

HAMMER & BIT MODELS

Small Conventional



The World's **Leading**
Drilling Technology



Down The Hole Hammers and Bits

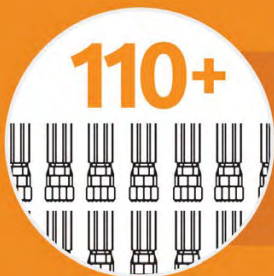
Numa is the world's leading drilling technology provider, dedicated to ongoing product innovation and results-oriented consistency. We've built a strong legacy of high quality, U.S. made DTH hammers and bits for drilling holes 3½ -50½ inches (89 -1283 mm) in diameter.



**Global Drilling
Industries**



**Patents
Pending**



**Hammer &
Bit Models**



**Millions of
Feet Drilled**

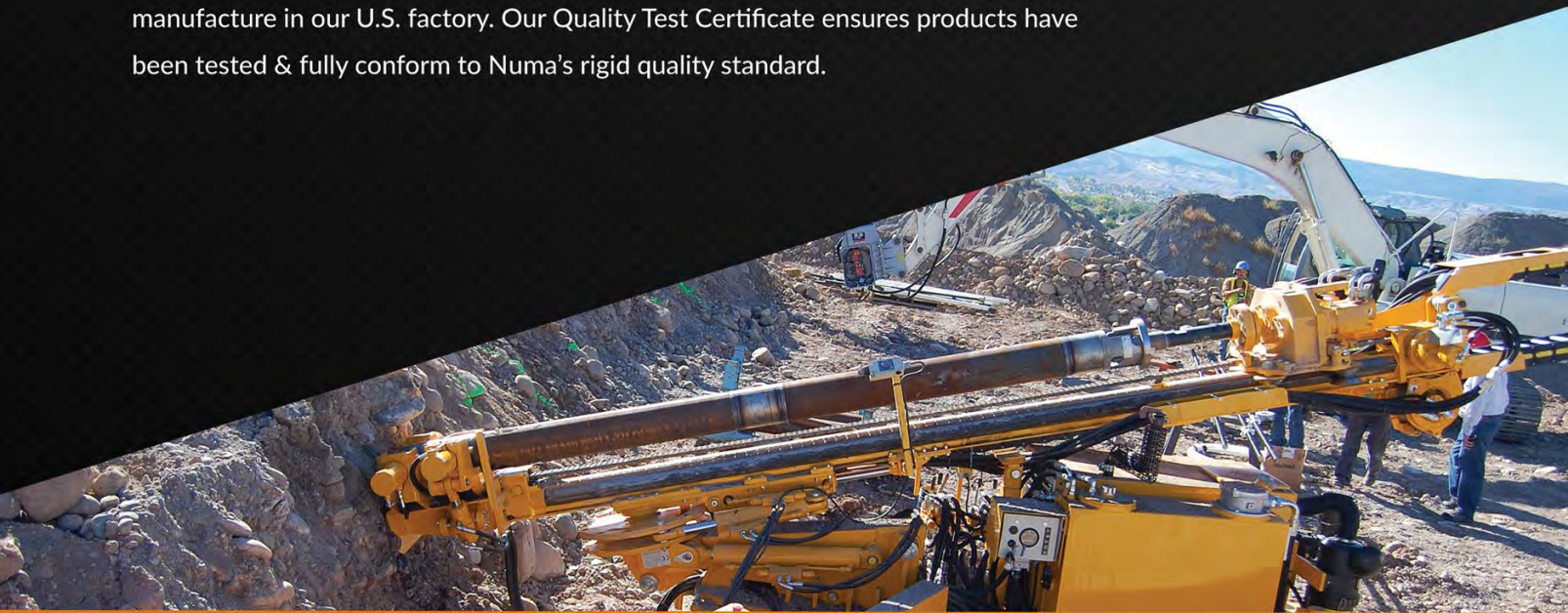
CUSTOMER FOCUSED, INNOVATIVE & RELIABLE

Numa provides our customers with the highest value in quality DTH products, performance, and service available in the drilling industry.

Unparalleled Customer Support by our highly-trained technicians who provide expert, factory-direct technical and product support when and where it is needed most.

Unrivaled Innovation and Configuration options designed to optimize products for drilling in the toughest rock formations in the world. Because all manufacturing is done in-house, we are nimble and can adapt to your unique project needs.

Unmatched Quality and Consistency in each and every product we design and manufacture in our U.S. factory. Our Quality Test Certificate ensures products have been tested & fully conform to Numa's rigid quality standard.



1000+



Years of
Combined DTH
Experience

105+



Countries
Served

30+



Years of
Unparalleled
Customer Service

2



Of the
Deepest Holes
Ever Drilled



SMALL HAMMERS AND BITS

Drills holes from 3 ½" to 10" (89 - 254 mm)

- Twelve hammer models designed for unique applications
- Hundreds of bit configurations for diverse drilling conditions
- Built for longevity and fast penetration rate
- Drill at high frequency and requires minimal air
- Exceptional performance against high heads of water
- Easy maintenance due to only 8 major hammer parts

DTH PRODUCTS BUILT FOR YOUR NEEDS

Numa provides unparalleled customer support before, during and after your drilling project. Our years of experience working directly with customers on job sites means we consider your needs for every product we design. Some of the many benefits Numa customers enjoy from our Small Hammer & Bit models include:



- Mining & Quarry: Reliable performance in various formations and conditions
- Water Well: Consistent and fast drilling, day in and day out
- Oil & Gas: Tough, dependable, proven deep hole drilling
- Construction: Configurable designs for specific needs
- Geothermal: Fast penetration rates in deep, hot drilling applications
- Horizontal: Efficient hard rock borehole drilling
- And many more...

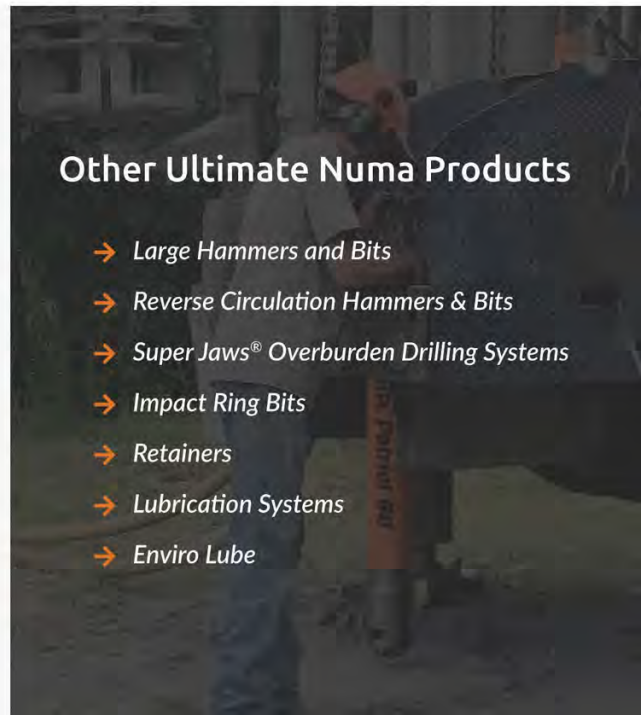
The Ultimate Rock Drilling Technology

Join the growing list of Numa customers experiencing the highest value in products, performance, and service in the drilling industry.

- Designs based upon 30+ years of experience with drillers
- Made in the USA quality and dependability
- Onsite and remote technical and product support
- Configurable DTH designs for every drilling need
- Dedicated, in-house engineering team
- Fully tested products that come with Numa's Quality Test Certificate

Other Ultimate Numa Products

- Large Hammers and Bits
- Reverse Circulation Hammers & Bits
- Super Jaws® Overburden Drilling Systems
- Impact Ring Bits
- Retainers
- Lubrication Systems
- Enviro Lube



Application IN THE FIELD



Fast and Reliable Blast Hole Drilling

A top blast hole drilling company in Pennsylvania has seen all kinds of DTH equipment throughout the years. This experience allows them to quickly evaluate products to determine which ones will stand up to their demanding drilling environment. They found Numa's hammer to be fast and reliable. With its long lasting, easy to use characteristics, it has continued to help them to drill more footage, more consistently. With over 100 years of experience, take it from this top drilling company and use Numa hammers.

"Numa's hammer ran as well as advertised. It was fast, but what it really excelled at was how well it stood up against the hard elements we drill in every day. It is a work horse. Another big benefit was how easy the hammer tears down for maintenance and rebuild. Numa's hammer definitely saves us time and money."

Natural Gas Exploration to Great Depths

Geological studies showed one of the world's leading natural gas producers that there were promising natural gas deposits in West Texas. The problem was that the natural gas was extremely deep - an estimated 17,600 feet (5364 m) below the surface. Due to this depth, the drilling contractor required a hammer that could provide continuous drilling without the incident of drill or bit failure and a costly restart. Inherent in the design of all Numa hammers is the ability to efficiently handle increased volume and back pressures.

Supplied with 4800 cfm (2266 l/sec) and drilling over 3 miles (5 km) below the surface, the Numa hammers were able to keep drilling where other hammers would have quit. The Numa DTH product line proved it has the muscle and longevity for even the most demanding drilling conditions.



Hammer & Bit Specification Charts

DTH HAMMERS Small Conventional Hammer Models

Hammer	Bit Shank	Hole Sizes		Diameter		Bore		Stroke		Weight		Length Shoulder to Shoulder		Length Shoulder to Bit Face		Thread Connection	Min Oil Required Quart/Hour	Blows/Min	
		inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	Inch	mm	inch	mm			psi	bar
Patriot 35A	3.5	3 1/2 to 4 1/8	89 to 105	3 3/8	79	2.5	63.5	3.1	79.4	44	20	28.6	727.1	31.1	790.6	2 3/8 API Reg Pin	1	1750 @ 350	1750 @ 23.8
Patriot 40	340A	4 1/4 to 5 1/4	108 to 133	3 3/4	95	3.1	77.5	4.0	101.6	78	35	36.1	917.6	39.4	1000.1	2 3/8 API Reg Pin	1	1960 @ 350	1960 @ 23.8
Patriot 40HD	340A	4 1/4 to 5 1/4	108 to 133	3 7/8	98	3.1	77.5	4.0	101.6	89	40	36.1	917.6	39.4	1000.1	2 3/8 API Reg Pin	1	1960 @ 350	1960 @ 23.8
DCS5	QL50	5 1/2 to 6 1/8	140 to 156	4 7/8	124	4.0	101.6	3.0	76.2	138	63	36.4	925.5	40.1	1019.2	3 1/2 API Reg Pin	2	2050 @ 350	2050 @ 23.8
DCS5HD	QL50	5 3/4 to 6 1/4	146 to 159	5	127	4.0	101.6	3.0	76.2	165	75	36.4	925.5	40.1	1019.2	3 1/2 API Reg Pin	2	2050 @ 350	2050 @ 23.8
Patriot 50	QL50	5 1/2 to 6 1/8	140 to 156	4 7/8	124	4.0	101.6	3.5	88.9	140	64	36.4	925.5	40.1	1019.2	3 1/2 API Reg Pin	2	1950 @ 350	1950 @ 23.8
Patriot 60	QL60	6 to 8 3/4	152 to 222	5 1/2	140	4.5	114.3	4.0	101.6	184	84	38.8	985.5	43.2	1097.3	3 1/2 API Reg Pin	2	1950 @ 350	1950 @ 23.8
Patriot 60HD	QL60	6 1/4 to 8 3/4	159 to 222	5 3/4	146	4.5	114.3	4.0	101.6	196	89	38.8	985.5	43.2	1097.3	3 1/2 API Reg Pin	2	1950 @ 350	1950 @ 23.8
Patriot 60W	360	6 to 8 3/4	152 to 222	5 1/2	140	4.5	114.3	4.0	101.6	204	93	43.2	1097.0	44.8	1138.2	3 1/2 API Reg Pin	2	1800 @ 350	1800 @ 23.8
Patriot 80	380	7 7/8 to 10	200 to 254	7 1/8	181	6.0	152.4	3.8	95.3	364	165	45.1	1146.2	49.9	1266.8	4 1/2 API Reg Pin	3	1850 @ 350	1850 @ 23.8
Patriot 85	380	7 7/8 to 10	200 to 254	7 1/8	181	6.0	152.4	3.8	95.3	419	190	52	1320.8	57.3	1455.4	4 1/2 API Reg Pin	3	1850 @ 350	1850 @ 23.8
Patriot 85Q	QL80	7 7/8 to 10	200 to 254	7 1/8	181	6.0	152.4	3.8	95.3	406	185	51.2	1300.5	56.0	1422.5	4 1/2 API Reg Pin	3	1850 @ 350	1850 @ 23.8

DRILL BITS Conventional Models

S= Standard O= Optional

Size Class	Bit Shank	Diameter Hole		Weight		Air Slots	Face			Gauge Buttons	Carbide Size					Diamond	Wear Protection	Retained
		inch	mm	lbs	kgs		CC	CV	F		7/16"	9/16"	5/8"	3/4"	7/8"			
3" Class	3.5	3 1/2 to 4 1/8	89 to 105	14 to 15	6 to 7	2		S	S	8	S							
4" Class	340A	4 1/4 to 5 1/4	108 to 133	18 to 22	8 to 10	2 or 3	S	S	S	8		S	O			O	O	
	TD40	4 1/4 to 5 1/4	108 to 133	21 to 24	10 to 11	2 or 3	S	S	S	8		S	O			O	O	
5" Class	QL50	5 1/2 to 6 1/8	140 to 156	33 to 36	15 to 16	2 or 3	S	S	S	8 or 10			S	O		O	O	O
6" Class	360	6 to 6 3/4	152 to 171	52 to 55	24 to 25	2	S	S	S	8, 9 or 10			S	O		O	O	O
	360	7 to 8 3/4	178 to 222	63 to 76	29 to 34	3	S		S	9			S	O		O	O	
	QL60	6 to 6 3/4	152 to 171	52 to 55	24 to 25	2 or 3	S	S	S	8, 9 or 10			S	O		O	O	O
8" Class	QL60	7 to 8 3/4	178 to 222	63 to 76	29 to 34	3	S		S	9			S	O		O	O	
	QL80	7 7/8 to 10	200 to 254	107 to 127	49 to 58	3	S			12				S	O	O	O	O



FLAT

Provides good performance in medium to hard formations. The strongest face design producing durable, long lasting drilling.



CONCAVE

Provides consistent drilling in all formations. The cone shaped depression in the face has piloting effect to drill straighter holes.



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DOUBLE DOME

Provides best performance in limestone and sandstone formations. Much stronger than ballistic and still performs when not sharpened.



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www.numahammers.com

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Thompson, CT 06277
USA



MADE IN THE USA

HAMMER & BIT MODELS

Large Conventional



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Countries
Served



30+

Years of
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Customer Service



2

Of the
Deepest Holes
Ever Drilled



LARGE HAMMERS AND BITS

Drills holes from 9⅞" to 50½" (251 - 1283 mm)

- Ten hammer models designed for unique applications
- Built for longevity and fast penetration rate
- Several high frequency/minimal air models available
- Exceptional performance against high heads of water
- Easy maintenance due to only 8 major hammer parts
- Exceptional bit strength & transfer of torque
- Increased spline life through durable plate drive system



DTH PRODUCTS BUILT FOR YOUR NEEDS

Numa provides unparalleled customer support before, during and after your drilling project. Our years of experience working directly with customers on job sites means we consider your needs for every product we design. Some of the many benefits Numa customers enjoy from our Large Hammer & Bit models include:



- Construction: Configurable designs for specific needs
- Oil & Gas: Tough, dependable, proven deep hole drilling
- Geothermal: Fast penetration rates in deep, hot drilling applications
- Horizontal: Efficient hard rock borehole drilling
- Mining & Quarry: Reliable performance in various formations and conditions
- Utility: Consistent and fast drilling, day in and day out
- And many more...

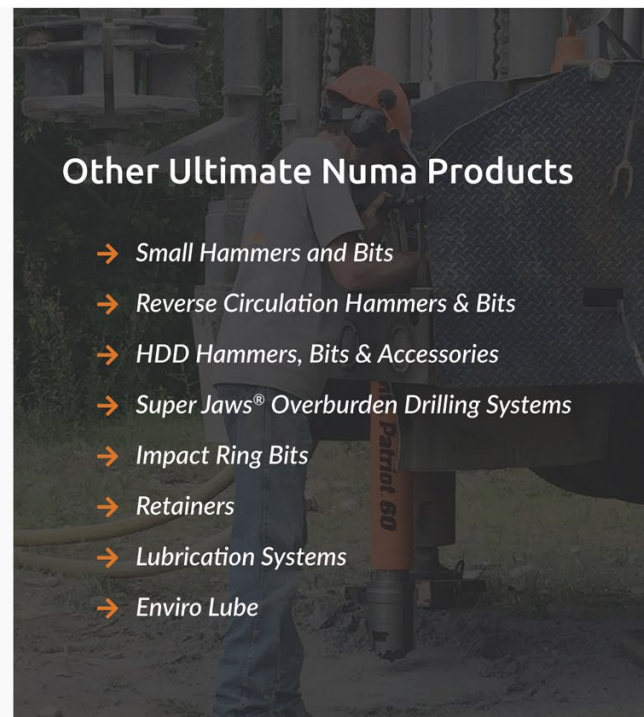
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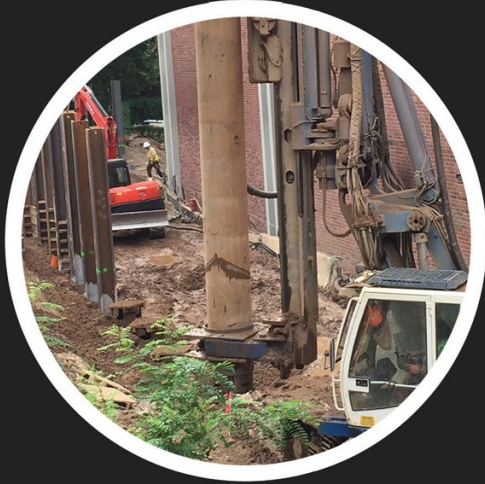
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Other Ultimate Numa Products

- Small Hammers and Bits
- Reverse Circulation Hammers & Bits
- HDD Hammers, Bits & Accessories
- Super Jaws® Overburden Drilling Systems
- Impact Ring Bits
- Retainers
- Lubrication Systems
- Enviro Lube



Application IN THE FIELD



Drilling Deepest Hole on Record

Numa DTH products drilled the deepest hole on record in Finland – an amazing 15,092 feet (4,600 meters). The project utilized multi-stage, telescopic drilling methods consisting of Numa's Patriot 185 hammer and specially designed 26" (656 mm), 17.638" (445 mm), and 12" to 12.500" (305 to 318 mm retained bits with PCD carbide.

Overall, Numa's DTH products delivered an average rate of penetration of 33 to 82 feet (10-25 meters) per hour in some of the hardest rock formations (up to 520 MPa hardness) in Finland until reaching the final depth of 15,092 feet (4,600 meters). Drilling experts agreed it was estimated to take 70% less time drilling with the Numa products than comparable deep hole drilling methods used in the past.

"Successful deep hole drilling has been the forte of Numa products for many, many years. Whether it is drilling to 17,600 feet (5,300 meters) in West Texas or 15,092 feet (4,600 meters) in Finland, Numa has the DTH technology, expertise and service to get the job done right."

Great Performance in a Difficult Environment

A leading construction drilling company was required to install 24" OD x 23" ID casing to replace a retaining wall that had collapsed. The job site presented many challenges with sloping and unstable conditions along with varied ground formations consisting of gravel, boulders, backfill, and rock pads. Numa's Patriot® 180 hammer and T580ND Super Jaws® Overburden Bits were used to flawlessly drill 59 holes to a depth of 20 feet (6 m) and another 38 holes to 30 feet (9 m). Instead of using a multi-step process of drilling, tripping out of the hole, and then casing, the Super Jaws bits allowed for simultaneously drilling and casing in one step. Saving significant time and money.

"We found Numa's large products to be the best method for drilling in loose, unconsolidated ground conditions. The Numa products did not disappoint, providing great performance in a difficult environment."



Hammer & Bit Specification Charts

DTH HAMMERS Large Conventional Hammer Models

Hammer	Bit Shank	Hole Sizes		Diameter		Bore		Stroke		Weight		Length Shoulder to Shoulder		Length Shoulder to Bit Face		Thread Connection	Min Oil Required Quart/Hour	Blows/Min	
		inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	Inch	mm	inch	mm			psi	bar
Challenger 100	N100	9 7/8 to 15	251 to 381	9	228.6	7.5	190.5	5.0	127.0	750	341	58.3	1480.0	65.3	1658.6	6 5/8 API Reg Pin	4	1235 @ 250	1235 @ 17
Patriot 100	N100	9 7/8 to 15	251 to 381	9	228.6	7.625	193.7	5.0	127.0	742	337	57.9	1470.7	64.9	1648.5	6 5/8 API Reg Pin	4	1350 @ 250	1350 @ 17
Patriot 120	P120	11 7/8 to 17 1/2	302 to 445	10 1/8	257.2	8.5	215.9	5.0	127.0	1067	485	66.7	1694.6	75.7	1923.2	6 5/8 API Reg Pin	5	1300 @ 250	1300 @ 17
Patriot 120HD	P120	11 7/8 to 17 1/2	302 to 445	10 3/4	273.1	8.5	215.9	5.0	127.0	1236	562	66.7	1694.6	75.7	1923.2	6 5/8 API Reg Pin	5	1300 @ 250	1300 @ 17
Patriot 125	P125	12 1/4 to 20	311 to 508	10 3/4	273.1	9.25	235.0	5.0	127.0	1155	525	66.8	1695.5	75.8	1924.1	6 5/8 API Reg Pin	5	1150 @ 250	1150 @ 17
Patriot 126	P125	12 1/4 to 20	311 to 508	10 3/4	273.1	9.25	235.0	5.0	127.0	1151	523	66.8	1695.5	75.8	1924.1	6 5/8 API Reg Pin	6	1151 @ 250	1151 @ 17
Patriot 180	P180	18 to 30	457 to 762	15 1/2	393.7	13.25	336.6	4.5	114.3	2452	1115	65.5	1663.7	75.4	1915.2	8 5/8 API Reg Pin	10	1100 @ 200	1100 @ 13.6
Patriot 185	P180	18 to 30	457 to 762	15 1/2	393.7	13.25	336.6	5.0	127.0	2665	1211	70.6	1793.2	80.6	2047.2	8 5/8 API Reg Pin	10	900 @ 200	900 @ 13.6
Patriot 240	P240	24 to 36	610 to 914	20	508.0	15.0	381.0	5.0	127.0	5156	2344	76.1	1933.6	90.1	2289.2	8 5/8 API Reg Pin	12	925 @ 200	925 @ 13.6
Champion 330	C330	32 to 48	813 to 1219	28	711.2	20.0	508.0	5.0	127.0	12208	5549	89.5	2273.3	105.5	2679.7	10 BECO Pin	20	925 @ 200	925 @ 13.6

DRILL BITS Conventional Models

S= Standard O= Optional

Size Class	Bit Shank	Diameter Hole		Weight		Air Slots	Face			Gauge Buttons	Carbide Size						Diamond	Wear Protection	Retained
		inch	mm	lbs	kgs		CC	CV	F		7/16"	9/16"	5/8"	3/4"	7/8"	1"			
10" Class	N100	9 7/8 to 15	251 to 381	235 to 377	107 to 171	3	S			12 or 15				S	O		O	O	O
12" Class	P120	11 7/8 to 20	302 to 508	337 to 748	153 to 339	3	S			12, 15 or 18				S	O		O	O	O
	P125	11 7/8 to 20	302 to 508	417 to 803	189 to 364	3	S			12, 15 or 18				S	O	O	O	O	O
	112	11 7/8 to 20	302 to 508	376 to 732	171 to 332	3	S			12, 15 or 18				S	O	O	O	O	O
18" Class	P180	18 to 30	457 to 762	1076 to 2362	488 to 1071	3	S			18				S	O	O	O	S	O
24" Class	P240	24 to 36	610 to 914	2174 to 3460	986 to 1569	6			S	30				S	O	O	O	S	O
33" Class	C330	32 to 48	813 to 1219	4697 to 9350	2131 to 4241	6			S	30				S	O	O	O	S	



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