

Small Boring Unit (SBU-A)

Technical Description

The Small Boring Unit (SBU-A) is a proven solution for medium to hard rock utility installations up to 500 ft in length. The SBU-A can be used with any conventional auger boring machine (ABM) from 24 to 72 inches in diameter and utilizes a full-face auger for spoils removal. For excavation, the SBU-A is welded to the lead casing. An ABM provides both torque and forward thrust to the cutting head. In hard rock, the circular cutterhead is fitted with disc cutters, while in mixed ground a combination of ripper teeth, drag, bits, and disc cutters are used.

Cutting Through Rock

Small Boring Units utilize disc cutters from 6.5" to 14" in diameter to excavate rock. Disc cutters penetrate the rock face and create a "crush zone" through which fractures propagate. Material between adjacent crush zones is then chipped from the face. Muck scrapers scoop the muck into openings on the cutterhead (called muck buckets), which transfer the material to a full-face auger for removal.

Improved Boring Efficiency

Unlike typical carbide bit or roller cone cutting heads, the SBU-A can power through rock over 25,000 psi UCS. Most tungsten carbide cutting tools tend to break off in rock above 11,000 psi UCS, requiring expensive replacements and machine downtime.



A Cost Effective Solution

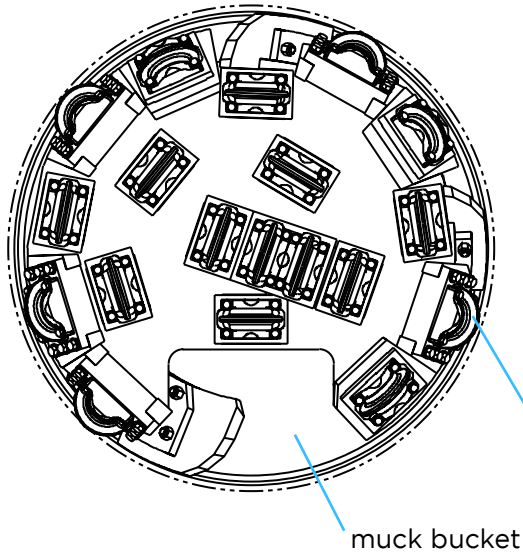
The SBU-A has been successfully used on hundreds of projects around the world to efficiently excavate hard rock. By maximizing machine availability and minimizing labor costs, a typical SBU-A/ABM setup is economically better than carbide bit or roller cone cutting heads.

SBU-A APPLICATIONS

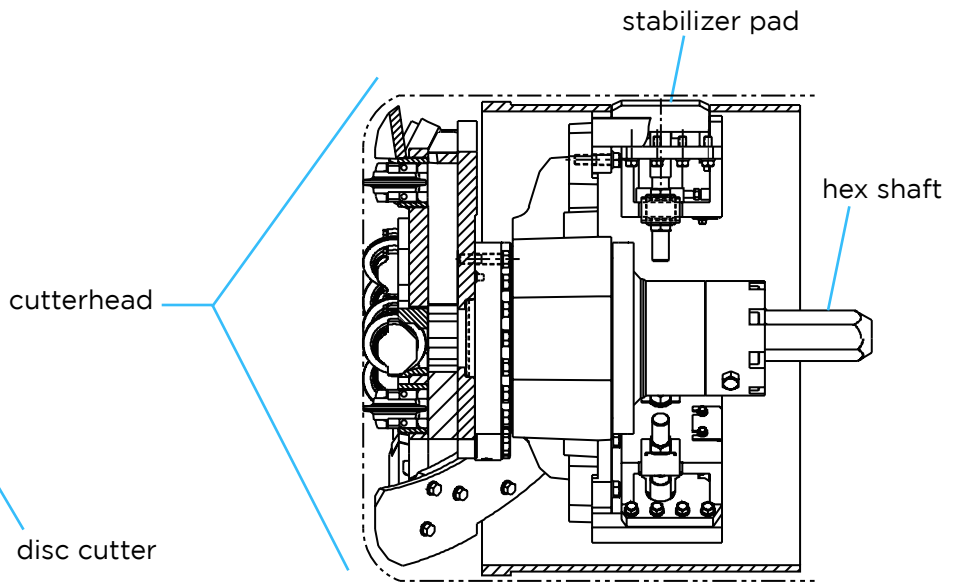
- Full-face auger boring
- Replacement for carbide bit and roller cone cutterheads
- Bore lengths up to 500 ft (depending on geology)



Front View



Side View



SPECIFICATIONS

MACHINE DIAMETERS

24 to 72 inches

ROCK STRENGTHS

4,000 to over 25,000 psi UCS

GROUND CONDITIONS

Medium to hard rock, or mixed ground

SBU-A 24

Bore Diameter	26 in
Hex Size	4 in or 3 in
No. Cutters	9
Cutter Size	6.5 in
ABM Torque Required	5,800 to 7,800 lb-ft
ABM Thrust Required	45,000 to 90,000 lb

SBU-A 30

Bore Diameter	32 in
Hex Size	4 in or 3 in
No. Cutters	9
Cutter Size	6.5 in
ABM Torque Required	5,700 to 7,800 lb-ft
ABM Thrust Required	45,000 to 90,000 lb

SBU-A 36

Bore Diameter	38 in
Hex Size	4 in
No. Cutters	13
Cutter Size	6.5 or 9.5 in
ABM Torque Required	12,500 to 17,000 lb-ft
ABM Thrust Required	65,200 to 130,400 lb

SBU-A 42

Bore Diameter	44 in
Hex Size	4 in
No. Cutters	16
Cutter Size	6.5 or 9.5 in
ABM Torque Required	19,200 to 25,800 lb-ft
ABM Thrust Required	85,400 to 170,800 lb

SBU-A 48

Bore Diameter	50 in
Hex Size	5 in or 4 in
No. Cutters	19
Cutter Size	6.5, 9.5, or 11.5 in
ABM Torque Required	24,300 to 32,900 lb-ft
ABM Thrust Required	94,400 to 188,800 lb

SBU-A 54

Bore Diameter	56 in
Hex Size	5 in or 4 in
No. Cutters	21
Cutter Size	6.5, 9.5, or 11.5 in
ABM Torque Required	30,600 to 40,600 lb-ft
ABM Thrust Required	105,700 to 211,300 lb

SBU-A 60

Bore Diameter	62 in
Hex Size	5 in
No. Cutters	14
Cutter Size	6.5, 9.5, or 11.5 in
ABM Torque Required	38,400 to 50,900 lb-ft
ABM Thrust Required	186,600 to 350,700 lb

SBU-A 66

Bore Diameter	68 in
Hex Size	5 in
No. Cutters	15
Cutter Size	11.5 in
ABM Torque Required	47,200 to 62,700 lb-ft
ABM Thrust Required	200,100 to 375,400 lb

SBU-A 72

Bore Diameter	74 in
Hex Size	5 in
No. Cutters	16
Cutter Size	11.5 or 14 in
ABM Torque Required	64,200 to 79,700 lb-ft
ABM Thrust Required	224,800 to 400,200 lb

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