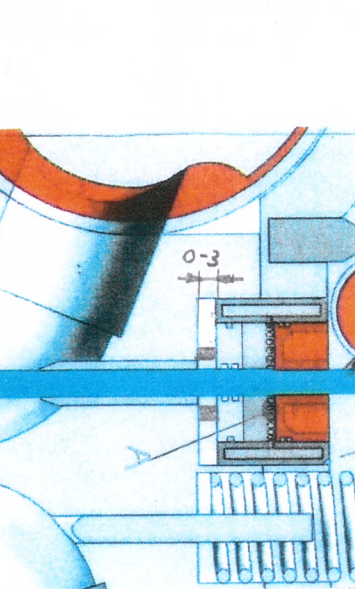
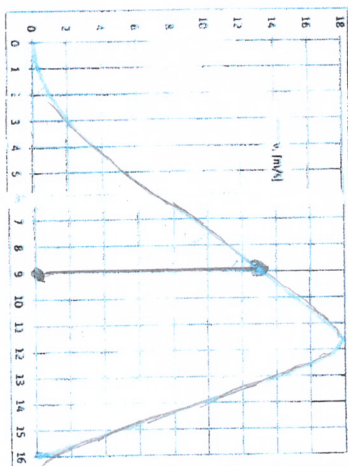
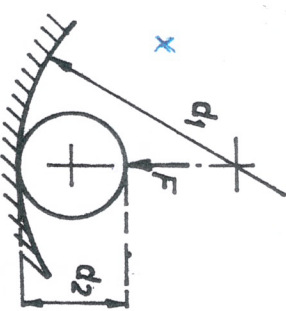


[illegible]

$E1=21000 \text{ kp/sqmm}, \nu=0,3, \text{ Cronidur}$
 $E2=33000 \text{ kp/sqmm}, \nu=0,25, \text{ Si3N4}$
 $d1=45 \text{ mm}$



$$d = \frac{d_1 d_2}{d_1 - d_2}$$

E1=21000 kp/sqmm, $\nu=0,3$, Cronidur

E2=33000 kp/sqmm, v=0,25, Si3N4

$d_1 = 45 \text{ mm}$

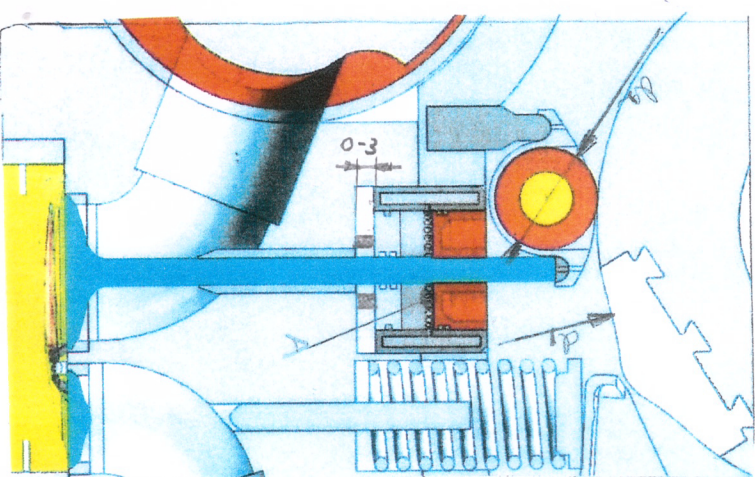
n=2650 rpm

$d_2 = 25 \text{ mm}$

$m_{\text{valve}}=0,13 \text{ kg}$

$l = 10 \text{ mm}$

if $F=1000\text{kp}$, $p_0=2,35\text{GPa}$



Ultimate life with Cronidur 30®

Tests document that rolling bearings of Cronidur 30® stand out for their substantially extended material fatigue life. At a contact pressure of 2,800 MPa under EHD conditions the calculated life values are exceeded by the factor of 80 without failure. In hybrid bearings incorporating ceramic balls, Cronidur 30® accepts a 25 per cent higher contact pressure. This would relate to a 40 per cent increase in rolling element with point contact.

Reliability under conditions of mixed friction

Even in the mixed friction range, Cronidur 30® proves its superiority. Tests carried out under a defined condition of mixed friction ($p_0 = 2,500$ MPa) have shown that bearings of Cronidur 30® reach a tenfold service life compared with bearings made of standard material 100Cr6. Furthermore, the wear behaviour of the bearing is considerably improved with Cronidur 30®. This becomes particularly apparent in the case of hybrid bearings with rings consisting of the new material and ceramic rolling elements. Here, the wear rate lies considerably below the former usual values.

CRONIDUR® 30 - APPLICATIONS

■ Superior Tribological Properties for critical Circumstances

Lubrication/ Test Conditions	Contact Stress Pc in MPa	Results	Cronidur 30
Full Lubrication[EHD]	3,800	100Cr 6: L10 = 16h M50: L10 = 160h	L10 > 260h
Full Lubrication [EHD]	2,800	100Cr 6: L10 = 800h M50: L10 = 600h	L10 > 3,900h
Boundary Lubrication	2,500	100Cr 6: L10 = 55h 440C: L10 = 10h	L10 > 1,050h
Boundary Lubrication and Corros. Cyclic Test (Salt Spray)	2,800	440C: L10 = 10h	L10 > 240h
Boundary Lubrication and Artificial Indentations	2,500	100Cr 6: L10 = 35h	L10: 500h
HfA Hydr. Fluid	2,500	100Cr 6: L10 = 57h 440C: L10 = 370h	L10: 570h
HfC Hydr. Fluid	2,500	440C: L10 = 370h	L10 > 4,000h