NOTATION

Symbols which only arise once, and are defined on the spot, are not listed.

$2b$	width of Hertzian contact zone
$\dfrac{b}{R} = 4\left(\dfrac{W}{2\pi}\right)^{\frac{1}{2}} = 4P_0$	
C	capacitance
C_D	inter-specimen capacitance
C_F, C_S	pad–disc capacitances
c	specific heat
E	internal energy
E	e.m.f.
E_1, E_2	elastic moduli of solids in contact
$\dfrac{1}{E'} =$	$\dfrac{1}{2}\left[\dfrac{1-\sigma_1^2}{E_1} + \dfrac{1-\sigma_2^2}{E_2}\right]$
e_x, e_y, e_z, e_{xy}	strain components in solids
F	surface shear force
$\bar{F}$	$F/2\eta u$
F'	$F/E'R$
F_R	surface shear force in pure rolling
F_s	surface shear force due to sliding
G	$\alpha E'$
G	shear modulus
H	h/R
h	lubricant film thickness
h_m	film thickness at point of maximum pressure
h_0	film thickness on line of centres
K	$2/\pi E'$
k	thermal conductivity

l	gear centre distance
L	width of leading edge of electrode
M	W'/P'_0
N_1, N_2	speeds in r.p.m. of gear wheel and pinion
P	p/E'
P'	line load/unit length on solid surface
P_0	p_0/E'
$P'_{0,1,2\ldots}$	load per unit length carried by individual rollers in a roller bearing assembly
P'_0	maximum load per unit length carried by most heavily loaded roller
P_x, P_y	hydrodynamic force components per unit length of cylinder
$\underline{P}'_x$	$P_x/E'R$
$\bar{P}_x$, etc.	$P_x/2U$
p	pressure
p_0	Hertzian maximum pressure
$p_r, p_\theta, q_{r\theta}$; p_x, p_y, q_{xy}	stresses in solids
Q	volume rate of flow of lubricant
$\underline{Q}$	q/E'
$\bar{Q}$	Q/uh_0, dimensionless flow rate
q	reduced pressure, defined by $q = (1 - e^{-\alpha p})/\alpha$
q	heat flow
R	effective radius of roller pair $= \dfrac{R_a R_b}{R_a \pm R_b}$
R_a, R_b	radii of cylinders or rollers in contact
R_1	radius of roller bearing inner race
R_1, R_2	pitch circle radii of gear wheels
R_g	gear ratio
r	radius of roller
r, θ, z	coordinates
S	R/h_0
s	additional coordinate in x-direction
s	r/R_1

s	distance between point of gear contact and pitch point
$s_{frac.}$	fractional distance along line of action of gears measured from base circle of wheel
U	$\eta_0 u/E'R$
u	$\frac{1}{2}(u_1 + u_2)$
u_1, u_2	surface velocities of solids in x-direction
u, v, w	fluid velocities in x-, y-, z-directions
u, v, w	solid displacements in x-, y-, z-directions
V	$\eta_0(u_1 - u_2)/E'R$
W	$w/E'R$
W'	total load per unit length on roller bearing $\left(= \dfrac{\text{total load on bearing}}{\text{length of } \textit{rollers}}\right)$
w	load per unit length of cylinder
X	x/b
x, y, z	coordinates
Z	total number of rollers in bearing
α	pressure exponent of viscosity, $\eta = \eta_0 \exp(ap)$
α	$\dfrac{\omega_c}{\Omega} 2(1 + s)$
β	$\dfrac{\omega}{\Omega} \dfrac{2s(1 + s)}{(1 + 2s)}$
γ	temperature exponent of viscosity, $\eta = \eta_x \exp(-\gamma\theta)$
Δ	radial clearance in roller bearing
δ	deflection
ε	dielectric constant
ε	radial interference in roller bearing
η	viscosity
η_0	"controlling viscosity", viscosity at conditions of entry to contact
η_L	viscosity of lubricant at supply temperature
η_n	viscosity at ordinate where $\mathrm{d}u/\mathrm{d}y = (u_2 - u_1)/h$
η_s	viscosity at solid surface temperature
θ	temperature

μ	coefficient of friction
ϱ	fluid density
ϱ_m	fluid density at point of max. pressure
ϱ_0	fluid density at conditions of entry to contact
σ_1, σ_2	Poisson's ratio
τ	tangential surface stress
φ	energy dissipation function
φ	stress function
ψ	pressure angle
Ω	angular velocity of bearing inner race
ω	angular velocity of a bearing roller about its centre relative to rotating axes
ω_c	angular velocity of bearing roller centre about shaft axis (cage speed)