



calculatoratoz.com



unitsconverters.com

Scraper Production Formulas

Calculators!

Examples!

Conversions!

Bookmark calculatoratoz.com, unitsconverters.com

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

[Please leave your feedback here...](#)



List of 25 Scraper Production Formulas

Scraper Production

1) Bank or Quantity of Scrap Produced

$$fx \quad B = \left(\frac{W_{load}}{\rho_m} \right)$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\)](#)

$$ex \quad 9.4m^3 = \left(\frac{10.34kg}{1.1kg/m^3} \right)$$

2) Cycle Time given Trips per Hour for Excavating Scrap

$$fx \quad C_t = \left(\frac{W_T}{f} \right)$$

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d_img.jpg\)](#)

$$ex \quad 5.7h = \left(\frac{22.8}{4rev/h} \right)$$

3) Density of Material given Quantity of Scrap Produced

$$fx \quad \rho_m = \left(\frac{W_{load}}{B} \right)$$

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d_img.jpg\)](#)

$$ex \quad 1.055102kg/m^3 = \left(\frac{10.34kg}{9.8m^3} \right)$$



4) Haul Distance in Feet given Variable Time 

$$fx \quad H_{ft} = (T_v \cdot 88 \cdot S_{mph}) - R_{ft}$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)


$$ex \quad 66.396ft = (0.2min \cdot 88 \cdot 0.045mi/h) - 3.3ft$$

5) Haul Distance in Meter given Variable Time 

$$fx \quad h_m = (T_v \cdot 16.7 \cdot S_{kmph}) - R_{meter}$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

$$ex \quad 6.804333m = (0.2min \cdot 16.7 \cdot 0.149km/h) - 1.49m$$

6) Load Given Production of Scrap by Machines 

$$fx \quad L = \left(\frac{P_s}{f} \right)$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

$$ex \quad 18.75m^3 = \left(\frac{75.00m^3/hr}{4rev/h} \right)$$

7) Number of Scrapers Needed for Job 

$$fx \quad N = \left(\frac{P_s}{P_u} \right)$$

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

$$ex \quad 6.818182 = \left(\frac{75.00m^3/hr}{11m^3/hr} \right)$$




8) Number of Scrapers Pusher can Load 

$$fx \quad N_p = \left(\frac{T_s}{T_p} \right)$$

Open Calculator 


$$ex \quad 2.392027 = \left(\frac{7.2\text{min}}{3.01\text{min}} \right)$$

9) Production of Scrap by Machines 

$$fx \quad P_s = (L \cdot f)$$

Open Calculator 


$$ex \quad 72.8\text{m}^3/\text{hr} = (18.2\text{m}^3 \cdot 4\text{rev}/\text{h})$$

10) Production per Unit Given Number of Scrapers Needed for Job 

$$fx \quad P_u = \left(\frac{P}{N} \right)$$

Open Calculator 

$$ex \quad 2.477612\text{m}^3/\text{hr} = \left(\frac{4.98\text{m}^3/\text{hr}}{2.01} \right)$$

11) Production Required given Number of Scrapers Needed for Job 

$$fx \quad P_s = N_s \cdot P_u$$

Open Calculator 

$$ex \quad 77\text{m}^3/\text{hr} = 7.0 \cdot 11\text{m}^3/\text{hr}$$



12) Production Required to Determine Number of Scrapers

$$fx \quad P_s = \left(\frac{B_{sp}}{t_{hr}} \right)$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

$$ex \quad 73.01587m^3/hr = \left(\frac{184m^3}{2.52h} \right)$$

13) Pusher Cycle Time given Number of Scrapers Pusher can Load

$$fx \quad T_p = \left(\frac{T_s}{N_p} \right)$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021_img.jpg\)](#)

$$ex \quad 0.6min = \left(\frac{7.2min}{12} \right)$$

14) Quantity given Production Required

$$fx \quad B_{sp} = (P_s \cdot t_{hr})$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd_img.jpg\)](#)

$$ex \quad 189m^3 = (75.00m^3/hr \cdot 2.52h)$$

15) Return Distance in Feet given Variable Time

$$fx \quad R_{ft} = (T_v \cdot 88 \cdot S_{mph}) - H_{ft}$$

[Open Calculator !\[\]\(7bc43b319a082987e20f7bf78f4bab80_img.jpg\)](#)

$$ex \quad 2.776ft = (0.2min \cdot 88 \cdot 0.045mi/h) - 66.92ft$$



16) Return Distance in Meter given Variable Time

$$fx \quad R_{\text{meter}} = (T_v \cdot 16.7 \cdot S_{\text{kmph}}) - h_m$$

[Open Calculator !\[\]\(d3fb9f94af8b26d1c844efa9a98805b0_img.jpg\)](#)

$$ex \quad 1.894333\text{m} = (0.2\text{min} \cdot 16.7 \cdot 0.149\text{km/h}) - 6.40\text{m}$$

17) Scraper Cycle Time given Number of Scrapers Pusher can Load

$$fx \quad T_s = (N_p \cdot T_p)$$

[Open Calculator !\[\]\(e1d6102fe77919492c04879c8450f1f5_img.jpg\)](#)

$$ex \quad 36.12\text{min} = (12 \cdot 3.01\text{min})$$

18) Speed at Haul and Return in Kilometer per Hour given Variable Time

$$fx \quad S_{\text{kmph}} = \frac{h_m + R_{\text{meter}}}{16.7 \cdot T_v}$$

[Open Calculator !\[\]\(ab4e2b3fc7e7887b7a72f548aa6f5e60_img.jpg\)](#)

$$ex \quad 0.141737\text{km/h} = \frac{6.40\text{m} + 1.49\text{m}}{16.7 \cdot 0.2\text{min}}$$

19) Speed at Haul and Return in Miles per Hour given Variable Time

$$fx \quad S_{\text{mph}} = \frac{H_{\text{ft}} + R_{\text{ft}}}{88 \cdot T_v}$$

[Open Calculator !\[\]\(5abce1a84a655b073239ab33e1199487_img.jpg\)](#)

$$ex \quad 0.045338\text{mi/h} = \frac{66.92\text{ft} + 3.3\text{ft}}{88 \cdot 0.2\text{min}}$$




20) Trips per Hour for Excavating Scrap 

$$fx \quad f = \left(\frac{W_T}{C_t} \right)$$

[Open Calculator !\[\]\(9dfdaff1d86ba3c1f8353b4d1b61b8c5_img.jpg\)](#)

$$ex \quad 3.8 \text{ rev/h} = \left(\frac{22.8}{6 \text{ h}} \right)$$

21) Trips per Hour given Production of Scrap by Machines 

$$fx \quad f = \left(\frac{P_s}{L} \right)$$

[Open Calculator !\[\]\(2b376d1a92330ab09dad2665d2f89bf5_img.jpg\)](#)


$$ex \quad 4.120879 \text{ rev/h} = \left(\frac{75.00 \text{ m}^3/\text{hr}}{18.2 \text{ m}^3} \right)$$

22) Variable Time when Haul and Return Distance is in Feet 

$$fx \quad T_v = \frac{H_{ft} + R_{ft}}{88 \cdot S_{mph}}$$

[Open Calculator !\[\]\(c444627dab9fee9a1550c053ffaaaae2_img.jpg\)](#)

$$ex \quad 0.201504 \text{ min} = \frac{66.92 \text{ ft} + 3.3 \text{ ft}}{88 \cdot 0.045 \text{ mi/h}}$$

23) Weight of Load Given Quantity of Scrap Produced 

$$fx \quad W_{\text{load}} = (B \cdot \rho_m)$$

[Open Calculator !\[\]\(06a315363e7801bba8c7489a6694af19_img.jpg\)](#)


$$ex \quad 10.78 \text{ kg} = (9.8 \text{ m}^3 \cdot 1.1 \text{ kg/m}^3)$$



24) Working Time given Production Required [Open Calculator](#) 

$$\text{fx } t_{\text{hr}} = \left(\frac{B_{\text{sp}}}{P_s} \right)$$

$$\text{ex } 2.453333\text{h} = \left(\frac{184\text{m}^3}{75.00\text{m}^3/\text{hr}} \right)$$

25) Working Time given Trips per Hour for Excavating Scrap [Open Calculator](#) 

$$\text{fx } W_T = (f \cdot C_t)$$

$$\text{ex } 24 = (4\text{rev/h} \cdot 6\text{h})$$



Variables Used









- **B** Bank in Scraper (*Cubic Meter*)
- **B_{sp}** Bank in Scraper Production (*Cubic Meter*)
- **C_t** Cycle Time (*Hour*)
- **f** Trips per Hour (*Revolution per Hour*)
- **H_{ft}** Haul Distance in Feet (*Foot*)
- **h_m** Haul Distance (*Meter*)
- **L** Load in Scraper Production (*Cubic Meter*)
- **N** Number of Scraper
- **N_p** Number of Scraper a Pusher
- **N_s** Number of Scraper in Scraper Production
- **P** Production Required (*Cubic Meter per Hour*)
- **P_s** Production Required in Scraper Production (*Cubic Meter per Hour*)
- **P_u** Production per Unit (*Cubic Meter per Hour*)
- **R_{ft}** Return Distance in Foot in Scraper Production (*Foot*)
- **R_{meter}** Return Distance in Meter (*Meter*)
- **S_{kmph}** Speed in Kmph in Scraper Production (*Kilometer per Hour*)
- **S_{mph}** Speed in Miles per Hour in Scraper Production (*Mile per Hour*)
- **t_{hr}** Time in Scraper Production in Hour (*Hour*)
- **T_p** Pusher Cycle Time (*Minute*)
- **T_s** Scraper Cycle Time (*Minute*)
- **T_v** Variable Time in Scraper Production (*Minute*)



- **W_{load}** Weight of Load Scrap (Kilogram)
- **W_T** Working Time in Scraper Production
- **ρ_m** Density of Material in Scraper Production (Kilogram per Cubic Meter)



Constants, Functions, Measurements used

- **Measurement: Length** in Foot (ft), Meter (m)
Length Unit Conversion 
- **Measurement: Weight** in Kilogram (kg)
Weight Unit Conversion 
- **Measurement: Time** in Hour (h), Minute (min)
Time Unit Conversion 
- **Measurement: Volume** in Cubic Meter (m³)
Volume Unit Conversion 
- **Measurement: Speed** in Mile per Hour (mi/h), Kilometer per Hour (km/h)
Speed Unit Conversion 
- **Measurement: Frequency** in Revolution per Hour (rev/h)
Frequency Unit Conversion 
- **Measurement: Volumetric Flow Rate** in Cubic Meter per Hour (m³/hr)
Volumetric Flow Rate Unit Conversion 
- **Measurement: Density** in Kilogram per Cubic Meter (kg/m³)
Density Unit Conversion 



Check other formula lists

- [Bearing Capacity for Strip Footing for C- \$\Phi\$ Soils Formulas](#)
- [Bearing Capacity of Cohesive Soil Formulas](#)
- [Bearing Capacity of Non-cohesive Soil Formulas](#)
- [Bearing Capacity of Soils: Meyerhof's Analysis Formulas](#)
- [Foundation Stability Analysis Formulas](#)
- [Atterberg Limits Formulas](#)
- [Bearing Capacity of Soil: Terzaghi's Analysis Formulas](#)
- [Compaction of Soil Formulas](#)
- [Earth Moving Formulas](#)
- [Lateral Pressure for Cohesive and Non Cohesive Soil Formulas](#)
- [Minimum Depth of Foundation by Rankine's Analysis Formulas](#)
- [Pile Foundations Formulas](#)
- [Scraper Production Formulas](#)
- [Vibration Control in Blasting Formulas](#)
- [Void Ratio of Soil Sample Formulas](#)
- [Water Content of Soil and Related Formulas](#)

Feel free to SHARE this document with your friends!

PDF Available in

[English](#) [Spanish](#) [French](#) [German](#) [Russian](#) [Italian](#) [Portuguese](#) [Polish](#) [Dutch](#)

1/2/2024 | 4:30:11 PM UTC

[Please leave your feedback here...](#)

