

DU412i ITH Longhole drill

Technical Specification





Low emissions
diesel engine

Optimized ITH operations

Key features

Top drive	RH6250 with splined piston
Feed	CF706-F with fixed centralizer
Pipe carousel	PC225 (22 pipes)
Pipe diameter	Ø3"-5" (76 - 127 mm)
Pipe length	4' - 5' - 6' (1 220 - 1 524 - 1 830 mm)
Telescopic boom	ZR35 (620 mm extension)
Drift width in T-section	3 800 mm (minimum)
Parallel vertical drilling coverage	3 000 mm
Pivot point height	2 100 mm
Transport height	3 050 mm
Transport width	2 345 mm
Transport length	10 495 mm
Transport weight	30 000 kg without rock tools

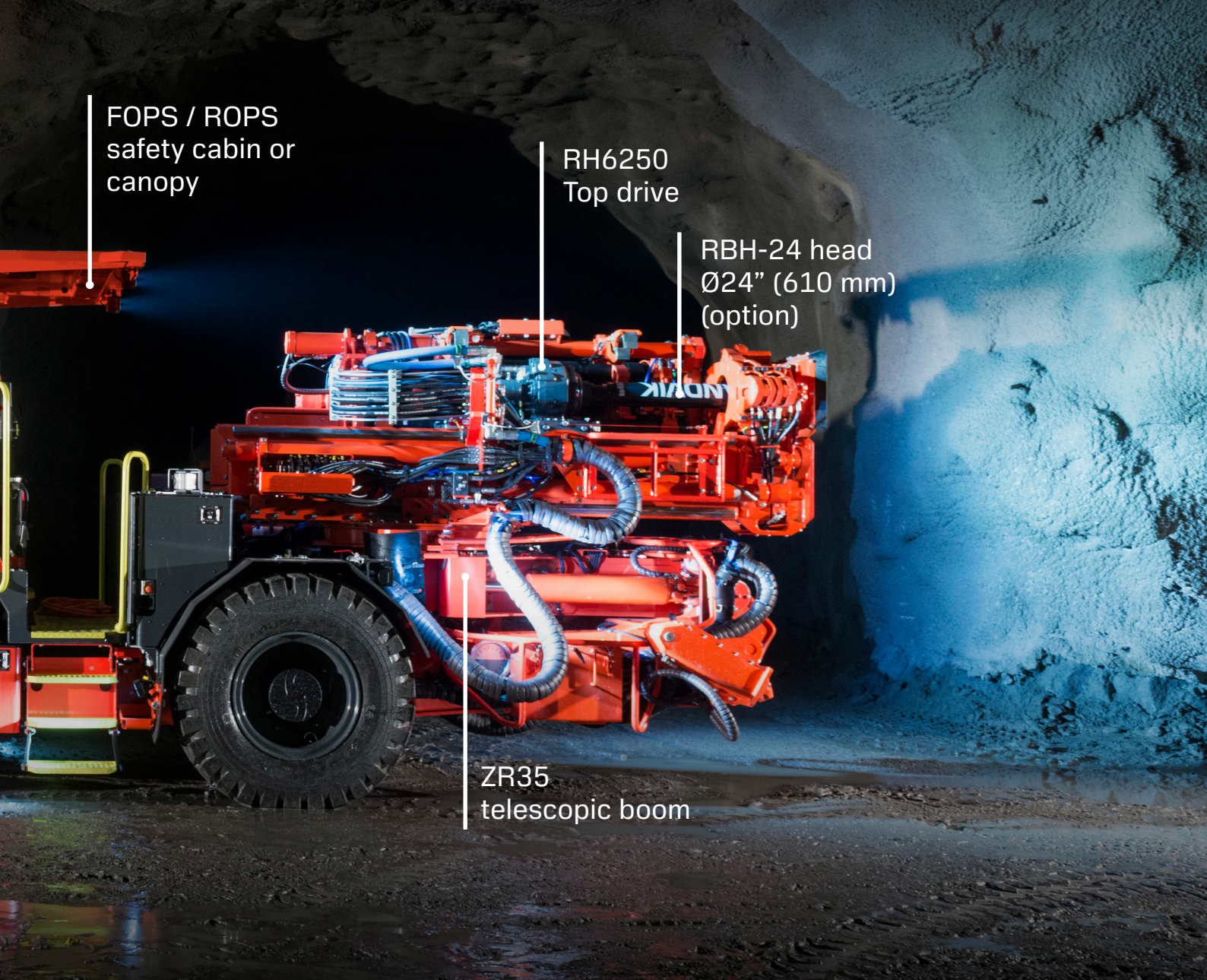
Sandvik DU412i is a highly versatile and compact ITH longhole drill fitted with an onboard booster and designed for underground mining in 3.2 x 3.2 m or larger production drifts. It is capable of drilling vertical and inclined fans and single or parallel Ø3½" - 8½" (90 - 216 mm) longholes, using 3" to 8" ITH hammers and Ø3" to Ø5" (76 - 127 mm) drill pipes.

The DU412i can be fitted with a RBH-24 head for Ø24" (610 mm) reaming in service support, or reaming up to Ø17½" (445 mm) holes with 12" hammers in rapid raising.

The DU412i is mounted on a frame-steered and diesel-powered carrier. It is equipped with the CF706-F feed, PC194 pipe handler, RH6250 rotation head, ZR35 telescopic boom and operator's canopy or cabin for maximum productivity, safety and hole accuracy.

The 360° drilling module rotation and wide boom swing and tilt angles make the unit suitable for mass mining and various service support applications. The iSOLO drilling control system with the user-friendly operating interface and various automation options allow maximum productivity and good drilling accuracy.

The layout of the C400D carrier is designed for a good visibility and stability in tramming, and all service points are accessible from the ground level.

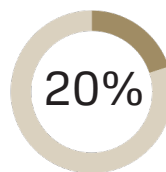


Main benefits

Increased drilling performance

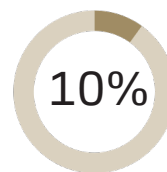
Sandvik DU412i meets major industry process control and safety requirements.

- High capacity onboard booster offering up to 34 m³/min at 28 bar
- iSOLO drilling control system with fast and accurate feed control for improved drilling performances
- New ZR35 telescopic boom for improved boom reach, fast handling and stability in drilling
- New drilling module with component commonality for a variety of ITH drilling applications
- Improved user-friendly operating interface, good access to service
- On-screen drill plan handling, data transfer integration into MySandvik remote monitoring
- up to 40 m of continuous drilling and slot raising thanks to the carousel storing capacity
- mechanized pipe handling in RBH-24 slot raising application
- One-hole and fan automation and teleremote operation
- Component commonality with the Sandvik 400i class



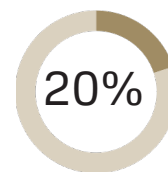
Shorter drilling cycle time

Up to 20%*
higher penetration
rate



Increased drilling capacity

Up to 10%*
more drilled
meters per shift



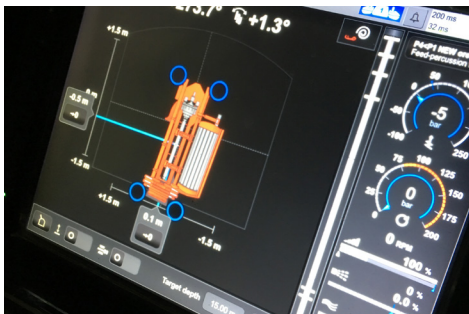
Increased productivity

Up to 20%*
improved
equipment
utilization



Comfortable work environment

The operator's cabin provides a comfortable, spacious and safe work environment with front, side and rear tramming cameras as well as an adjustable drilling control panel and seat.



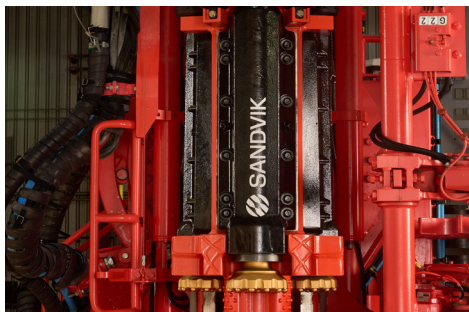
Fully instrumented boom

This production drill rig has a ZR35 telescopic boom with wide swing and tilt angles. Along with the 360° drilling module rotation, this makes it suitable for mass mining and a variety of service support applications.



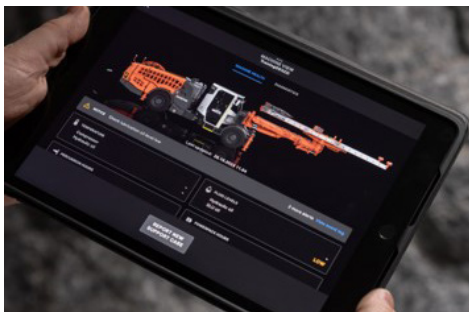
Safe remote operations

The ITH drill rig has a remote control, allowing automated drilling and data transfer. It increases operator safety and productivity. Teleremote drilling (option) is also possible, allowing better equipment utilization through shift changes and blasting.



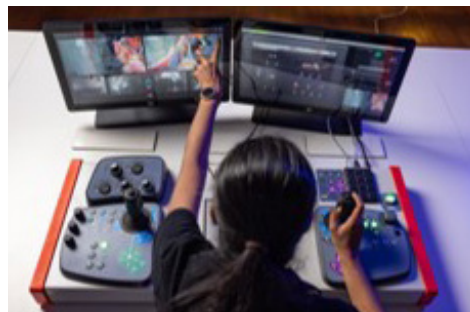
RBH-24 head for mechanized slot raising

Equipped with the RBH-24 head, Sandvik DU412i provides mechanized reaming of Ø24" slot raises



Sandvik DrillConnect

Readiness for Sandvik DrillConnect mobile application for improved data management and enhanced maintenance, and My Sandvik digital services.



Teleremote drilling

Teleremote drilling allows a better utilisation of workforce and equipment and improved operator safety and performance.



Sandvik 365 Parts and Services

Proudly keeping you on track!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik DU412i drill's performance.

As an OEM, we provide the best-suited choices to preserve your machine's high performance throughout its lifetime.

These consist of highly skilled service specialists supporting you 365 days a year, all using Sandvik Genuine parts and components complemented by a range of robust tools.

In addition, you get to enjoy the benefits of advanced digital services and a global infrastructure dedicated to keeping your Sandvik fleet on track.

Technical Specification

Top drive

Type of rotation head	RH6250 with splined piston
Working pressure	Up to 210 bar (rotation)
Maximum torque	5 730 Nm
Rotation speed	0 - 60 rpm
Weight	336 kg
Length with saver sub	760 mm

Feed and carousel

Type of feed	CF706-F
Type of pipe handler	PC225
Pipe length (standard)	6' (1 830 mm)
Retaining centralizer	CF10 fixed centralizer
Drill table pass through	267 mm
Feed force	70 kN
Feed and return speed	Up to 0.3 m/s
Rear stinger extension	2 183 mm
Front stinger extension	1 386 mm
Cuttings diverter	DV10
Set-off from stope face	400 mm
Hole distance from the wall	850 / 1 470 mm (hose/carousel side)

Feed dimenssions

Type	CF706 (standard)	CF705 (option)	CF704 (option)
Pipe length	6' (1 830 mm)	5' (1 525 mm)	4' (1 220 mm)
Total length	3 560 mm	3 255 mm	2 950 mm

Carousel capacities

Type	PC194 (option)	PC225 (standard)	PC334 (option)
Storage capacity	19 pipes	22 pipes	33 pipes
Pipe diameter	3" - 4" (76 -102 mm)	3" - 5" (76 - 127 mm)	3" - 4" (76 - 102 mm)
Max. hole length (6')	34.3 m	40.0 m	60.1 m
Max. hole length (5')	28.7 m	33.3 m	50.0 m
Max. hole length (4')	22.9 m	26.5 m	40.0 m

Longhole boom

Telescopic boom	ZR35
Boom swing	± 44°
Boom tilt (back / forward)	30° / 20°
Feed roll-over	360°
Boom extension	620 mm
Feed travel	1 300 mm (for 6' pipes)
Parallel vertical drilling coverage	3 000 mm
Pivot point height	2 100 mm
Laser offset from drill center	3 150 mm

Hydraulic system

Powerpack	HPP755 (55 kW)
Filtration size (pressure / return)	20 µ / 10 µ
Oil tank volume	270 liters
Cooler for hydraulic oil	OA40 oil-to-air (40 kW)
Low oil level indication	Low oil level switch

Drilling control system

Control system and platform	iSOLO / SICA
Control screen	12" full colour touch screen
Control panel	Portable offboard control panel and stand
Diagnostics system	Comprehensive and interactive
Integrated interface	For pipe handler controls

Automation package, Silver level (Standard)

One hole automation & hole angles calculation
Stingers controlled automatically
Drilling control selection
Selectable hole length with sensor
Boom tilt and feed rotation angles are measured and shown as hole angles

Electric system

Standard voltages	380 - 690 V (50 or 60 Hz)
Total installed power	130 - 220 kW (depends on booster size)
Main switch gear	MSE 10
Allowed voltage fluctuation	± 10%
Current reducer unit	Standard
Starting method	Star-Delta for booster and DOL for powerpack
Automatic cable reel	TCR4CD with spooling system
Cable reel remote control	At operator station and cable reel
Front and rear lights (combined working and tramming)	8 x 50 W (24 V) LED
Portable working lights	2 x 50 W (24 V) LED
Tramming lights	2 x 17 W (24 V) LED
Carrier positioning lights	2 x Laser type
Braking lights and blinkers	4 x LED (24V)
Stair case service lights	LED (24V)
Sealed AGM batteries	2 x 12 V (100 Ah)
Current reducer unit	Power factor > 0.95
Electric quality monitoring	Voltage, Amperage, Power, Pf Energy, Phase-sequence
Motor protection	Intelligent control with power maximization
Extra low voltage supply	Continuous 80 A 27 V DC with battery back-up and management
IP-classification	Mains switchgear IP66 / Nema4X, junction boxes ≥ IP68

Air and water flushing

Onboard booster	20 m³/min at 28 bar from 6 bar inlet (60 Hz)
Booster electric motor	90 kW
Booster inlet pressure	4 - 7 bar
Water booster pump	WBPU (30 l/min at 45 bar)
Hammer lubrication system	HLU50 with oil level sensor
Lubrication metering capacity	0...5 liters / h
Lubrication tank capacity	45 liters
Water outlet (low pressure)	Front of the carrier
Compressor air outlet	Quick coupling for hand tools

Operator's safety cabin

Cabin certification	FOPS / ROPS (ISO 3449 / 3471)
Cabin inside height	2 020 mm
Unit height in tramming	3 050 mm
Sound pressure level	Operator station 69 dB(A) EN 16228 / ISO4872 / ISO1120
Vibration level	According to EN 16228/ISO2631-1
Operator's seat	For drilling and tramming
Air conditioning system	EU6/7 filtering capacity
Cabin heating	During drilling and tramming
Cabin safety grill	For front window
Audio system	MP3-player, radio and loudspeakers
Electrical outlets (16 A)	12 / 24 V (DC) and 110 / 230 V (AC)
Boot washer	At cabin entrance
Tramming cameras	Front, side and rear

Technical Specification

Carrier	
Type of carrier	C400D (frame-steered)
Carrier articulation	± 40°
Rear axle oscillation	± 8°
Ground clearance	330 mm
Diesel engine	QSB4.5 (127 kW, Tier 3, Stage IIIA)
Exhaust catalyzer	Standard
Transmission	Hydrostatic
Drop box	Dana Spicer 305D
Axles	Dana 113 (front and rear)
Tires	14.00-24 PR28
Brakes (parking and emergency)	SAHR type, fail-safe wet disc brakes
Brakes (service)	Hydraulic applied disc brake
Steering	By joystick
Tramming speed	Horizontal (0%): 12 km/h 8°=1:7=14%: 5.5 km/h
Powerpack tramming	For short distance (1 km/h) only
Gradeability / sideways tilt	Max. 15° (27 %) / 5° (9 %)
Fuel tank	150 liters
Carrier stabilization	2 x TJ40 telescopic jacks (front) 2 x SJ600 jacks (rear)
Oil tank filling pump	Electric
Hand held fire extinguisher	7.7 or 9 kg (type ABC)
Centralized greasing points	Carrier
Tramming alarm	Standard
Hill holder	Standard
Levelling indicators	Spirit level/monitor indication
Knowledge Box™	Connectivity solution (TS2-535)
Colour scheme	Sandvik standard
Documentation	1 x Operator's manual 1 x Maintenance manual 1 x Technical manual (English only) 1 x Parts manual (English only) 2 x Toolman USB key

Automation package, Platinum level (Option)

Automation Gold package content	
Data transfer & reporting (USB/WLAN)	Excluding drill plan software
Automatic boom repositioning	To the next hole
Drill plan upload management	In the user interface (create, copy and edit)
DrillConnect mobile application	Connectivity through Knowledge box™ for easy data transfer to and from the rig

Optional features and packages

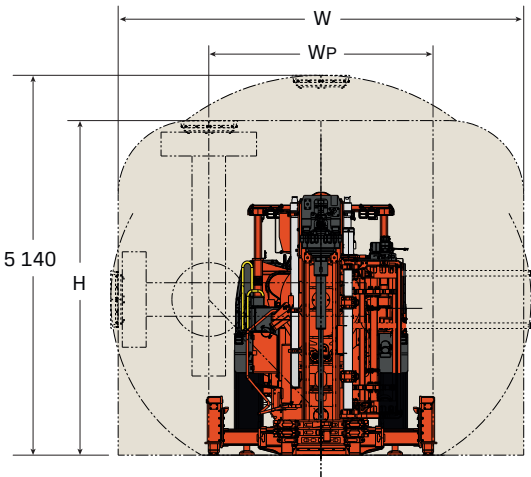
Drilling system	
*CF1306-S heavy hoist feed	With split centralizer
*PC194 carousel	For 19 pipes, Ø 3-4" (76 - 102 mm)
*PC334 carousel	For 33 pipes, Ø3-4" (76-102 mm)
*PA15 single axis pipe arm	Remove carousel
CS15 retaining centralizer	Split open (for CF706-F feed)
Conversion kit (with carousel)	From one pipe size to another
Conversion kit (without carousel)	From one pipe size to another
DV20 cuttings diverter	For uphole drilling
Cuttings diverter	For RBH-24 uphole blind boring
Petol chain wrench on feed	To open hammers
Thread lubrication system	For use with carousel
Hydraulic system	
Vacuum pump	For hydraulic oil
Bypass oil filter	2µ

Optional features and packages

Instrumentation	
Access detector, or protector	Mandatory in Europe (TS2-211)
Spirit level angle indicators	3 pcs (on boom and feed)
Tele-remote drilling	LAN or wireless WLAN
Radio remote control	For tramming, boom and carrier jacks
Offboard camera (for cabin units)	On tripod with working lights, video display in the cabin
Drilling control system	
Access detector / protector	Mandatory in EUR / Canada (TS2-211)
Boom collision avoidance system	Not compatible with utility boom
User interface	2nd operator (standing)
3D scanning system	Requires iSURE IV
GeoSURE	Requires iSURE IV
iBOLT	Systematic bolting
Data transfer	WLAN including remote GUI view
Electric system	
*Supply voltage option	1000 V with DOL starter
*Supply frequency option	60 Hz
Multivoltage Pro	380 - 440 / 690 / 1000 V
Dewatering pump outlet	Site voltage 380 - 690 V (7.5 kW) Site voltage 1 000 V (8 kW) Transformer supply 400 V (7.5 kW)
Earth continuity control	For power cable (1-wire pilot)
Ground fault and overcurrent unit	VYK
Indicator lights	Front jacks up and down For boom movement prevention switch
Extra working light	2 x 50 W (24 V) LED
Amber flashing light	LED (24 V)
Outlet on carrier	110 V (15 A, single-phase, 1.6 kW) 230 V (16 A, single phase, 2 kW)
Battery jump start	CAT
Air and water system	
*KS720 onbard booster	20 m³/min at 24 bar from 6 bar inlet (110 kW / 50 Hz)
*KS1127 onbard booster	27 m³/min at 28 bar from 6 bar inlet (110 kW / 50 Hz)
*KS1634 onboard booster	34 m³/min at 28 bar from 6 bar inlet (160 kW / 50 Hz)
Cleaning system	
High pressure system with reel	Up to 180 bar (TS2-343)
Low pressure system	Up to 15 bar (TS2-343)
Greasing systems	
Automatic system (Lincoln)	Carrier, boom and pipe handler
Manual system	Pump, reel and nozzle (TS2-463)
Operator's safety cabin / canopy	
Stainless steel cabin with safety grill	FOPS / ROPS (ISO3447 / 3471)
Safety canopy with safety grill	FOPS / ROPS (ISO3447 / 3471)
Safety grill lifting mechanism for cabin	Height 3 145 mm / 2 945 mm
Fire suppression system	
Spare hand held fire extinguisher	7.7 kg (Europe) or 9 kg (type ABC)
Automatic system	Sandvik Eclipse™ (TS2-461) ANSUL, 8 nozzles (TS2-460)
Carrier	
*Diesel engine	B4.5 (121 kW Stage V)
*Foam filled tires	4 pcs
Filling pump for hydraulic oil	Manual
Fast filling and evacuation system	Fuel, oil and coolants (Wiggins)
Wheel chocks and holders	One set on each side
Extra items	
Spare offboard control panel	On trolley (including cable)
Spare wheel assembly	Standard or foam filled tires
Tools to specifications	For top drive, saver sub removal and the booster
Documentation	Extra manuals
*Packages: Environment	Temperature, environment, water and altitude specific
*Packages: Drilling	RBH-24 (pushing reaming up/down)
*) Replaces standard feature	

Technical drawings

All dimensions in mm



Minimum production drift size*

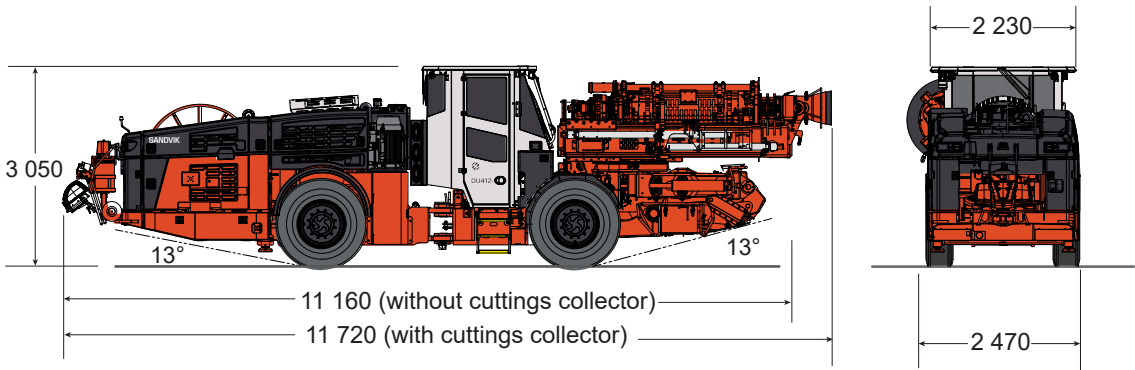
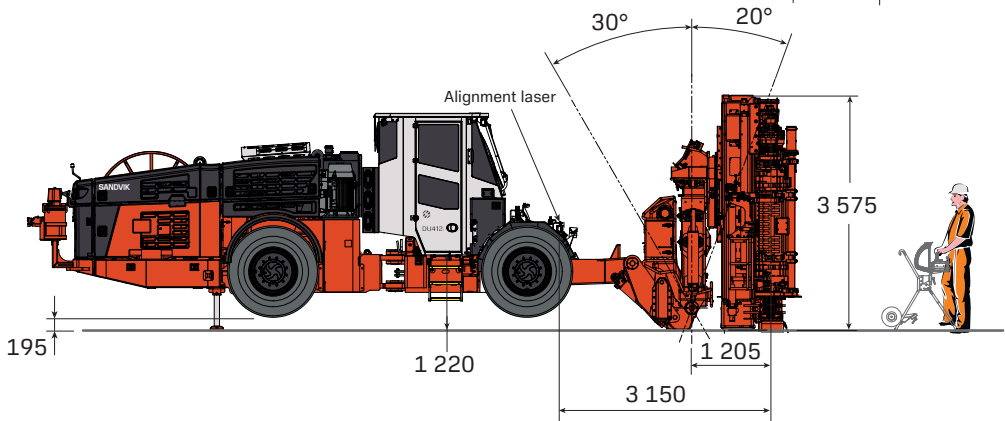
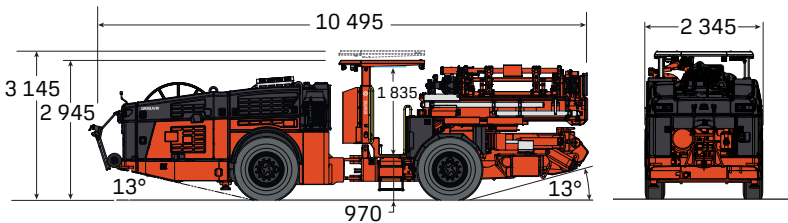
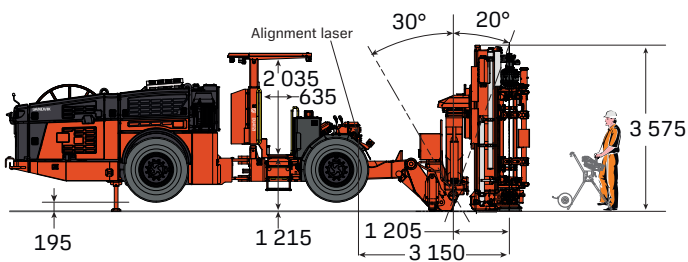
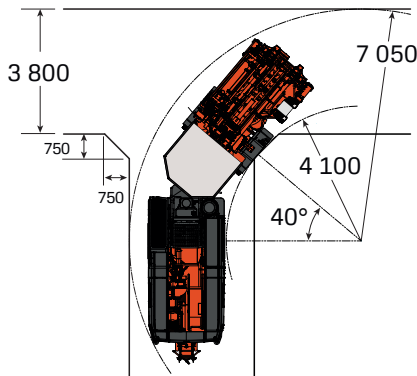
	H	W	Wp
CF706-F (standard)	3 760 mm	3 760 mm	2 020 mm
CF705-F (option)	3 455 mm	3 455 mm	1 720 mm
CF704-F (option)	3 150 mm	3 150 mm	1 420 mm

*) 100 mm clearance

Maximum production drift size*

	H	W	Wp
CF706-F (standard)	3 760 mm	3 760 mm	2 020 mm
CF705-F (option)	3 455 mm	3 455 mm	1 720 mm
CF704-F (option)	3 150 mm	3 150 mm	1 420 mm

**) Rear stingers extended, front stingers retracted



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