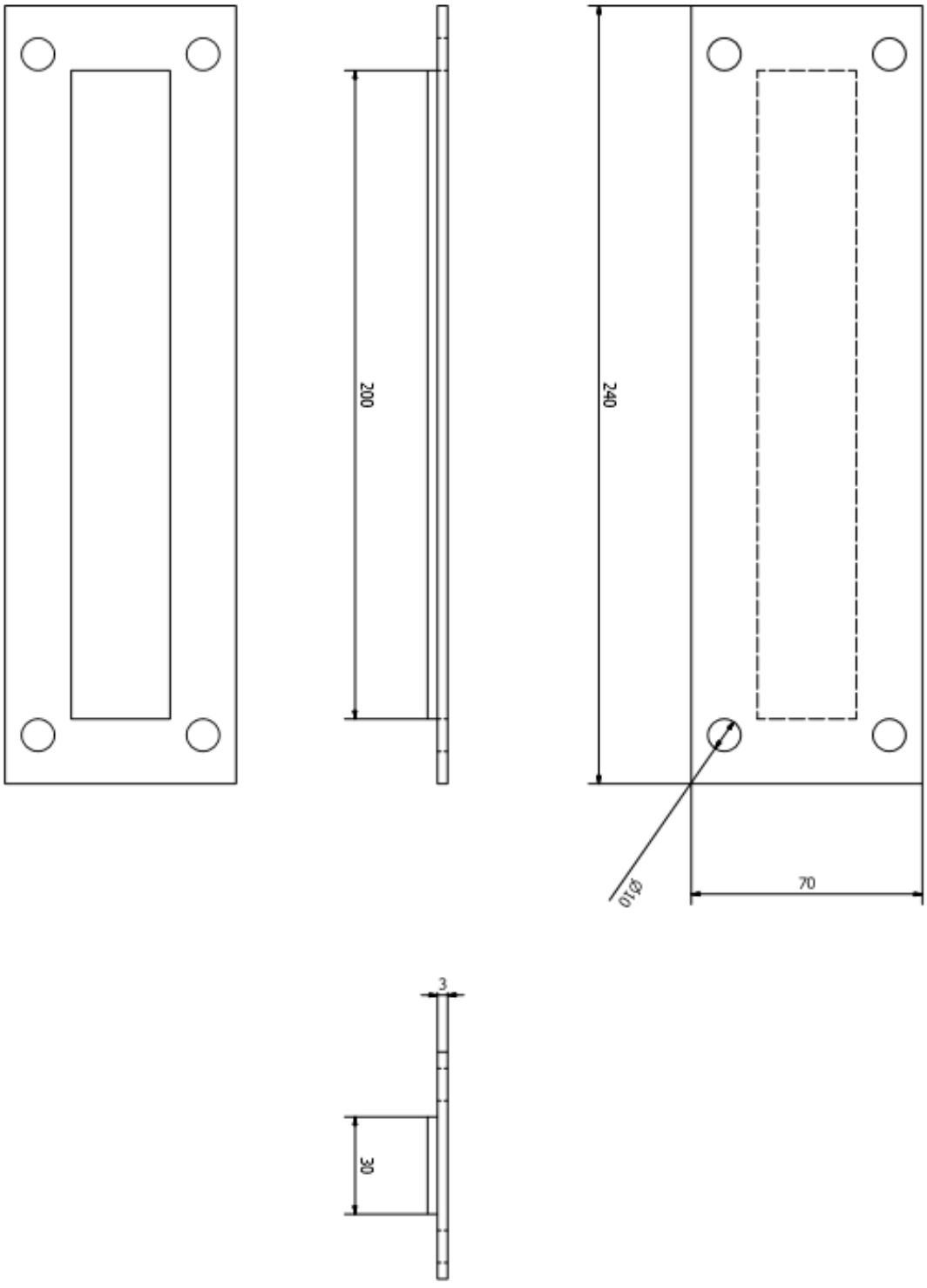
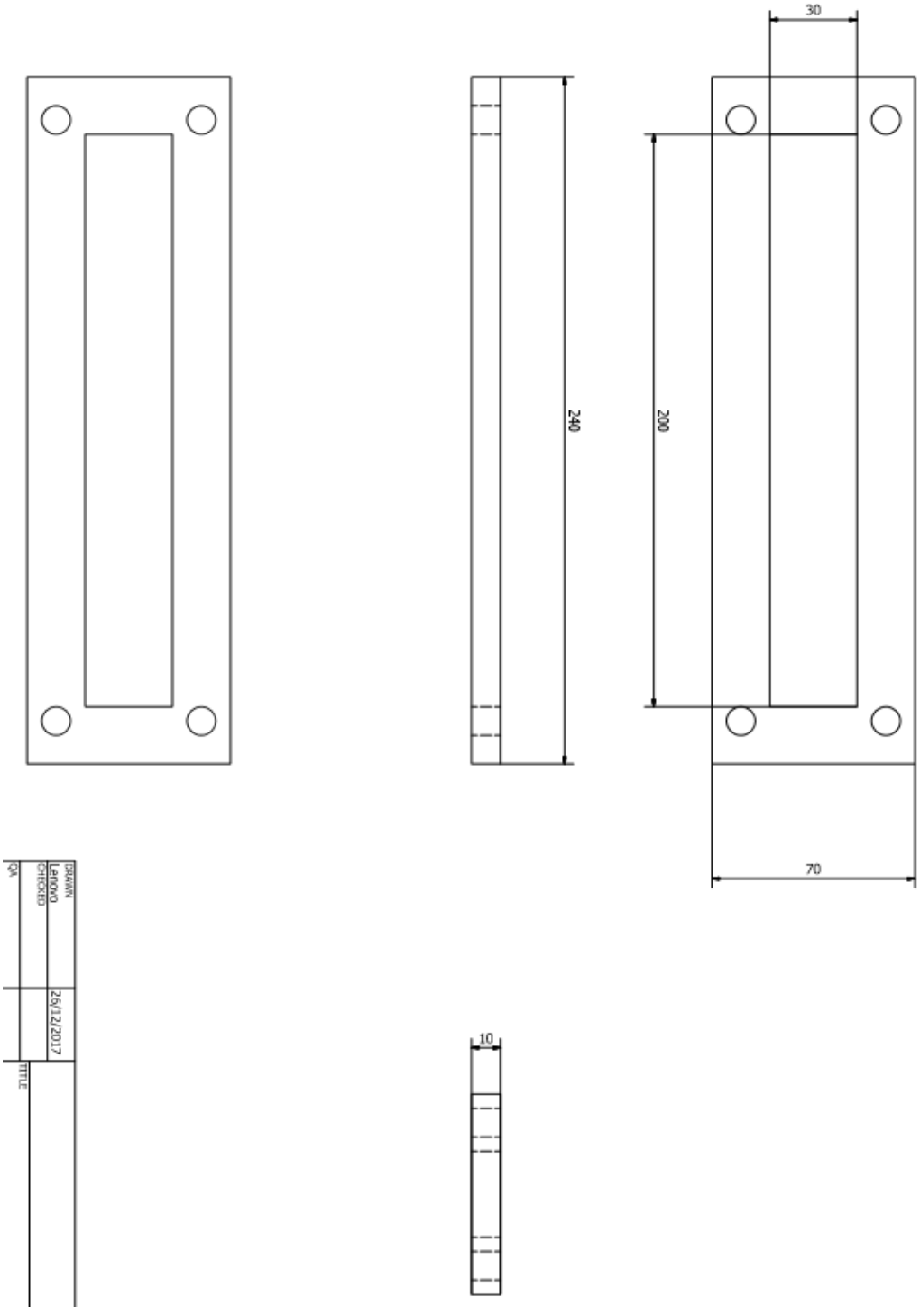
LAMPIRAN 1

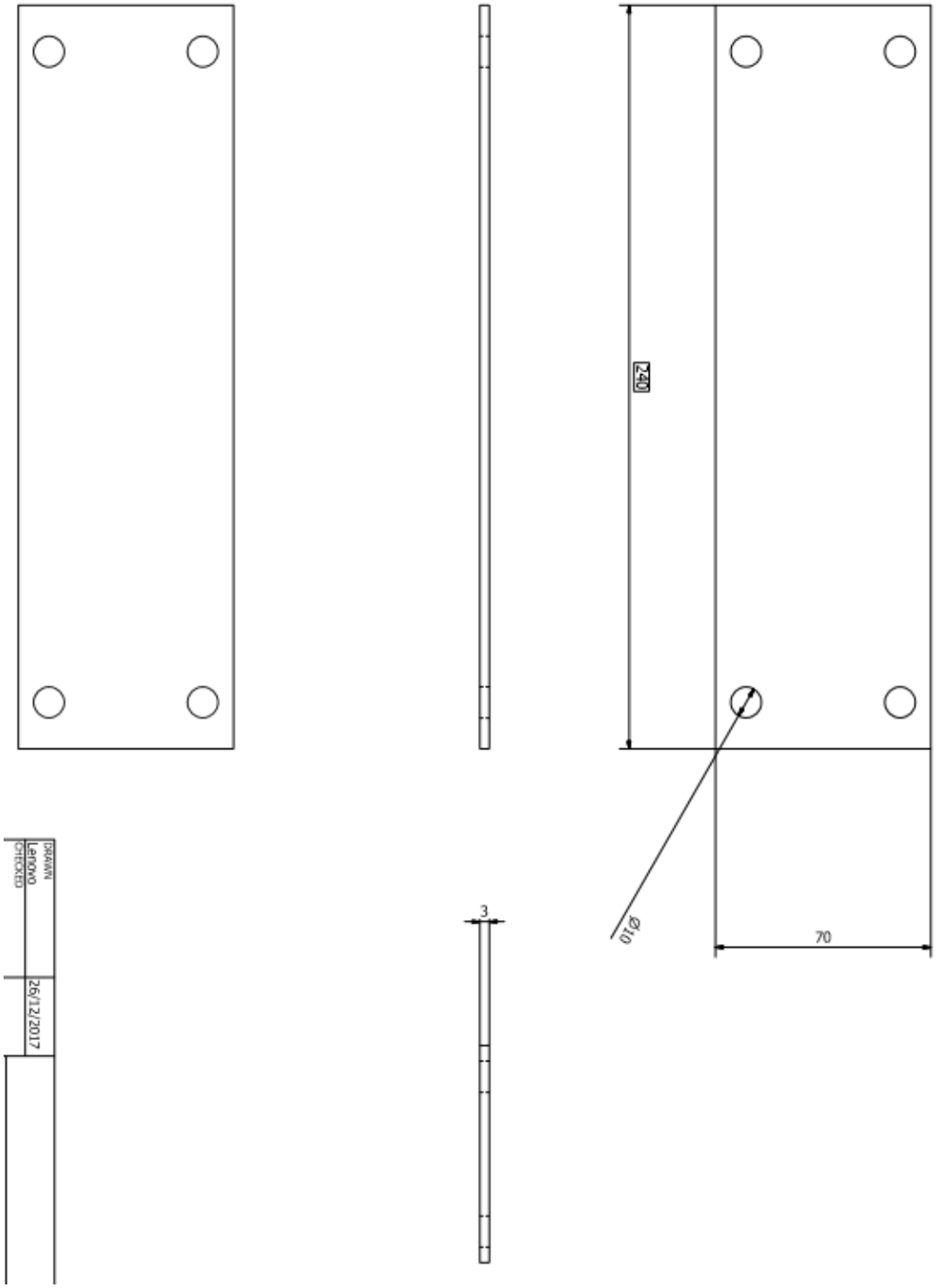
Gambar Tutup cetakan



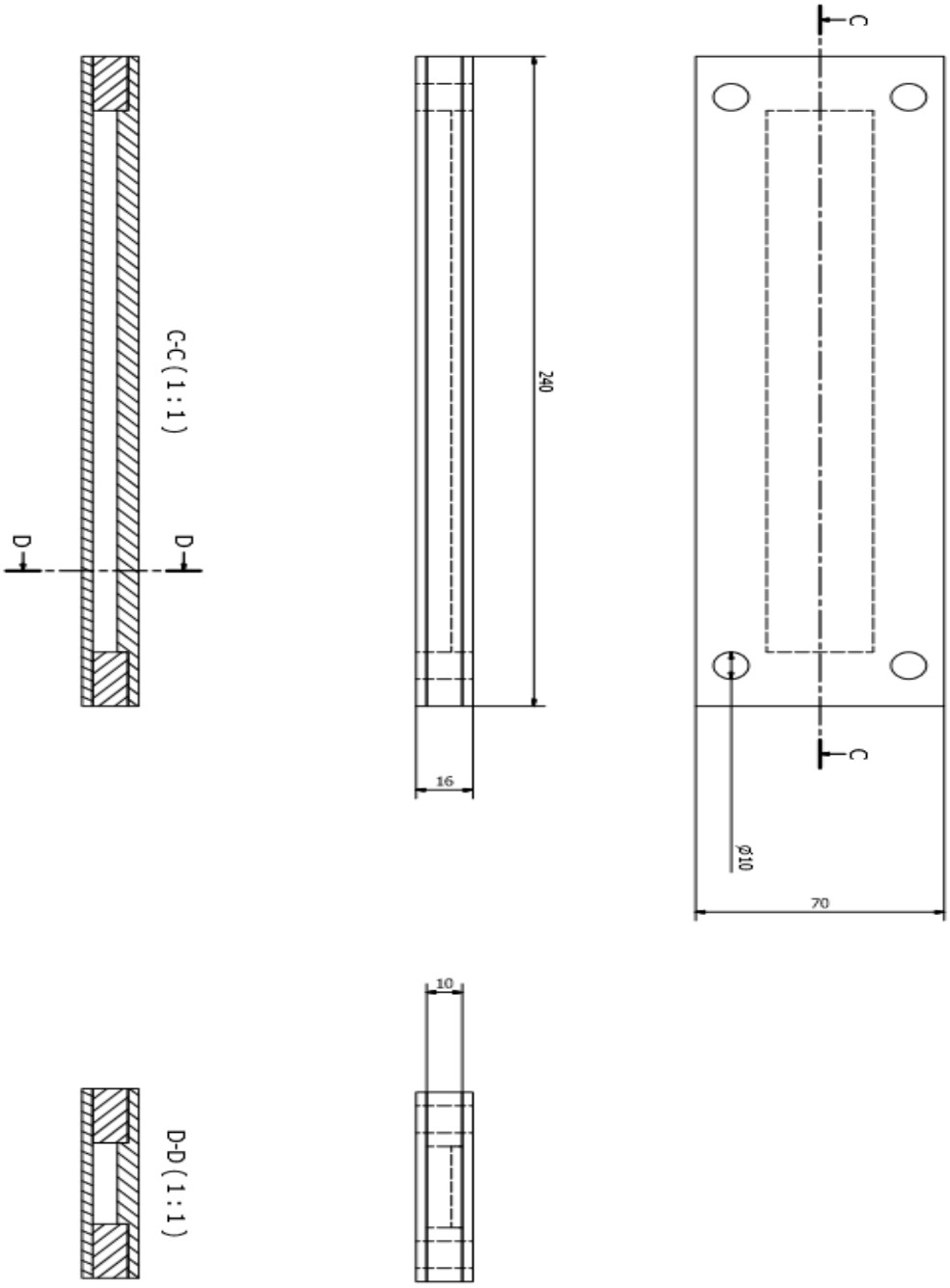
Gambar Cetakan



Gambar Alas Cetakan



Gambar Susunan dan Potongan cetakan



LAMPIRAN 2

PERHITUNGAN FRAKSI VOLUME BONGGONG JAGUNG, *ALUMINIUM OXIDE* DAN *POLYESTER*

Sebelum memasuki proses percetakan perlu dilakukan perhitungan massa serbuk bonggol jagung, alumina dan resin *polyester*. Variasi fraksi volume bonggol jagung yaitu 25 %, 35 %, 45 %, 55 % dengan perhitungan sebagai berikut :

Diketahui :

Massa jenis bonggol jagung = 0,72 gr/cm^3

Massa jenis alumina = 1,52 gr/cm^3

Massa jenis *polyester* = 1,23 gr/cm^3

Dimensi cetakan : panjang (p) = 20 cm

lebar (l) = 3 cm

tebal (t) = 0.7 cm

Fraksi volume 25 % bonggol jagung, 25 % alumina, 50 % resin *polyester*.

Volume cetakan, V_c = p x l x t

= 20 cm x 3 cm x 0,7 cm

= 42 cm^3

Volume bonggol jagung, V_b $= \frac{Vb}{100} x\ Vc$

$= \frac{25}{100} x\ 42$

= 10,5 cm^3

Volume alumina, V_a $= \frac{Va}{100} x\ Vc$

$= \frac{25}{100} x\ 42$

= 10,5 cm^3

Volume matriks, V_m $= \frac{Vm}{100} x\ Vc$

$= \frac{50}{100} x\ 42$

= 21 cm^3

Massa bonggol jagung, m_b = ρ_b x V_b

= 0,72 gr/cm^3 x 10,5 cm^3

= 7,56 gr

Massa alumina, m_a = ρ_a x V_a
= 1,52 gr/cm^3 x 10,5 cm^3
= 15,96 gr

Massa matriks, m_m = ρ_m x V_m
= 1,23 gr/cm^3 x 21 cm^3
= 25,83 gr

Fraksi volume 35 % bonggol jagung, 25 % alumina, 40 % resin *polyester*.

Volume cetakan, V_c = p x l x t
= 20 cm x 3 cm x 0,7 cm
= 42 cm^3

Volume bonggol jagung, V_b $= \frac{Vb}{100}$ x Vc
$= \frac{35}{100}$ x 42
= 14,7 cm^3

Volume alumina, V_a $= \frac{Va}{100}$ x Vc
$= \frac{25}{100}$ x 42
= 10,5 cm^3

Volume matriks, V_m $= \frac{Vm}{100}$ x Vc
$= \frac{40}{100}$ x 42
= 16,8 cm^3

Massa bonggol jagung, m_b = ρ_b x V_b
= 0,72 gr/cm^3 x 14,7 cm^3
= 10,58 gr

Massa alumina, m_a = ρ_a x V_a
= 1,52 gr/cm^3 x 10,5 cm^3
= 15,96 gr

Massa matriks, m_m = ρ_m x V_m
= 1,23 gr/cm^3 x 16,8 cm^3
= 20.66 gr

Fraksi volume 45 % bonggol jagung, 25 % alumina, 30 % resin *polyester*.

Volume cetakan, V_c = p x l x t
= 20 cm x 3 cm x 0,7 cm
= 42 cm^3

Volume bonggol jagung, V_b $= \frac{Vb}{100} x\ Vc$
$= \frac{45}{100} x\ 42$
= 18,9 cm^3

Volume alumina, V_a $= \frac{Va}{100} x\ Vc$
$= \frac{25}{100} x\ 42$
= 10,5 cm^3

Volume matriks, V_m $= \frac{Vm}{100} x\ Vc$
$= \frac{30}{100} x\ 42$
= 12,6 cm^3

Massa bonggol jagung, m_b = ρ_b x V_b
= 0,72 gr/cm^3 x 18,9 cm^3
= 13,6 gr

Massa alumina, m_a = ρ_a x V_a
= 1,52 gr/cm^3 x 10,5 cm^3
= 15,96 gr

Massa matrik, m_m = ρ_m x V_m
= 1,23 gr/cm^3 x 12,6 cm^3
= 15,49 gr

Fraksi volume 55 % bonggol jagung, 25 % alumina, 20 % resin *polyester*.

Volume cetakan, V_c = p x l x t
= 20 cm x 3 cm x 0,7 cm
= 42 cm^3

Volume bonggol jagung, V_b $= \frac{Vb}{100} x\ Vc$

$= \frac{55}{100}$ x 42

= 23,1 cm^3

Volume alumina,V_a $= \frac{Va}{100}$ x Vc

$= \frac{25}{100}$ x 42

= 10,5 cm^3

Volume matriks, V_m $= \frac{Vm}{100}$ x Vc

$= \frac{20}{100}$ x 42

= 8,4 cm^3

Massa bonggol jagung, m_b = ρ_b x V_b

= 0,72 gr/cm^3 x 23,1 cm^3

= 16,63 gr

Massa alumina, m_a = ρ_a x V_a

= 1,52 gr/cm^3 x 10,5 cm^3

= 15,96 gr

Massa matriks, m_m = ρ_m x V_m

= 1,23 gr/cm^3 x 8,4 cm^3

= 10.33 gr

LAMPIRAN 3

TABEL HASIL PENGUJIAN KEKERASAN *SHORE HARDNESS TESTER TYPE D*

No	Fraksi Volume (%)	Uji 1 (HD)	Uji 2 (HD)	Uji 3 (HD)	Uji 4 (HD)	Uji 5 (HD)	Kekerasan Rata-rata (HD)
1	25	89,0	89,5	91,0	90,5	89,5	89,9
2	35	91,5	91,5	92,0	92,0	92,5	91,9
3	45	90,0	90,5	90,0	91,0	91,5	90,6
4	55	88,0	88,0	90,0	89,0	87,0	88,4
5	Indopart	93,0	91,5	93,0	94,5	93,5	93,1

LAMPIRAN 4

PERHITUNGAN KEAUSAN *OGOSHI*

Perhitungan pengujian keausan *ogoshi*

Diketahui:

Lebar piringan pengaus (B) = 3 mm

Jari-jari piringan pengaus (r) = 15 mm

Beban (Po) = 12,72 kg

Jarak tempuh (Lo) = 400000 mm

Lebar keausan rata-rata (Bo) = 1,15 mm

Spesifik abrasi (Ws) $= \frac{B\ (Bo)^3}{8\ \text{r Po Lo}}$

$$= \frac{3\ mm\ (1{,}15\ mm)^3}{8\ \text{x}\ 15\ \text{mm x}\ 12{,}72\ \text{kg x}\ 400000\ \text{mm}}$$

$= 0{,}74 \text{ x } 10^{-8} \text{ mm}^2/\text{kg}$

TABEL HASIL PENGUJIAN DAN PERHITUNGAN KEAUSAN *OGOSHI*

No	Fraksi Volume (%)	Bo 1 (mm)	Bo 2 (mm)	Bo 3 (mm)	Bo Rata-rata (mm)	Spesifik Abrasi $Wsx10^{-8}$ (mm^2/kg)	Spesifik Abrasi Rata-rata $Wsx10^{-8}$ (mm^2/kg)	Standar Deviasi (mm)
1	25	1,15	1,17	1,13	1,15	0,74	0,77	0,04
		1,17	1,18	1,17	1,17	0,78		
		1,19	1,18	1,20	1,19	0,82		
2	35	1,26	1,27	1,25	1,25	0,98	1,01	0,05
		1,26	1,26	1,27	1,26	0,98		
		1.32	1,29	1,30	1,30	1,07		
3	45	1,33	1,35	1,34	1,34	1,18	1,15	0,02
		1,33	1,33	1,33	1,33	1,15		
		1,30	1,34	1,33	1,32	1,13		
4	55	1,38	1,38	1,39	1,38	1,29	1,33	0,05
		1,40	1,38	1,40	1,39	1,31		
		1,42	1,41	1,43	1,42	1,40		
5	Indopart	1,30	1,28	1,27	1,28	1,03	1,07	0,05
		1,31	1,32	1,33	1,32	1,13		
		1,29	1,30	1,28	1,29	1,05		