

3 Monitoring data for BW 190 Series

Measuring point ¹⁾	Filter contamination	Clutch oil pressure		Lubricating oil pressure	Oil temperature		P, L, M, C-apps.
		2, 21, 27	Position ⁹⁾ Engine-wise or counter-engine-wise rotation		Normal operation	P, L, M-apps.	
5	5	2, 21, 27	Position ⁹⁾ Engine-wise or counter-engine-wise rotation	22	11, 12, 41		
Operating mode	“Neutral” ⁹⁾ Engine-wise or counter-engine-wise rotation	Position ⁹⁾ Engine-wise or counter-engine-wise rotation	Position ⁹⁾ “Neutral”			Trailing operation ⁸⁾	
		P _{KN} ⁷⁾					
Nominal value		P _K = P _{KN} – 0.5 bar ⁴⁾	7.5 bar	0.4 bar	30 °C	30 °C	
		P _{V/F} = P _K + 4 bar	P _K = P _{KN} + 1 bar ⁴⁾	10 bar	90 °C	100 °C	75 °C ^{8) 11)} 105 °C ^{8) 12)}
Warning		24 bar v ^{2) 15)} 26 bar v ^{2) 13)}	P _K = P _{KN} – 3 bar w ^{2) 5) 6)}	0.25 bar w ²⁾	95 °C v ²⁾	105 °C v ²⁾	
		Pressure switch	Pressure gauge 0 to 2.5 bar				
Minimum monitoring ¹⁴⁾	Pressure switch	Pressure gauge 0 to 2.5 bar				Thermometer 0 to 120 °C	
Additional monitoring ¹⁴⁾	Pressure gauge 0 to 40 bar ³⁾	Pressure switch ^{3) 5)} or pressure sensor ¹⁶⁾ 0 to 2.5 bar		Pressure switch or pressure gauge 0 to 6 bar		Temperature switch ²⁾ or temperature sensor ¹⁶⁾ 0 to 120 °C	

1) Refer to monitoring plan in installation manual for schematic arrangement; refer to installation drawing or operating instructions or "Basic transmission description" section in installation manual for arrangement on transmission

2) For visual and audible warning

3) Use distributor

4) At 60 °C to 80 °C oil temperature

5) With time delay 3 to 10 s (to be provided by shipyard)

6) Warning must be rendered inoperational in "Neutral" or "Trolling on" position

7) The nominal clutch pressure is specified in the binding, order-specific technical documents and also stamped on the type plate and in the control housing.

8) For operation with engine at a standstill and current-driven propeller (also refer to Section 7, page 25)

9) For normal operation without trolling

10) Not listed in above table

11) Without trailing pump

12) With trailing pump

13) When P_{KN} > 19 bar

14) Not within the standard ZF scope of supply

15) When P_{KN} ≈ 19 bar

16) For remote display

17) Not listed in above table

v Increasing

w Decreasing

P_K = Clutch oil pressure

P_{KN} = Nominal clutch oil pressure

P_{V/F} = Pressure upstream of filter