

Notations

X	=quality characteristic
μ	=true process mean level
$\hat{\mu}$	=process mean estimate
μ'	=standard value for the process mean
σ	=true common cause sigma
$\hat{\sigma}$	=common cause sigma estimate
σ'	=standard value for common cause sigma
k	=number of subgroups
n_i	=ith subgroup size
X_{ij}	=jth observation of the ith subgroup
\bar{X}_i	=ith subgroup arithmetic mean
$\bar{\bar{X}}$	=overall mean
S_i	=ith subgroup standard deviation ($n-1$ in the divisor)
\bar{S}	=average standard deviation
R_i	=ith subgroup range
\bar{R}	=average range
c_3	=unbiasing constant for S_i and \bar{S}
d_2	=unbiasing constant for R_i and \bar{R}
A_2	=control limit factor for the \bar{X} chart with \bar{R} estimate
A_3	=control limit factor for the \bar{X} chart with \bar{S} estimate
B_3	=lower control limit factor for the S-chart
B_4	=upper control limit factor for the S-chart
D_3	=lower control limit factor for the R-chart
D_4	=upper control limit factor for the R-chart
p	=true proportion nonconforming of the process or lot
\hat{p}	=estimated proportion nonconforming of the process or lot
d_i	=the number of nonconformities or number of nonconforming units
in the ith subgroup	
\hat{p}_i	=estimated proportion nonconforming for the ith subgroup
\bar{p}	=overall estimate of the process proportion nonconforming
λ	=process nonconformity rate
$\hat{\lambda}$	=estimated process nonconformity rate
\bar{c}	=overall average number of nonconformities
n	=the sample size of a single sampling attribute plan
Ac	=the acceptance number of a single sampling attribute plan
Re	=the rejection number of a single sampling attribute plan

n_i =ith stage sample size
 Ac_i =ith stage acceptance number
 Re_i =ith stage rejection number