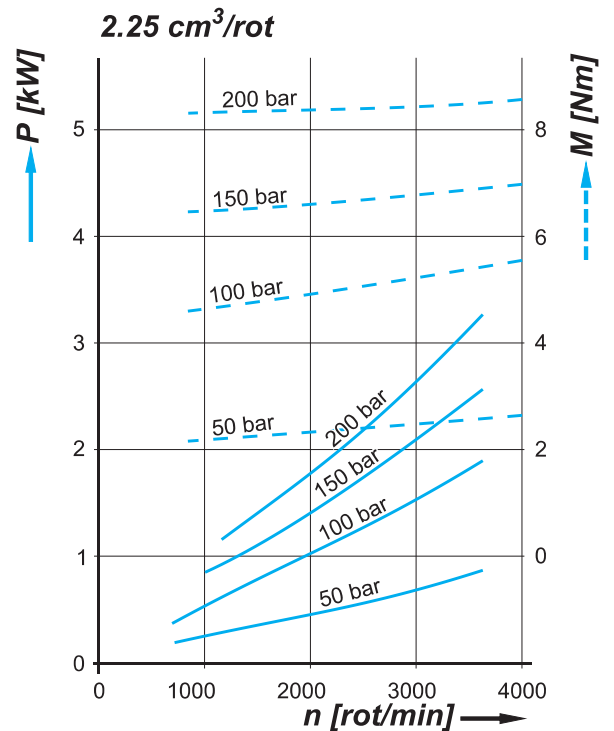
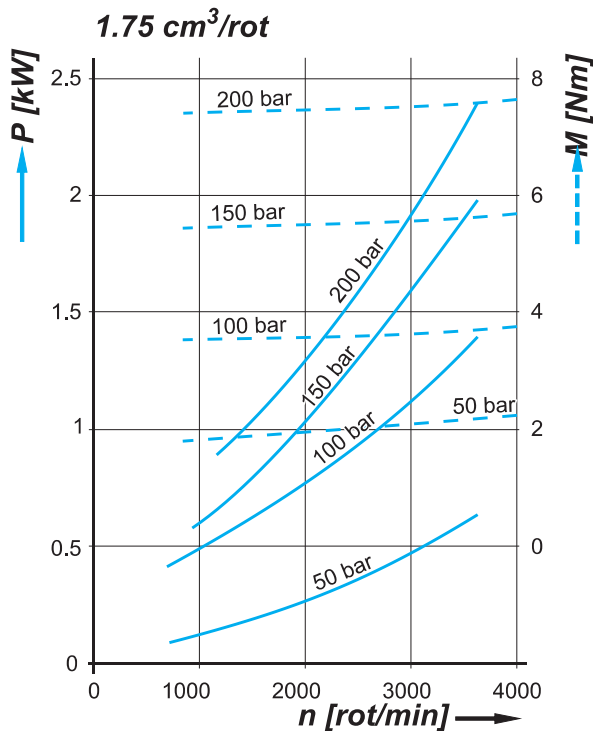
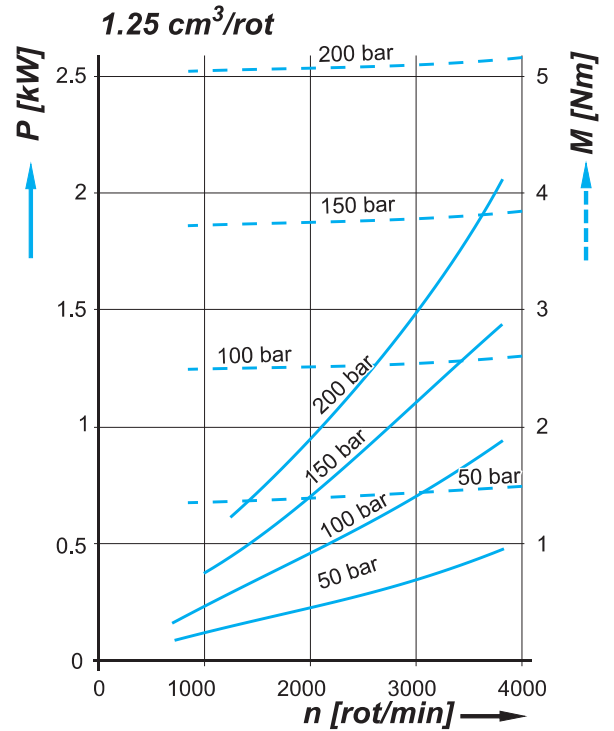
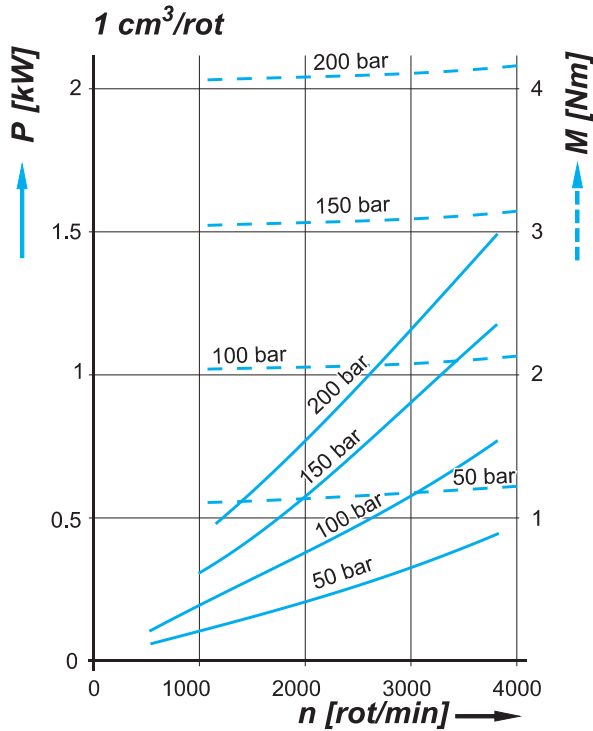
The following relations have been established between the above parameters:

The following graphs enable approximate calculation for average efficiency values:

$$\begin{aligned} \eta_v &= 93\% \\ \eta_m &= 90\% \\ \eta_t &= 83.7\% \end{aligned}$$

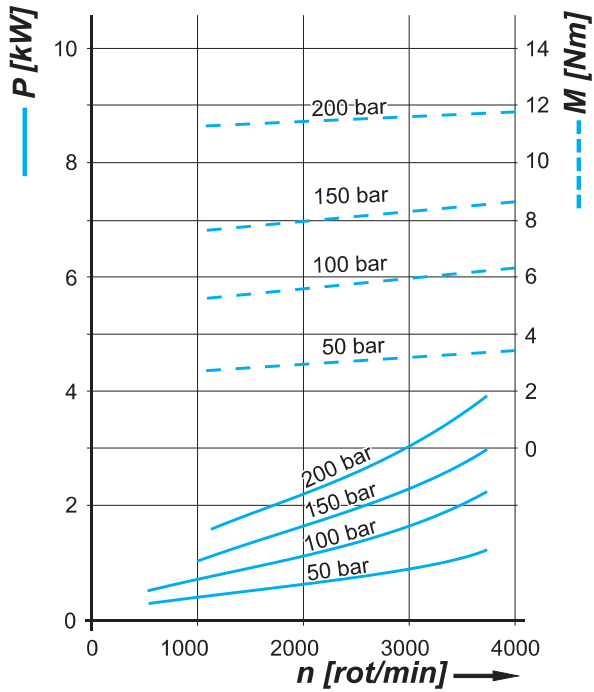


Size Seria PRD 1

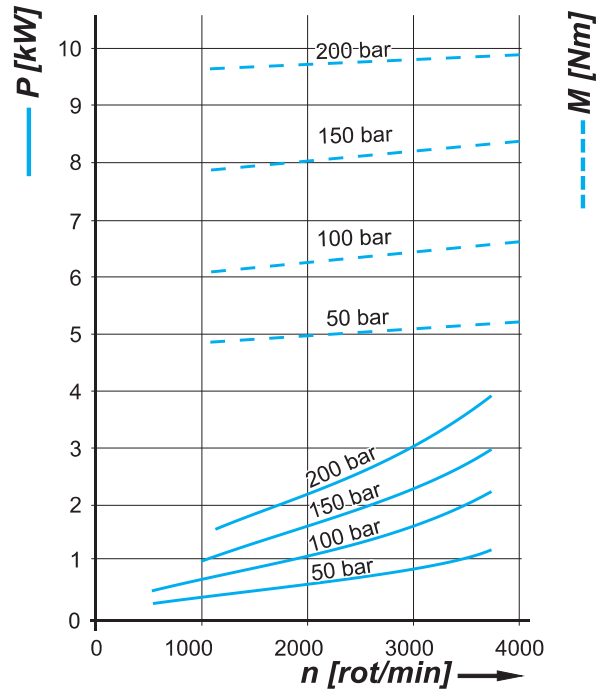


Pompe cu roti dintate

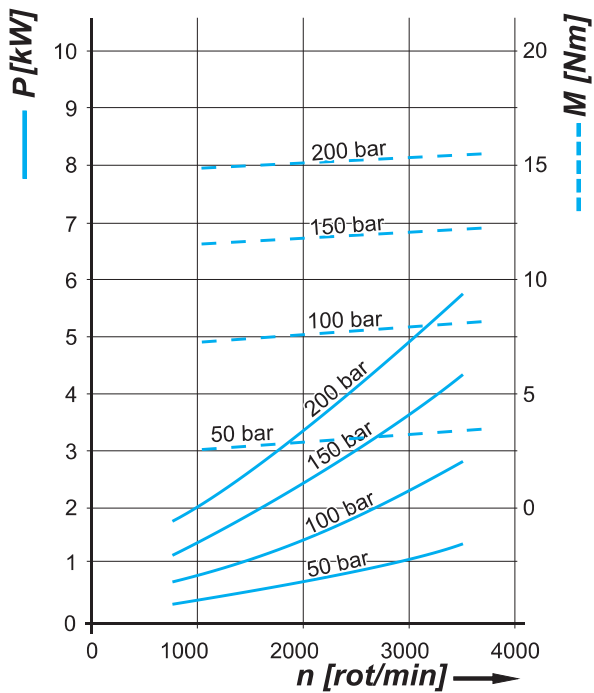
2.75 cm³/rot



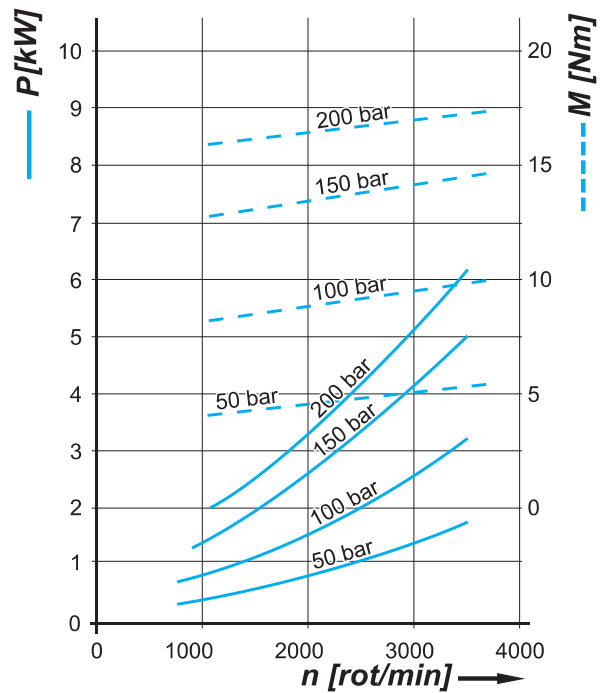
3.25 cm³/rot

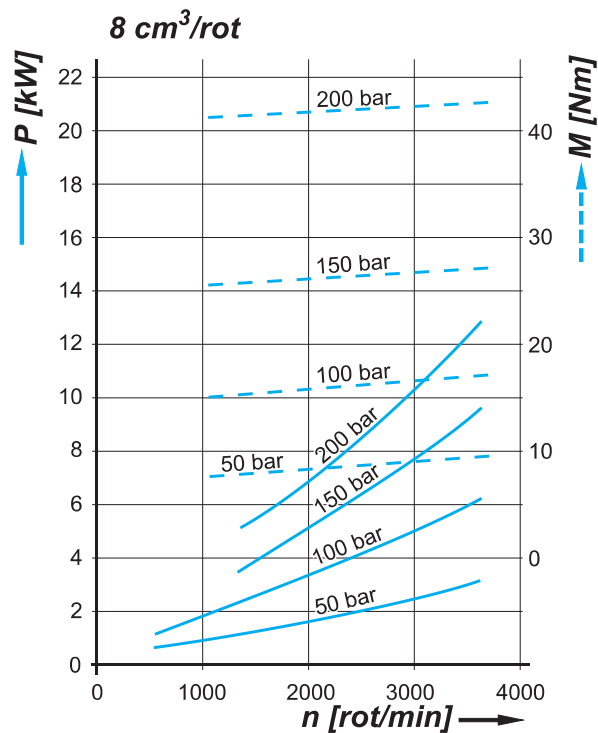
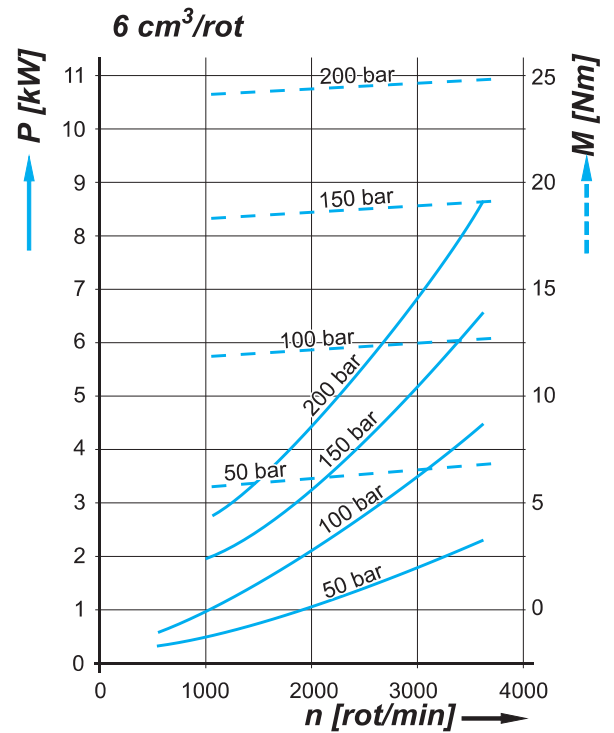
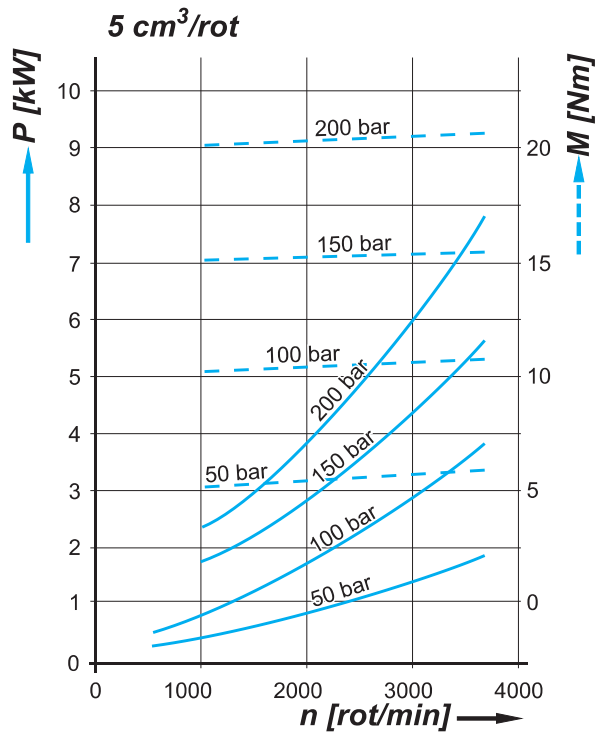


3.75 cm³/rot

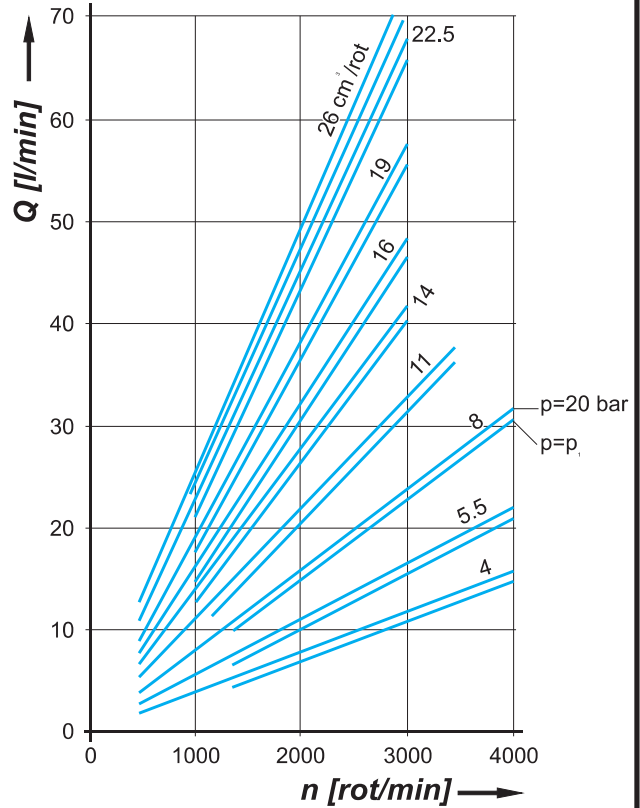


4.25 cm³/rot

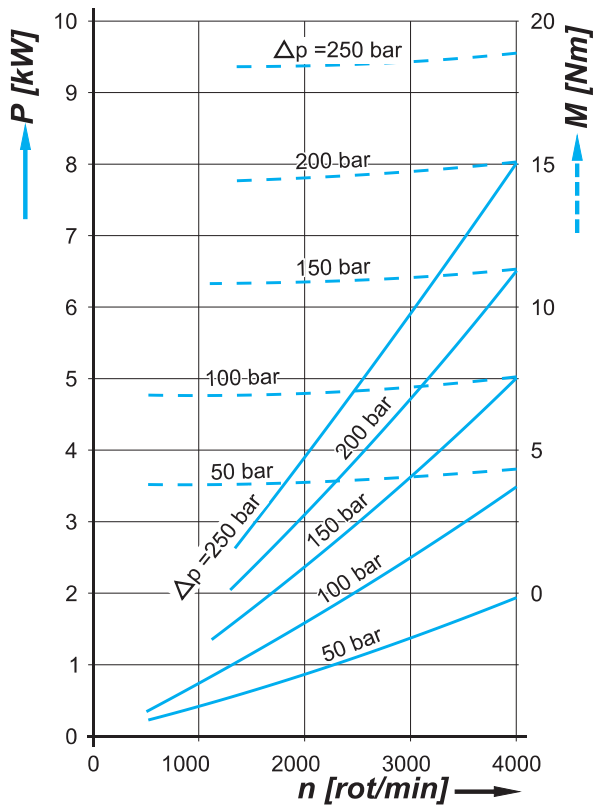




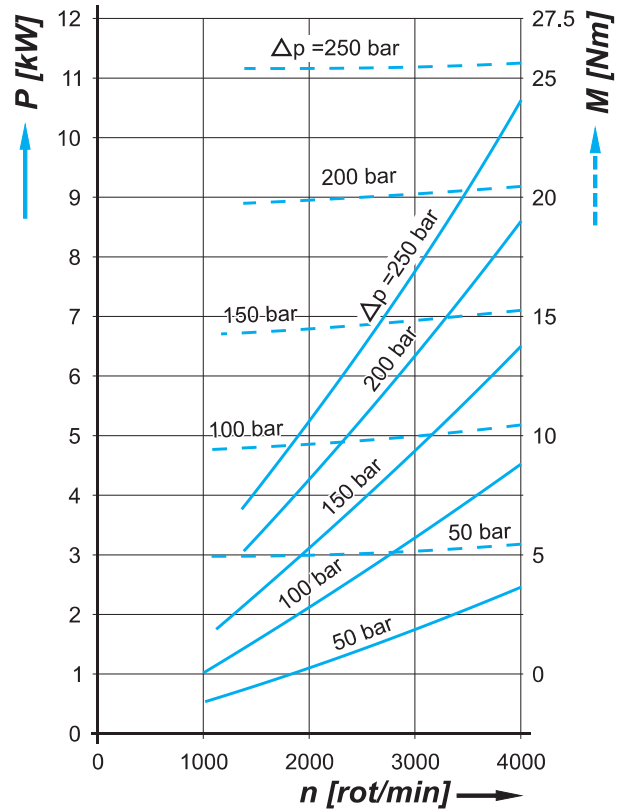
Size
Seria **PRD2**



4 cm³/rot

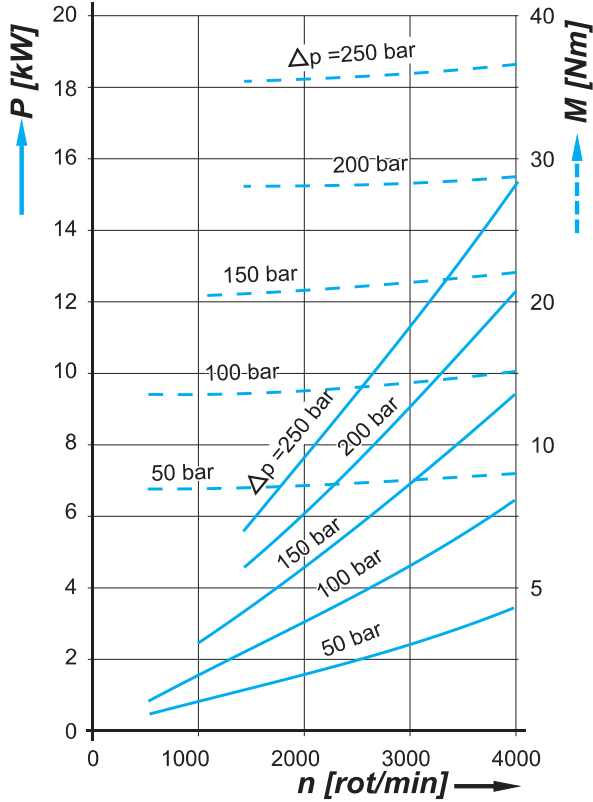


5.5 cm³/rot

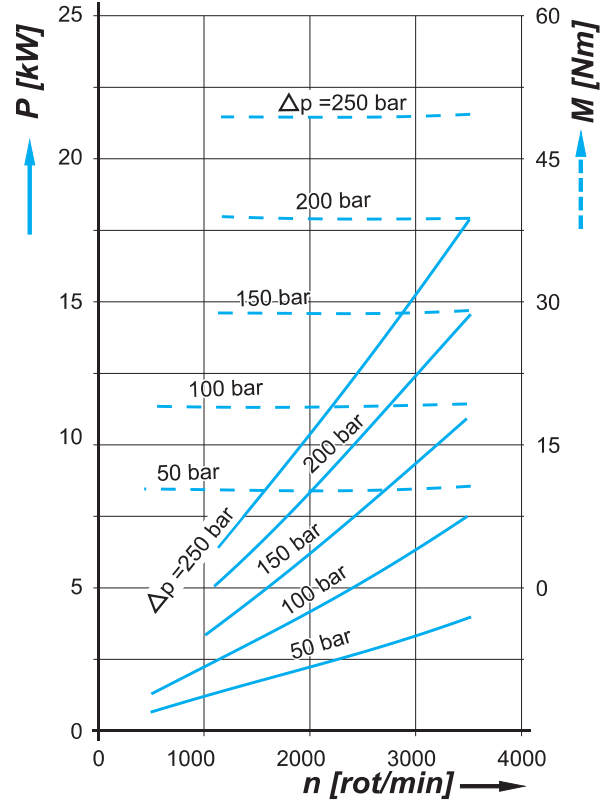




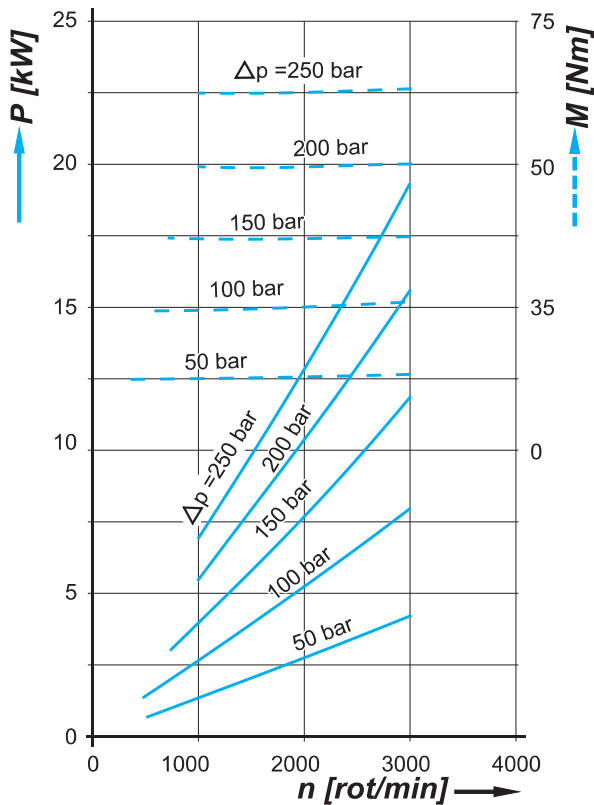
8 cm³/rot



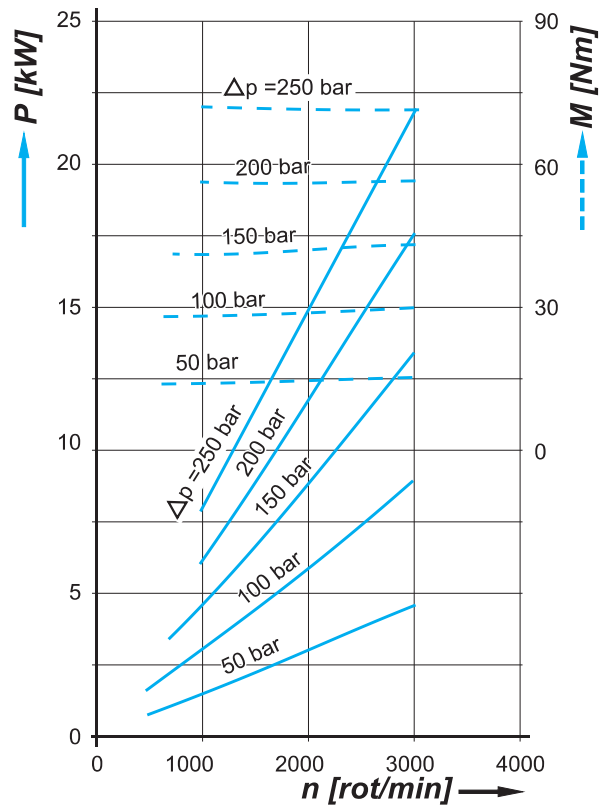
11 cm³/rot



14 cm³/rot

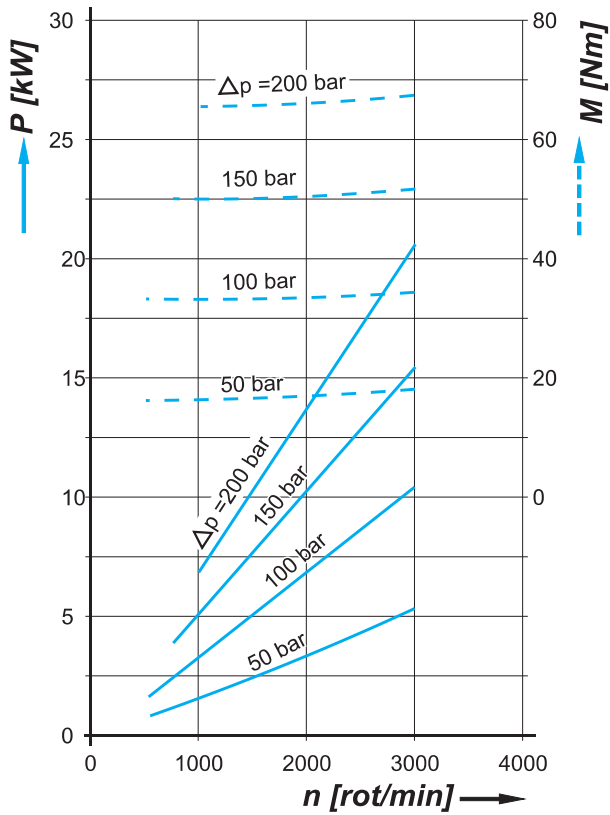


16 cm³/rot

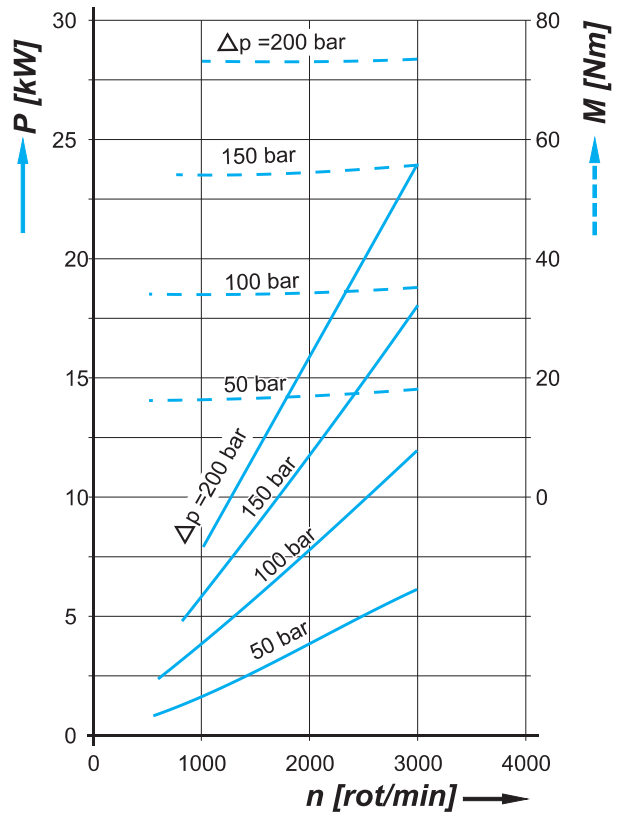


Pompe cu roti dintate

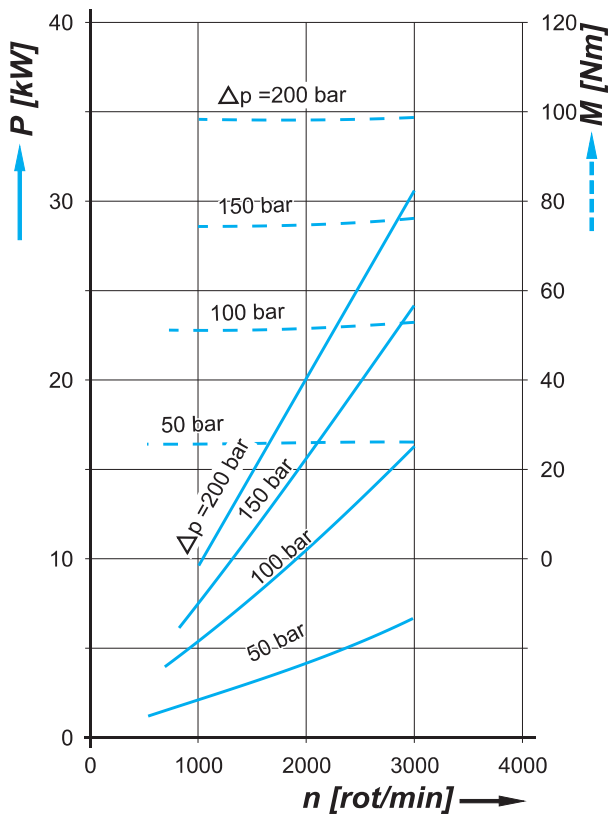
19 cm³/rot



22.5 cm³/rot

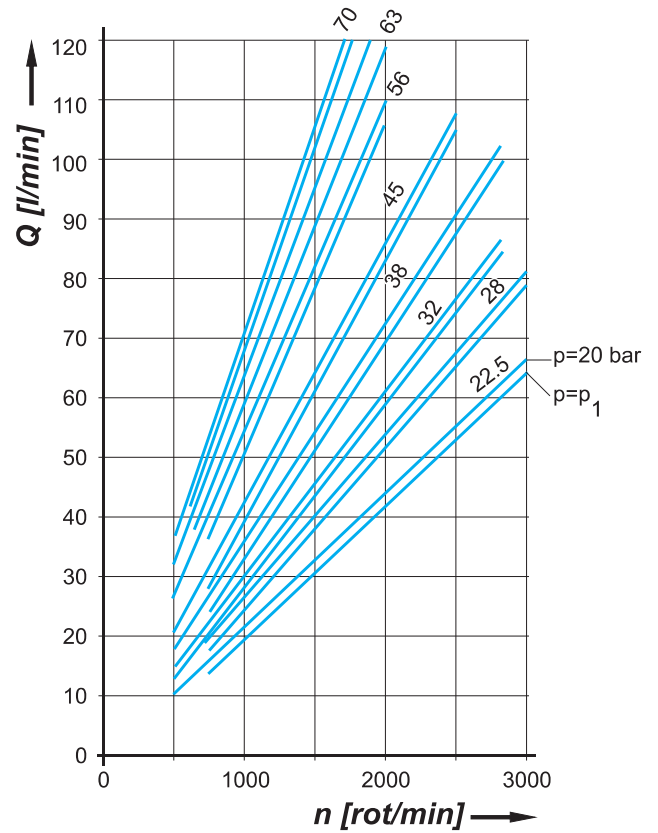


26 cm³/rot

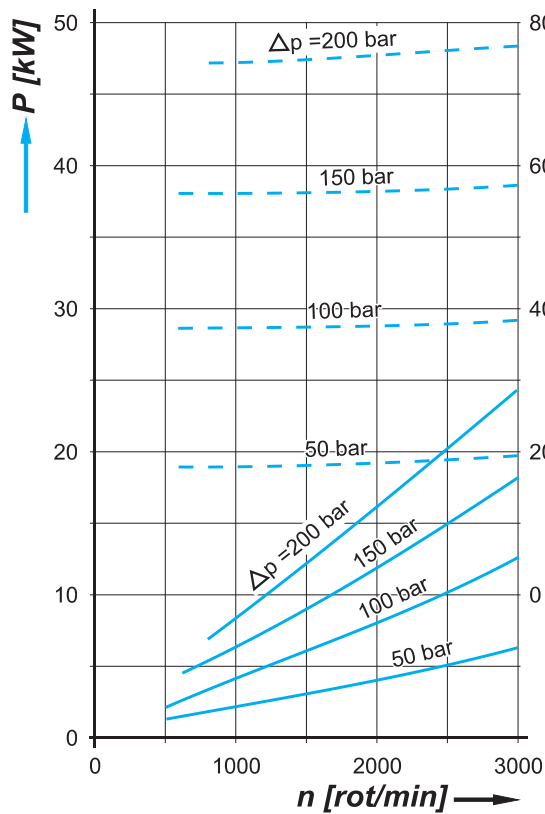




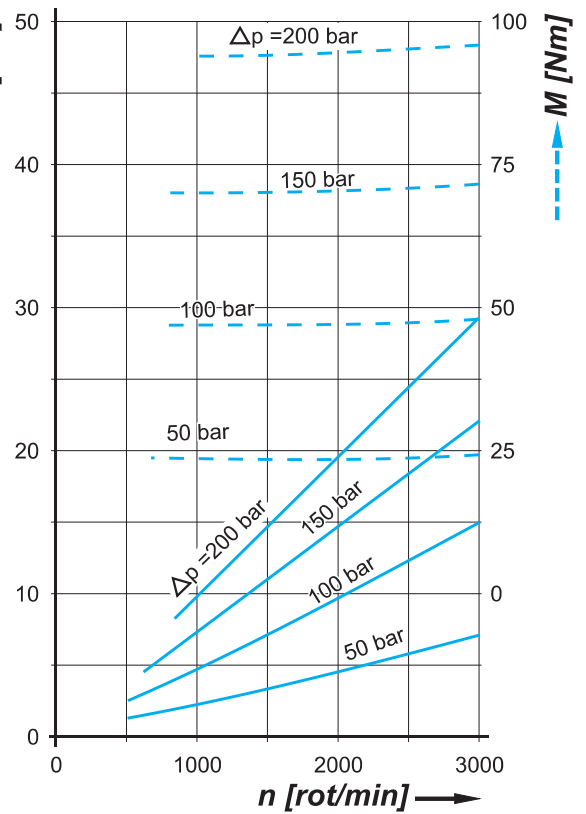
Size
Seria **PRD3**



22.5 cm³/rot

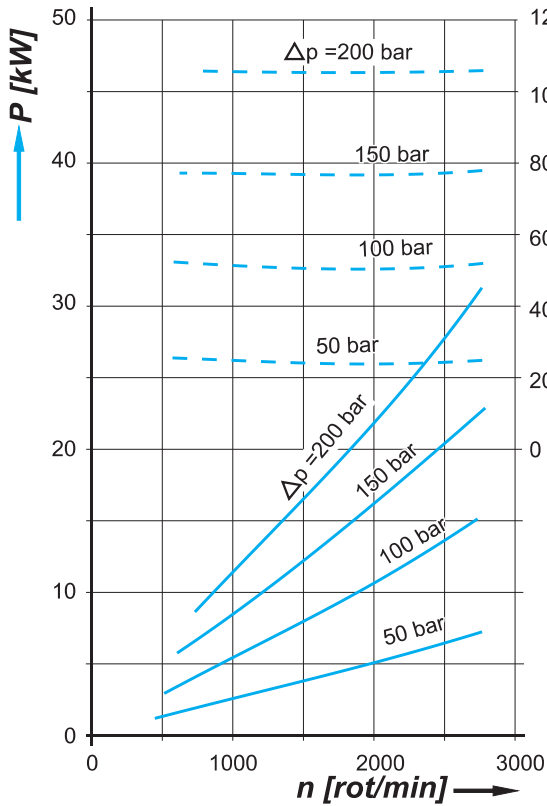


28 cm³/rot

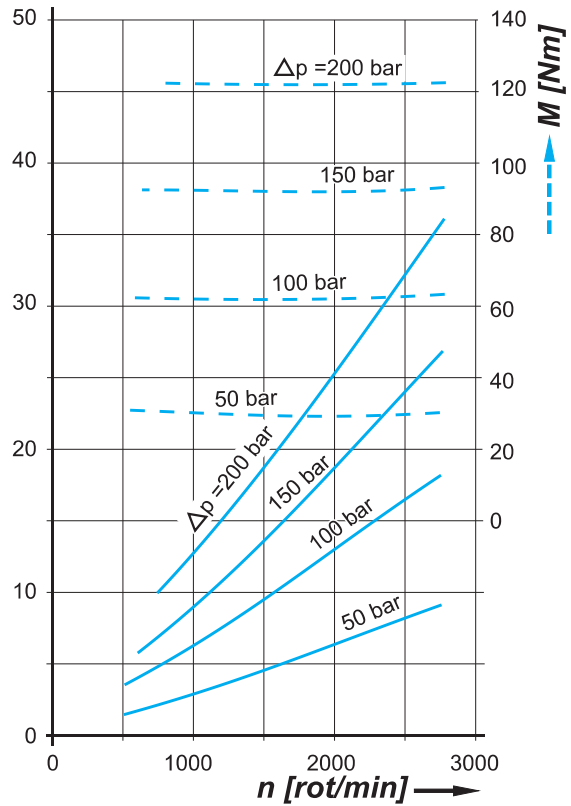


Pompe cu roti dintate

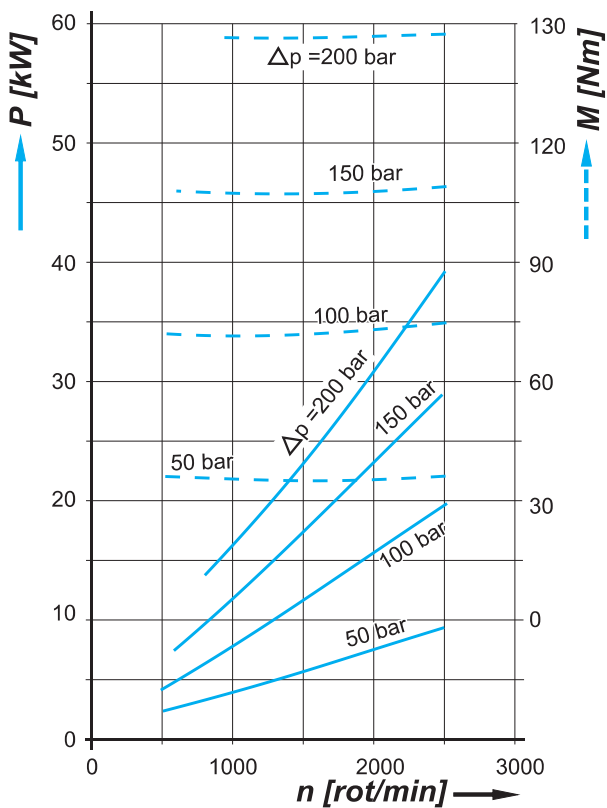
32 cm³/rot



38 cm³/rot



45 cm³/rot



56 cm³/rot

