

SWR

PRODUCT CATALOGUE



impco Engineering
"Completely Driven"

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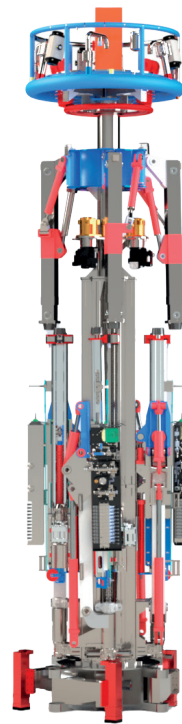
SIDE WALL



SIDE WALL



* Open View 1



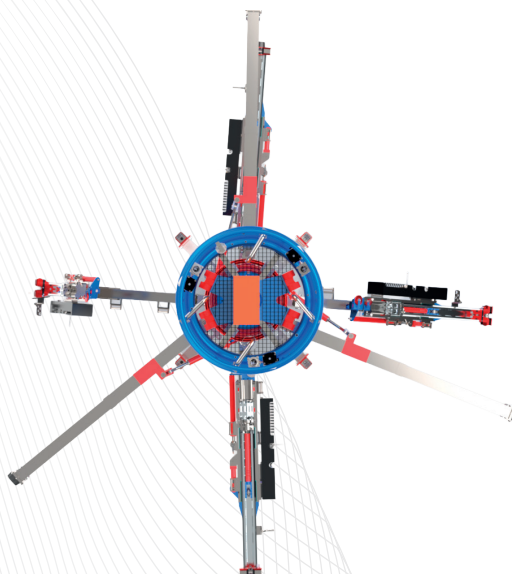
* Closed View 1



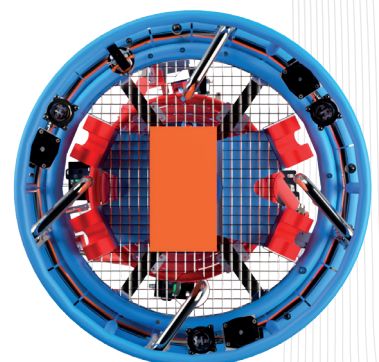
* Closed View 2



* Open View 2

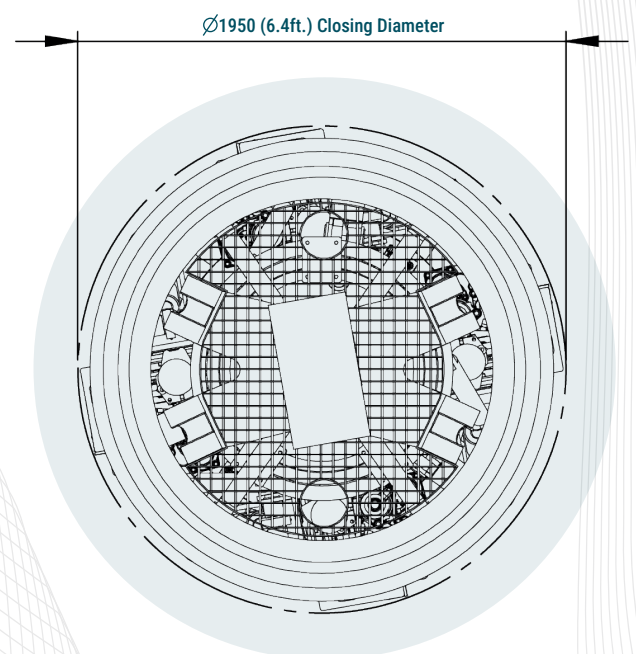
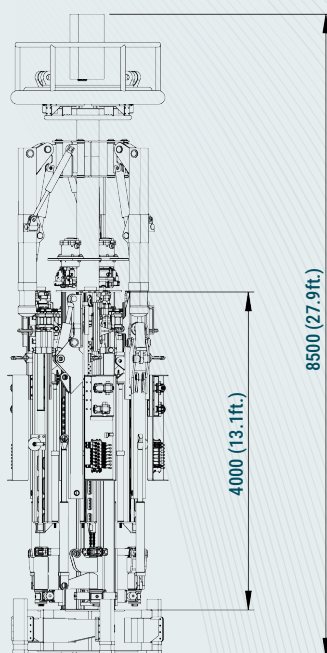
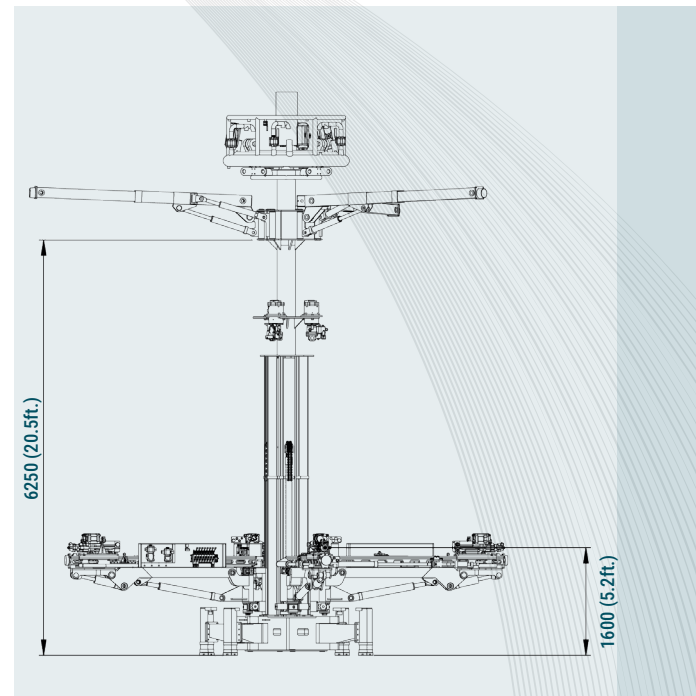
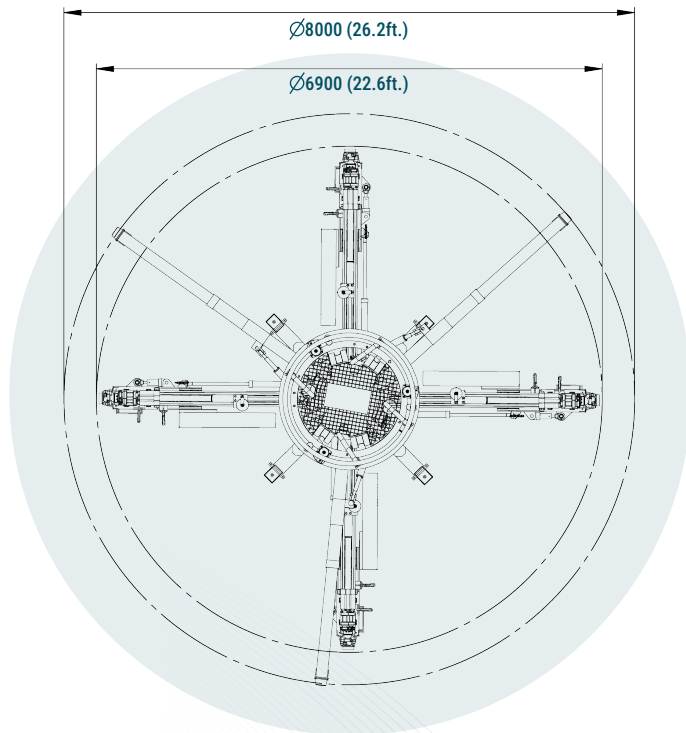


* Top View Open



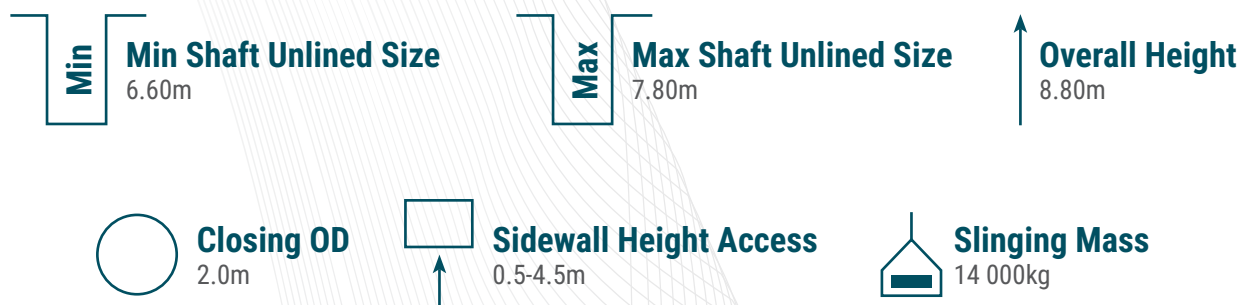
* Top View Closed

TECHNICAL DRAWINGS



SIDE WALL 4 BOOM SPECIFICATIONS

No. of Booms	4
Drill Diameter	6.6m (21.6ft.) - 7.8m (25.6ft.)
Overall Height	8.5m (27.9ft)
Closing Diameter	1950mm (6,4ft.)
Drifter	4xS36M / S140 Drifters
Feed Rail Length	3m (9.8ft.)
Drill Steel Length	2m (6.5ft)
Rod Clamping	Hydraulic with Swing Open
No. of Stabiliser Jacks	4
Sidewall Stabilisers	3x Telescopic and Swivel Sidewall Stabilisers
Foot Print Base	3x3m
Power Pack	2x11kW Air Driven Motor with Load Sensing Bent Axis Pump
Total Air Consumption @600 kPa	3000CFM
Total Water Consumption @400 kPa	100lpm (26.4gpm)
Hydraulic Oil Capacity	360ℓ (95gal)
Electrical Supply	2kW Air Motor with Alternator; Transform to 24VDC
Control and Monitoring	Remote Controlled PLC with HMI Display; Manual and IoT
Automation	Drill Cycle Automation with Hydraulic Solenoid Valve
Sensing	Consumption, Control, Safety and Machine Operation
Fire Suppression	Automatic and Manual Fire Suppression
Slinging Mass With Oil and Drilling Consumables	14 000kg (30 800lb)
Lifting Arrangement	4 Celsis and Pin; 2x2 at 50° F.O.S. 10>



SIDEWALL SUPPORT JUMBO



SIDEWALL SUPPORT JUMBO

Aimed at **increasing production** and **lowering your cycle time**, by building a purposed rig to support the sidewall.



It is designed so that operators can do their work on the sidewall **safely** from the bottom of the shaft. The booms are orientated in a way that is **easy to operate** to complete your sidewall drill pattern. It is an evolution on the standard Jumbo, with its **great reliability** and **robust design**, with **modernized automation** and **integrated data**.

PERFORMANCE

Faster, deeper, and more accurate holes can be drilled with this jumbo using more accurate control systems and equipment. New HMI interface that is controlled both manually and automatically. IOT service with automated reports both production and maintenance to ensure optimal performance.

SAFETY

Safety is integral and found everywhere in the design of the machine and on the systems fitted. It comes with Automatic fire suppression, auto boom leveling and boom arm collision. It also is fitted with an integral muffling system for increased operator comfort and safety. E-stops are fitted on each arm and remote.

Features

TRIED & TESTED DRILLING

– equipped with the **most powerful S36M pneumatic drifters** that are well renowned in the industry, and built for the purpose of shaft sinking operations, offer **powerful** and **efficient** drilling capabilities to help reduce cycle time.



Maximum drilling coverage

With each boom having the ability to drill holes from 2ft to 13ft vertically as well as being able to rotate 60° left to right, allows for complete sidewall drilling coverage.



Split-set installation

The booms are designed such that it can also be used to install the split sets used for the sidewall reinforcing. 6ft and 8ft can be installed with standard feed arrangement. 10ft rods can be accommodated with feed extend able to fit the longer drill steel.



Noise Reduction

With the new integrated muffling system fitted onto the air motors as well as integrated drifter noise reduction for increased operator safety and comfort.



SAFETY

With the addition of remote controls, operators will be able to control the boom arm from a safe distance from the rock face allowing for ultimate safety. Built into the rig are additional sensors to aid in the ease of operation. Some of the safety features incorporated are boom collision avoidance and integrated e-stop buttons amongst others.



Hydraulic Clamp

For quick and efficient rod and split set handling is fitted on the feed system of the Sidewall Support Jumbo. Allows for both clamping and collaring operations.



Complete automated drilling and support installation

With remote control to allow for quick and repeatable operation to installation of the support envelope.



Automation and control

Built in functions such as auto leveling of the boom arm and the stabilizing arms ensure that setup and drilling can be done as efficiently as possible. Coupled with the automatic drilling and collaring cycle allows for the best efficiency when drilling your holes and longevity of equipment.

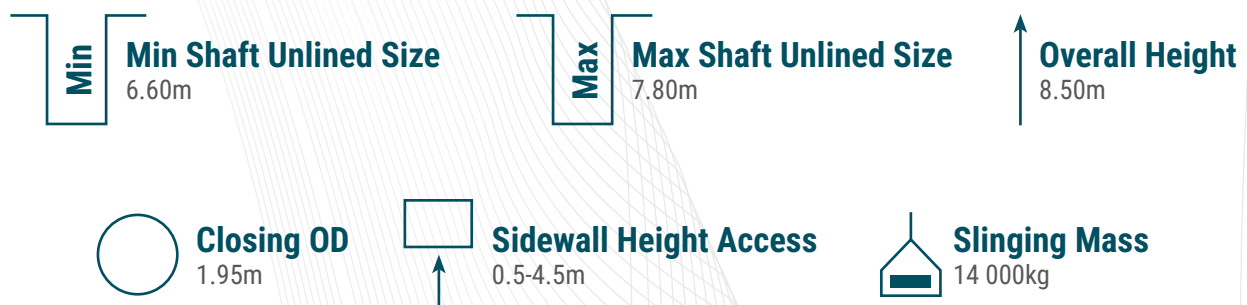


IOT and integrated data

For information about shift performance, predictive maintenance and reports for all relevant personnel.

SIDE WALL SUPPORT JUMBO SPECIFICATIONS

Boom	4 Independent Booms
Drifter	S36M
Lubrication	Auto Lubrication
Closing Diameter	1.95m (6ft.5in)
Overall Height	8.5m (27ft.11in)
Emergency Stop	Unit features one per boom and one on main chassis
Power Unit	2 x 11 kW Air driven motor with load sensing bent axis pump
Electrical Supply	3kW Air motor with alternator; transform to 24V DC
Boom and Drill Control	Manual with 11 section valve bank or Remote controller (1 per boom) Auto drilling and Auto collaring capability
Remote Controls	Optional IP65 Remote
Reservoir Capacity	360ℓ
Drill Diameter	Min.7.8m - Max8.85m (25ft.6in - 29ft)
Boom Tilt	0° to +60° from vertical
Boom Rotation	-90° to +60° (per boom)
Feed Stroke	2.45m (8ft.) Standard 3.05m (10ft.) with clamp ext. cylinder
Feed Extend	0.725m (2ft.3in)
Feed Swing	-10° to +10°
Noise Suppression	Integrated Noise Suppression
Redundancy	Complete Manual Redundancy
Weight (Dry Sling Weight)	14 tons (metric)
Automatic Fire Suppression	Optional
PITO Clamp	Hydraulic or Pneumatic
Software	V3 Automation and V2 Reporting
IoT and Reporting	Service Tool - Automatic Reporting Optional



Cycle Time Breakdown

The following section is a cycle time breakdown for the Sidewall Support Jumbo. This is just an estimate and actual drilling time will vary on a lot of factors such as ground conditions and type of support being installed.



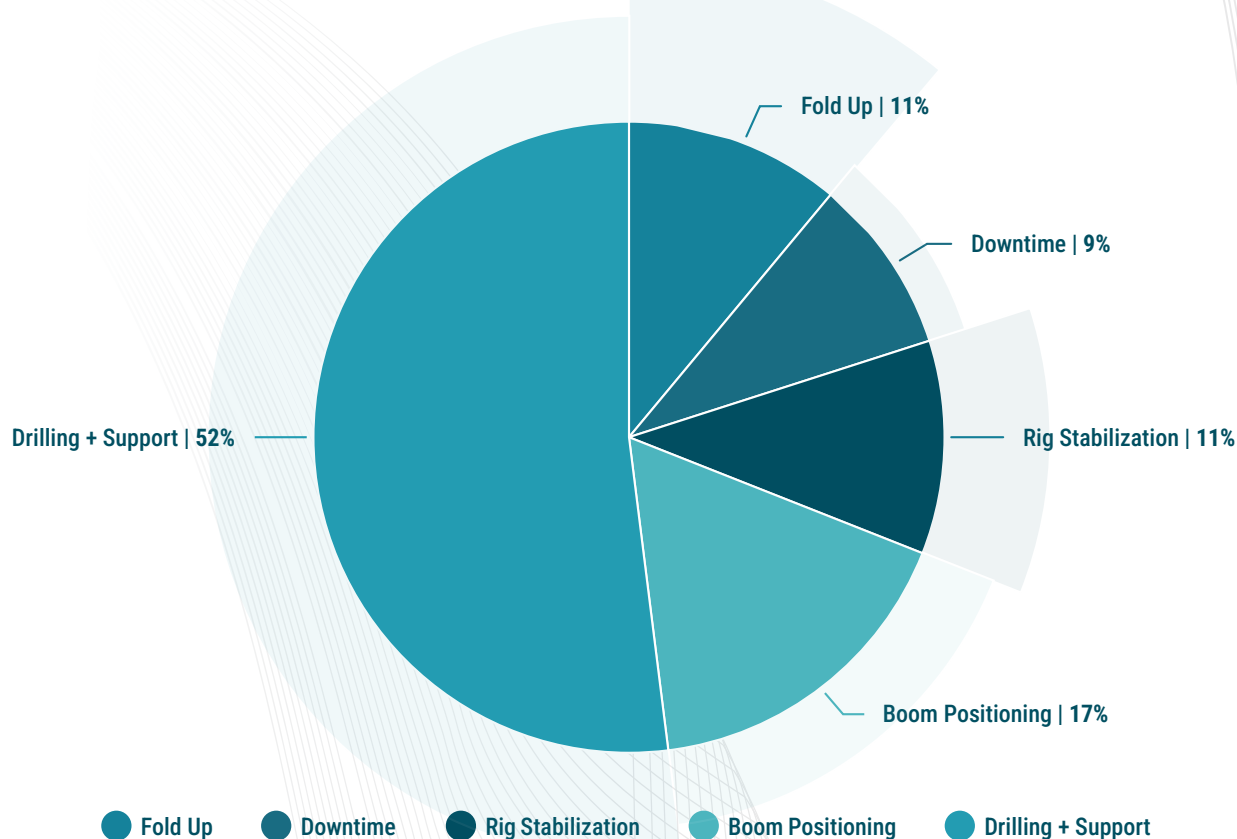
PARAMETER	VALUE	UNIT
Shaft Diameter	7800 – 8850 [25ft.6in – 29ft.]	mm
Drill Hole Diameter	38	mm
Compressive Strength	150	MPa
Number of Booms	4	-
Number of Holes	-	-
Support Holes	80	38mm bit
Drill Steel Length	2.4m(8ft.)	m
Effective Drill Depth	2.5m(8.2ft)	m
Support Dolly and Rod Change	90	Seconds
Rod Retraction	30	Seconds
Penetration rate with 38mm bit	0.7-0.9	m/min
Time Taken per Hole with Rod Change (est)	7.0	min
Effective Meters Drilled	200	m
Drilling Time with Rod Handling	140	min



PARAMETER	VALUE	UNIT
Sidewall Rig Stabilization	30	min
Boom Positioning	45	min
Drilling + Support	140	min
Fold Up Procedure	30	min
Down Time *	22	min
Total	270	min

* This is just an estimate of the time it takes to drill the sidewall with all 4 booms operating simultaneously.

** The cycle time will be impacted when drilling the 10 drill steel because only 2 booms can be in operation.



SIDEWALL RIG SELECTION TABLE

DESCRIPTION	4 BOOM 8m	4 BOOM 9.5m	4 BOOM 10.5m	4 BOOM 12m
Min Shaft Unlined Size	6.60m	8.0m	9.0m	10.0m
Max Shaft Unlined Size	7.80m	9.50m	10.50m	12.0m
Centre Column Length	7.5m	7.5m	7.5m	7.5m
Centre Column OD	324mm	324m	324mm	324mm
Overall Height	8.80m	9.0m	9.20m	9.50m
Shipping Mass Excl Oil	7480kg	11500kg	13900kg	16800kg
Closing OD	2.0m	2.0m	2.0m	2.0m
Sidewall Height Access	0.5m-4.5m	0.5m-4.5m	0.5m-4.5m	0.5m-4.5m
Nmber of Drifters	4	4	4	4
Feed Rail Length	4.8m	4.8-5.2m	4.8-5.2m	5.2-5.8m
Max Split Set Length	1800m	2200	2700	3200
Max Drill Steel Length	3.00m	3.00m	3.70m	4.30m
Number of Stabilisers (Outriggers)	4	4	4	4
Base Food Print	3mx3m	3mx3m	3.5mx3.5m	3.5mx3.5m
Air Consumption 6Bar (CFM)	2000/2300	2700/3000	3300/3400	3800/3900
Total Water Consumption @4Bar	1.9-2lt/sec	1.9-2lt/sec	1.9-2lt/sec	1.9-2lt/sec
Hydraulic Tank Capacity	260	260	260	260
Slinging Mass	14 000kg	15 000kg	16 000kg	17 500kg
No of Power Packs	2	2	2	2

*The sidewall Rig only comes in 4 booms because of closing diameter limitations

**The weight can vary depending on actual spec and build of the jumbo. Allow for a 5% tolerance on slinging mass

***The drill steel length quoted is complete length including shank stick out, and drill bit length