



Size 06 DC

**Oil / Air Cooling Unit**  
**2.7806.2.□□ - 75.□□.□□**  
**direct-current fan**

**Performance**

**Introduction**

Following data are known:

Dissipation loss  $P_V$  [kW]  
 Oil flow  $\dot{V}_{Oil}$  [l/min]  
 Max. perm. oil temperature  $t_{OIE}$  [°C]  
 Cooling air temperature  $t_{LE}$  [°C]

From the following can be calculated:

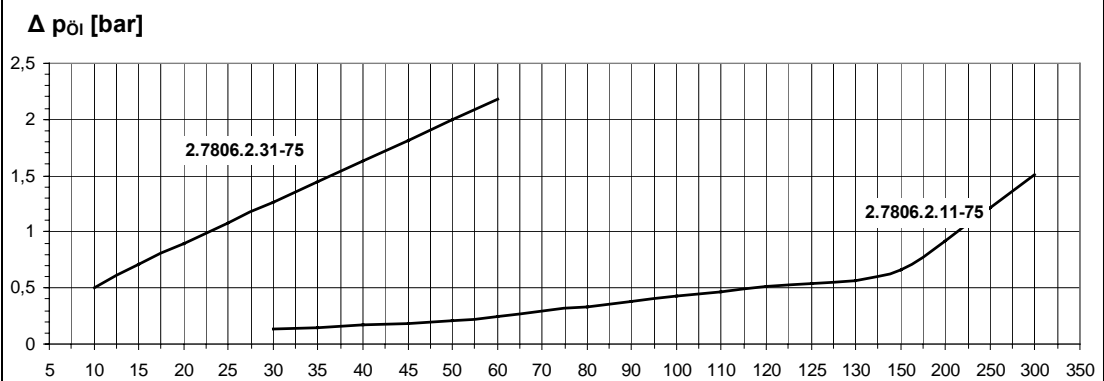
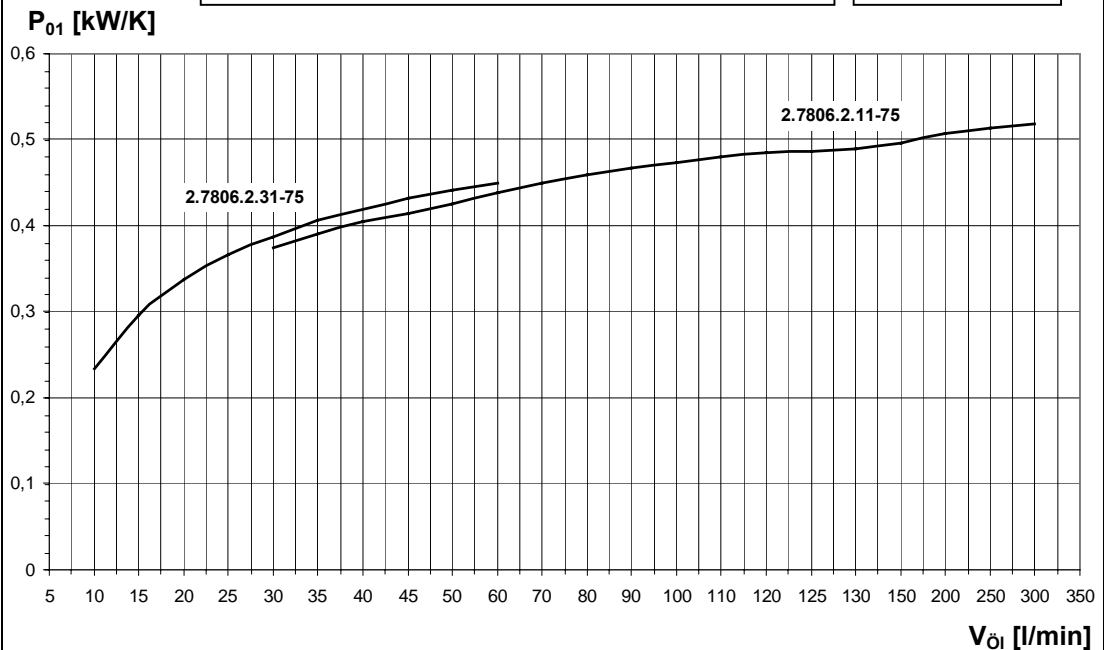
Entry - Temperature - Difference  
 $ETD = t_{OIE} - t_{LE}$  [K]  
 Specific cooling capacity with ETD = 1 K  
 $P_{01} = \frac{P_V}{ETD}$  [kW/K]

In hydraulic systems, the dissipation loss is approximately 20 – 25 % of drive power.

**Performance diagrams**

Example:  
Given:  $P_V = 18$  kW;  $\dot{V}_{Oil} = 120$  l/min;  $t_{OIE} = 70$  °C;  $t_{LE} = 30$  °C  
 $ETD = 70 - 30 = 40$  K;  $P_{01} = \frac{18}{40} = 0,45$  kW/K  
Selection: 2.7806.2.11-75.  
 $P_{01} = 0,485$  kW/K;  $P_V = ETD \cdot 0,485 = 19,4$  kW  
 $\Delta t_{OIL} = \frac{36 \cdot 19,4}{120} = 5,8$  K;  $\Delta t_L = \frac{19,4}{0,84} = 23,1$  K

$\Delta t_{OIL}$  = Oil cooling  
 $\Delta t_L$  = Air heating  
 $\Delta G_L$  = Air flow  
 $\Delta t_{OIL} = \frac{36 \cdot P_V}{\dot{V}_{OIL}}$  [K]  
 $\Delta t_L = \frac{P_V}{\dot{G}_L}$  [K]



**$\Delta p_{OIL}$  - Correction**

The  $\Delta p$ -value obtained from the curves applies for  $\nu = 32$  mm<sup>2</sup>/s ( $\hat{=} 32$  cSt).  
 For differing viscosities, the  $\Delta p$ -value has to be multiplied by the factor f.

10	15	20	32	40	50	60	80	100	150	200	250	300	400	500	mm <sup>2</sup> /s
0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,7	4	5,5	7,3	9,5	16	30	f



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