

	<b>Datenblatt elektromagnetische 2-speed Wasserpumpen Kupplung</b>  <i>(Datafile electromagnetic 2-speed waterpump-clutch)</i>	<b>QF7-36</b>  Seite 1 von 3
	<b>Kunde:</b> <i>(customer)</i>	<b>Ansprechpartner:</b> <i>(point of contact)</i> Fon: _____ Fax: _____
Revisionserhöhungen		
0003	Hinzufügen des Fragebogens zu Betriebsbedingungen	
0004	Hinzufügen 'max. Strom' in Lasten u. Randbedingungen	

### FAHRZEUGDATEN (VEHICLE DATA)

Fahrzeugtyp (*type of vehicle*) \_\_\_\_\_ Motor (*engine*): \_\_\_\_\_  
Einsatzbereich (*operational field*): \_\_\_\_\_

### MOTORDATEN (ENGINE DATA)

max. Motordrehzahl  $n_{max} =$  \_\_\_\_\_  $\text{min}^{-1}$   
*(max. engine speed)*

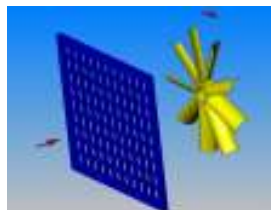
max. Pumpendrehzahl  $n_{max} =$  \_\_\_\_\_  $\text{min}^{-1}$   
*(max. pump speed)*

BEMERKUNGEN : \_\_\_\_\_  
*(REMARKS)*

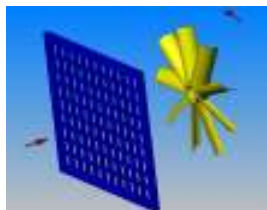
### PUMPENDATEN (PUMP DATA) (incl. Lager- und Dichtungsreibung) *(incl. bearing and sealing friction)*

Antriebs- Drehmoment der Pumpe **TW**= \_\_\_\_\_ Nm  
*(required input torque of water pump)*

bei Pumpendrehzahl **nW**= \_\_\_\_\_  $\text{min}^{-1}$   
*(at Speed)*



im Uhrzeigersinn  
*(clockwise)*



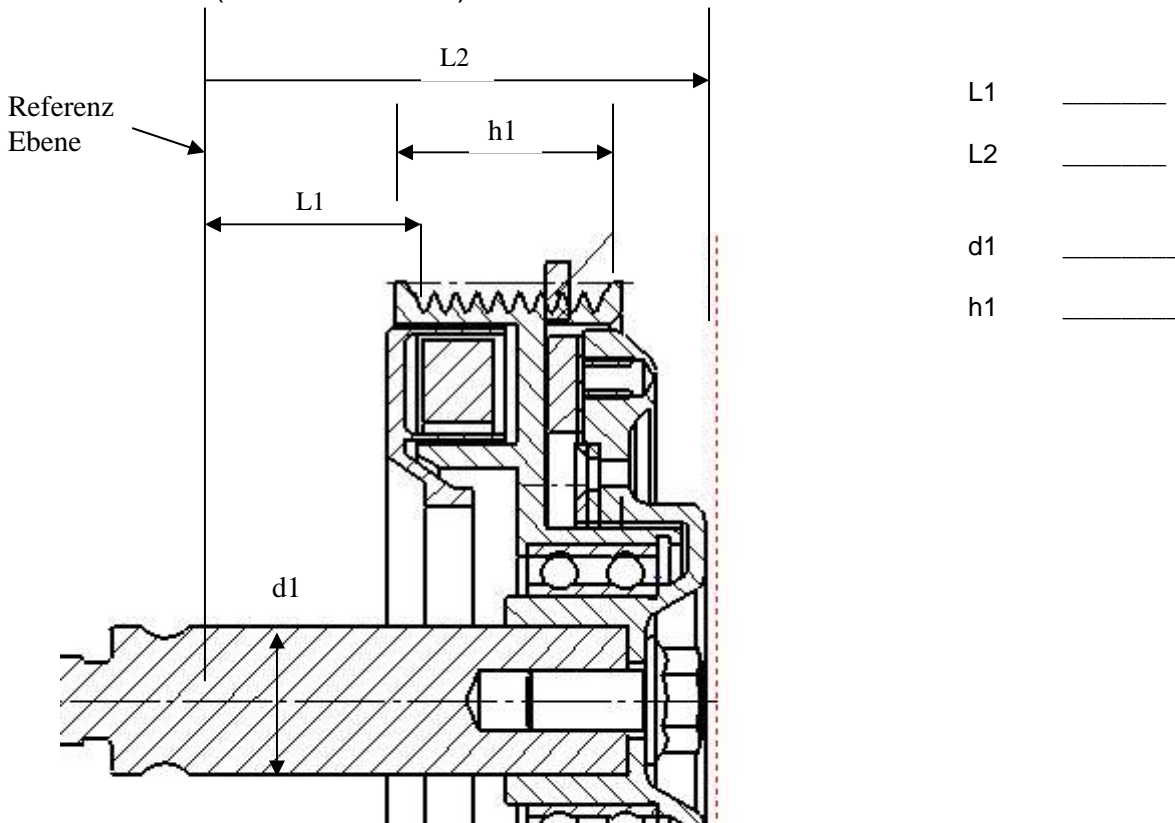
gegen Uhrzeigersinn  
*(counterclockwise)*

Pumpenkennlinie vorhanden ja  nein   
*Pump torque curve available*

Massenträgheitsmoment J \_\_\_\_\_  $\text{kg m}^2$   
*Mass moment of inertia*

Ziel Schleppdrehzahl **n1** = \_\_\_\_\_ rpm bei Pumpen Antriebsdrehzahl **nW**= \_\_\_\_\_ rpm  
*(eddy current speed n1) (at pump input speed nW)*

Maßblatt: (dimension sheet)



L1 \_\_\_\_\_  
 L2 \_\_\_\_\_  
 d1 \_\_\_\_\_  
 h1 \_\_\_\_\_

**Referenz Ebene für axiale Maße**  
 (reference plane, please specify) \_\_\_\_\_

**axiale Position Riemenscheibe L1.** \_\_\_\_\_ mm < L1 < \_\_\_\_\_ mm  
 (axial pulley position)

**Max. Länge der Pumpe L2** \_\_\_\_\_ mm  
 (Max. length of the pump)

**Bezugsdurchmesser Riemenscheibe** \_\_\_\_\_ mm  
 (pulley datum diameter)

**Höhe Riemenscheibe h1** \_\_\_\_\_ mm  
 (pulley height)

**Profil Riemenscheibe** \_\_\_\_\_  
 (pulley profile, please specify)

**Riemenlasten; mittlere, maximale** \_\_\_\_\_, \_\_\_\_\_ N  
 (belt load; average, maximum)

**Umschlingungswinkel:** \_\_\_\_\_ °  
 (belt wrap angle)

**Bordspannung** 12V  24 V  36 V  48 V   
 (electrical supply)

### Lasten und Randbedingungen : (loads and boundary conditions)

maximale axiale Beschleunigung \_\_\_\_\_ m/s<sup>2</sup>  
(maximum axial acceleration)

maximale radiale Beschleunigung \_\_\_\_\_ m/s<sup>2</sup>  
(maximum radial acceleration)

maximale Motorraum Temperatur \_\_\_\_\_ °C  
(maximum underhood temperature)

minimale Motorraum Temperatur \_\_\_\_\_ °C  
(minimum underhood temperature)

**Maximal zulässige Stromaufnahme bei warmer Spule (> 5Min an)** \_\_\_\_\_ A bei \_\_\_\_\_ V , \_\_\_\_\_ °C Umgebungstemperatur

**Maximal zulässige Stromaufnahme bei kalter Spule** \_\_\_\_\_ A bei \_\_\_\_\_ V , \_\_\_\_\_ °C Umgebungstemperatur

**Maximal zulässige Stromaufnahme, Einschaltstoß bei kalter Spule** \_\_\_\_\_ A bei \_\_\_\_\_ V , \_\_\_\_\_ °C Umgebungstemperatur

### KONTROLLSYSTEMDATEN (CONTROL SYSTEM DATA)

Thermostat (thermostat)	Beginnt zu öffnen bei: (starts to open at) °C	
	Vollkommen geöffnet bei: (completely open at) °C	

- ANLAGEN :  Einbau-Zeichnung (installation drawing)  
(attachments)  Zeichnung Riemenscheibe (pulley drawing)  
 Pumpenkennlinie (pump torque curve)  
 Zeichnung des Pumpenlagers (drawing of pump bearing)  
 Zeichnung der elektr. Steckverbindung (drawing of connector)  
 Sonstiges (others) \_\_\_\_\_

Komplette Adresse (complete address) _____ _____ _____ _____	Datum, Unterschrift (date, signature) _____
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# Questionnaire on operating conditions of a 2-speed water pump clutch



## 1. Control Laws of the 2-speed water pump clutch:

How many sensors are interacting with the control laws of the clutch?

- one                       two                       three                       >three

Which kind of sensors?

- Temperature                       Speed                       \_\_\_\_\_

Where are these sensors located or influenced by?

- |                                                  |                                          |
|--------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Coolant temperature     | <input type="checkbox"/> Oil Temperature |
| <input type="checkbox"/> Break (Retarder) on/off | <input type="checkbox"/> Gear oil        |
| <input type="checkbox"/> Ambient Temperature     | <input type="checkbox"/> Air compressor  |
| <input type="checkbox"/> _____                   | <input type="checkbox"/> _____           |

Which kind of temperature settings are basis for the control?

- Static:  
 Dynamic: the switching points are flexible due to different sensors.  
 Temperature hysteresis between \_\_\_\_\_ °C (on) and \_\_\_\_\_ °C (off)

Type of clutch engagement:

Minimum engagement time: \_\_\_\_\_ seconds.  
 Average known duration of an engagement: \_\_\_\_\_ seconds  
 Typical pattern of a clutch engagement: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## 2. Configuration of the cooling system

Kind of Thermostat:

- Bi metal                       electronically controlled

Priorities of the control laws: e.g.

- |                                                     |                                                            |                                                            |
|-----------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> 1 <sup>st</sup> thermostat | <input type="checkbox"/> 2 <sup>nd</sup> fan clutch        | <input type="checkbox"/> 3 <sup>rd</sup> water pump clutch |
| <input type="checkbox"/> 1 <sup>st</sup> thermostat | <input type="checkbox"/> 2 <sup>nd</sup> water pump clutch | <input type="checkbox"/> 3 <sup>rd</sup> fan clutch        |
| <input type="checkbox"/> 1 <sup>st</sup> _____      | <input type="checkbox"/> 2 <sup>nd</sup> _____             | <input type="checkbox"/> 3 <sup>rd</sup> _____             |

**Possible conflicts between the control laws of the sensors mentioned above?**

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**Please explain the exact control laws:**

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