

# Drag Bits

Mills Machine Company has been manufacturing Drag Bits for **over 50 years** and has established industry standards for **Quality** and **Custom Design**.

In 1976 we introduced our **W6R** line of drag bits which featured weld on **field replaceable blades**. This particular style of drag bit is still available as well as the individual weld on blades.

After the W6R line had been out in the field for awhile we soon realized that our customers were starting to experience a problem in welding the blades back on to the shanks properly. One of the problems was that the old weld was not being removed from the shank and some blades stuck out further than the others and the other problem was that the proper cutting pitch was not being added so, the bits did not cut efficiently.

So, in 1990 we introduced our new **NW6R** line of bits that features a two piece design. The first piece is an NW6R connector, which is made from heat treated alloy steel that has the thread of your choice on one end and our special tapered NW6R box thread on the other end. The second piece is an NW6R Head which features a replaceable and interchangeable cutting head that has carbide inserted blades and our NW6R pin thread on the other end.

The main advantages to using the **NW6R System** are versatility and economics. This system offers the option of merely unscrewing the NW6R Head and throwing it away when it is worn out or you may increase or decrease the size by screwing on a larger or smaller NW6R Head. You may also, change the bit style to a **heavy duty** design which features **thicker steel blades and carbide inserts** or change it to a different blade configuration like a **Chevron** or **Apex** style for tougher formations.

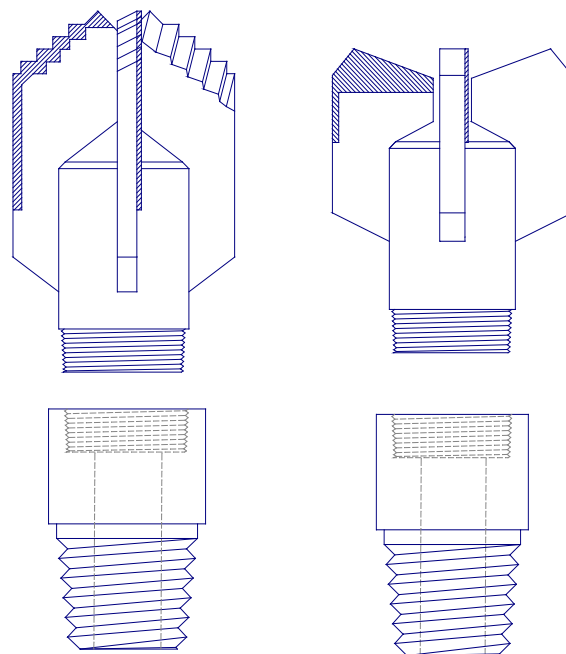
The NW6R System is economical because, it saves you the cost of the alloy heat treated shank each time that you need a new bit and eliminates the reworking process of a one piece bit where the blades would have to be torched off and new ones welded on.

NW6R Reamers and Stabilizers may be added between the connector and head to ream out the hole or stabilize the bit, both of these options are inexpensive alternatives to buying a one-piece design.

We also, have one piece **forged design** drag bits available in a step or chevron type and with standard pin or box threads.

For larger size holes we offer our D6R Drag Bit line which features heavy duty bolt on teeth with carbide inserts. Sizes range from 12 1/4 - 110 diameter and can be manufactured for Regular or reverse circulation.

Whether your application is in Water Well, Mining, Construction or Exploration Drilling, Mills Machine has the custom designed bit to meet your requirements.



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Check our Web site:  
[www.MillsMachine.com](http://www.MillsMachine.com)

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Phone: 800-654-2703 or 405-273-4900 Fax: 405-273-4956

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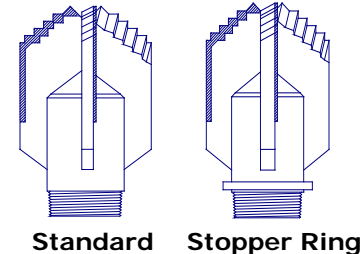
6-1

# NW6R Drag Bits - 3 Wing - Standard Duty

Standard Duty drag bits have 3/4 thick blades and 3/16 thick carbide inserts. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale). The standard design has three blades. We also offer 4, 5, or 6 blades in a multiple of custom shapes and styles.

## Head Only

The NW6R heads and connectors listed below are what we consider to be stock standard sizes but we can custom manufacture any size that you need! The heads can be furnished with a stopper ring to provide a shouldered thread connection.

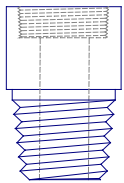


Part #	Size Inches (mm)	NW6R Pin Connection	Stabilizer Band	Weight	
				Lbs.	Kgs.
S NW6R512S3	5 1/2 (139.7)	3 1/2 NW6R		14	6.4
S NW6R558S3	5 5/8 (142.9)	3 1/2 NW6R		14	6.4
S NW6R578S3	5 7/8 (149.2)	3 1/2 NW6R		14	6.4
S NW6R600S3	6 (152.4)	3 1/2 NW6R		15	6.8
S NW6R618S3	6 1/8 (155.6)	3 1/2 NW6R		15	6.8
S NW6R614S3	6 1/4 (158.8)	3 1/2 NW6R		15	6.8
S NW6R612S3	6 1/2 (165.1)	3 1/2 NW6R		16	7.3
S NW6R634S3	6 3/4 (171.4)	3 1/2 NW6R		16	7.3
S NW6R700S3	7 (177.8)	3 1/2 NW6R		16	7.3
S NW6R778S3	7 7/8 (200.0)	3 1/2 NW6R		20	9.1
S NW6R812S3	8 1/2 (208.3)	3 1/2 NW6R		25	11.3
S NW6R834S3	8 3/4 (222.2)	3 1/2 NW6R		26	11.8
S NW6R978S3	9 7/8 (250.8)	3 1/2 NW6R		27	12.2
S NW6R1058S3	10 5/8 (269.9)	3 1/2 NW6R		28	12.7
S NW6R1214S3	12 1/4 (311.1)	3 1/2 NW6R		43	19.5
S NW6R1434S3	14 3/4 (374.7)	4 1/2 NW6R		48	21.8
S NW6R1712S3	17 1/2 (444.5)	4 1/2 NW6R	Yes	75	34.0

**S-Stock Item \*Other sizes available upon request.**

Stopper ring is standard for 14 3/4 and 17 1/2 sizes.

## Connector Only



Box To Pin  
Connector

Part #	NW6R Box		Lbs	Kgs.
S NW3-312RP	3 1/2 NW6R	3 1/2 Reg Pin	15	6.8
S NW3-412RP	3 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW3-658RP	3 1/2 NW6R	6 5/8 Reg Pin	55	24.9
S NW3-MJRB	3 1/2 NW6R	MJR Box	12	5.4
S NW3-MRB	3 1/2 NW6R	MR Box	15	6.8
S NW3-238IFB	3 1/2 NW6R	2 3/8 IF Box	20	9.1
S NW3-278IFB	3 1/2 NW6R	2 7/8 IF Box	22	10.0
S NW4-312RP	4 1/2 NW6R	3 1/2 Reg Pin	20	9.1
S NW4-412RP	4 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW4-658RP	4 1/2 NW6R	6 5/8 Reg Pin	55	24.9



Box to Box  
Connector

**S-Stock Item \*Other threads available upon request.**

NW6R Connectors are manufactured from 4142 heat treated alloy steel and are offered in any thread you need.

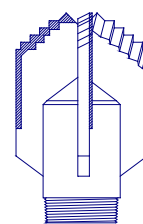
"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"

# NW6R Drag Bits - 4 Wing - Standard Duty

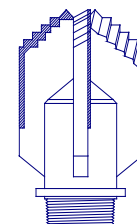
Standard Duty drag bits use 3/4 thick blades and 3/16 thick carbide. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale). The standard design has four blades. We also offer 3, 5 or 6 blades in a multiple of custom shapes and styles.

## Head Only

The NW6R heads and connectors listed below are what we consider to be stock standard sizes but we can custom manufacture any size that you need! The heads can be furnished with a stopper ring to provide a shouldered thread connection.



Standard



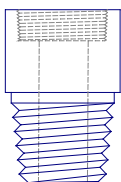
Stopper Ring

Part #	Size		NW6R Pin Connection	Stabilizer Band	Weight	
	Inches	(mm)			Lbs.	Kgs.
NW6R512S4	5 1/2	(139.7)	3 1/2 NW6R		15	6.8
NW6R558S4	5 5/8	(142.9)	3 1/2 NW6R		15	6.8
NW6R578S4	5 7/8	(149.2)	3 1/2 NW6R		15	6.84
NW6R600S4	6	(152.4)	3 1/2 NW6R		16	7.3
NW6R618S4	6 1/8	(155.6)	3 1/2 NW6R		16	7.3
NW6R614S4	6 1/4	(158.8)	3 1/2 NW6R		17	7.7
NW6R612S4	6 1/2	(165.1)	3 1/2 NW6R		17	7.7
NW6R634S4	6 3/4	(171.4)	3 1/2 NW6R		17	7.7
NW6R700S4	7	(177.8)	3 1/2 NW6R		17	7.7
NW6R778S4	7 7/8	(200.0)	3 1/2 NW6R		22	10.0
NW6R812S4	8 1/2	(208.3)	3 1/2 NW6R		26	11.8
NW6R834S4	8 3/4	(222.2)	3 1/2 NW6R		28	11.8
NW6R978S4	9 7/8	(250.8)	3 1/2 NW6R		31	12.7
NW6R1058S4	10 5/8	(269.9)	3 1/2 NW6R		31	14.1
NW6R1214S4	12 1/4	(311.1)	3 1/2 NW6R		48	21.8
NW6R1434S4	14 3/4	(374.7)	4 1/2 NW6R		54	24.4
NW6R1712S4	17 1/2	(444.5)	4 1/2 NW6R	Yes	82	37.2

\*Other sizes available upon request.

Stopper Ring is standard for 14 3/4 and 17 1/2 sizes.

## Connector Only



Box to Pin Connector

Part #	NW6R Box		Lbs.	Kgs.
S NW3-312RP	3 1/2 NW6R	3 1/2 Reg Pin	15	6.8
S NW3-412RP	3 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW3-658RP	3 1/2 NW6R	6 5/8 Reg Pin	55	24.9
S NW3-MJRB	3 1/2 NW6R	MJR Box	12	5.4
S NW3-MRB	3 1/2 NW6R	MR Box	15	6.8
S NW3-238IFB	3 1/2 NW6R	2 3/8 IF Box	20	9.1
S NW3-278IFB	3 1/2 NW6R	2 7/8 IF Box	22	10.0
S NW4-312RP	4 1/2 NW6R	3 1/2 Reg Pin	20	9.1
S NW4-412RP	4 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW4-658RP	4 1/2 NW6R	6 5/8 Reg Pin	55	24.9



Box To Box Connector

**S-Stock Item \*Other threads available upon request.**

NW6R Connectors are manufactured from 4142 heat treated alloy steel and are offered in any thread you need.

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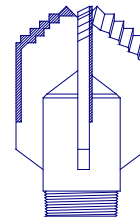
**6-3**

# NW6R Drag Bits - 3 Wing - Heavy Duty

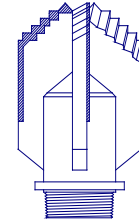
Heavy Duty drag bits use 1 thick blades and 1/4 thick carbide inserts. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale) while the thicker blades and carbide extend the life of the bit. The standard design has three blades but we also offer 4, 5 or 6 blades in a variety of custom shapes and styles.

## Head Only

The NW6R heads and connectors listed below are what we consider to be standard sizes but we can custom manufacture any size that you need! The heads can be furnished with a stopper ring to provide a shouldered thread connection.



Standard



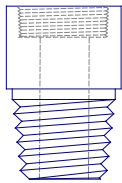
Stopper Ring

Part #	Size		NW6R Pin Connection	Stabilizer Band	Weight	
	Inches	(mm)			Lbs.	Kgs.
NW6R512S3HD	5 1/2	(139.7)	3 1/2 NW6R		31	14.1
NW6R558S3HD	5 5/8	(142.9)	3 1/2 NW6R		31	14.1
NW6R578S3HD	5 7/8	(149.2)	3 1/2 NW6R		32	14.5
NW6R600S3HD	6	(152.4)	3 1/2 NW6R		32	14.5
NW6R618S3HD	6 1/8	(155.6)	3 1/2 NW6R		32	14.5
NW6R614S3HD	6 1/4	(158.8)	3 1/2 NW6R		32	14.5
NW6R612S3HD	6 1/2	(165.1)	3 1/2 NW6R		33	15.0
NW6R634S3HD	6 3/4	(171.4)	3 1/2 NW6R		33	15.0
NW6R700S3HD	7	(177.8)	3 1/2 NW6R		33	15.0
NW6R778S3HD	7 7/8	(200.0)	3 1/2 NW6R		33	15.0
NW6R812S3HD	8 1/2	(208.3)	3 1/2 NW6R		43	19.5
NW6R834S3HD	8 3/4	(222.2)	3 1/2 NW6R		44	20.0
NW6R978S3HD	9 7/8	(250.8)	3 1/2 NW6R		45	20.4
NW6R1058S3HD	10 5/8	(269.9)	3 1/2 NW6R		48	21.8
NW6R1214S3HD	12 1/4	(311.1)	3 1/2 NW6R		52	23.8
NW6R1434S3HD	14 3/4	(374.7)	4 1/2 NW6R		74	33.6
NW6R1712S3HD	17 1/2	(444.5)	4 1/2 NW6R	Yes	112	50.8

\*Other sizes available upon request.

Stopper Ring is standard for 14 3/4 and 17 1/2 sizes.

## Connector Only



Box To Pin Connector

Part #	NW6R Box		Lbs.	Kgs.
S NW3-312RP	3 1/2 NW6R	3 1/2 Reg Pin	15	6.8
S MW3-412RP	3 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S MW3-658RP	3 1/2 NW6R	6 5/8 Reg Pin	55	24.9
S NW3-MJRB	3 1/2 NW6R	MJR Box	12	5.4
S NW3-MRB	3 1/2 NW6R	MR Box	15	6.8
S NW3-238IFB	3 1/2 NW6R	2 3/8 IF Box	20	9.1
S NW3-278IFB	3 1/2 NW6R	2 7/8 IF Box	22	10.0
S NW4-312RP	4 1/2 NW6R	3 1/2 Reg Pin	20	9.1
S NW4-412RP	4 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW4-658RP	4 1/2 NW6R	6 5/8 Reg Pin	55	24.9



Box To Box Connector

**S-Stock Item \*Other threads available upon request.**

NW6R Connectors are manufactured from 4142 heat treated alloy steel and are offered in any thread you need.

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**6-4**

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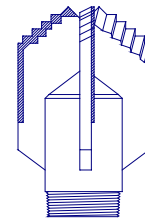
MILLS MACHINE CO. INC., P O BOX 1514, SHAWNEE, OK, 74802  
Phone: 800-654-2703 or 405-273-4900 Fax: 405-273-4956

# NW6R Drag Bits - 4 Wing - Heavy Duty

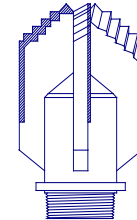
Heavy Duty drag bits use 1 inch thick blades and 1/4 thick carbide inserts. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale) while the thicker blades and carbide extend the life of the bit. The standard design has four blades but we also offer 3, 5 or 6 blades in a variety of custom shapes and styles.

## Head Only

The NW6R heads and connectors listed below are what we consider to be standard sizes but we can custom manufacture any size that you need! The heads can be furnished with a stopper ring to provide a shouldered thread connection.



Standard



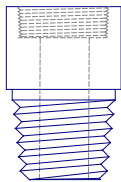
Stopper Ring

Part #	Size		NW6R Pin Connection	Stabilizer Band	Weight	
	Inches	(mm)			Lbs.	Kgs.
NW6R512S4HD	5 1/2	(139.7)	3 1/2 NW6R		32	14.5
NW6R558S4HD	5 5/8	(142.9)	3 1/2 NW6R		32	14.5
NW6R578S4HD	5 7/8	(149.2)	3 1/2 NW6R		33	15.0
NW6R600S4HD	6	(152.4)	3 1/2 NW6R		33	15.0
NW6R618S4HD	6 1/8	(155.6)	3 1/2 NW6R		33	15.0
NW6R614S4HD	6 1/4	(158.8)	3 1/2 NW6R		33	15.0
NW6R612S4HD	6 1/2	(165.1)	3 1/2 NW6R		34	15.4
NW6R634S4HD	6 3/4	(171.4)	3 1/2 NW6R		34	15.4
NW6R700S4HD	7	(177.8)	3 1/2 NW6R		34	15.4
NW6R778S4HD	7 7/8	(200.0)	3 1/2 NW6R		34	15.4
NW6R812S4HD	8 1/2	(208.3)	3 1/2 NW6R		45	20.4
NW6R834S4HD	8 3/4	(222.2)	3 1/2 NW6R		46	20.8
NW6R978S4HD	9 7/8	(250.8)	3 1/2 NW6R		47	21.3
NW6R1058S4HD	10 5/8	(269.9)	3 1/2 NW6R		50	22.7
NW6R1214S4HD	12 1/4	(311.1)	3 1/2 NW6R		55	24.9
NW6R1434S4HD	14 3/4	(374.7)	4 1/2 NW6R		78	35.4
NW6R1712S4HD	17 1/2	(444.5)	4 1/2 NW6R	Yes	116	52.6

**\*Other sizes available upon request.**

Stopper Ring is standard for 14 3/4 and 17 1/2 sizes.

## Connector Only



Box To Pin Connector

Part #	NW6R Box		Lbs.	Kgs.
S NW3-312RP	3 1/2 NW6R	3 1/2 Reg Pin	15	6.8
S NW3-412RP	3 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW3-658RP	3 1/2 NW6R	6 5/8 Reg Pin	55	24.9
S NW3-MJRB	3 1/2 NW6R	MJR Box	12	5.4
S NW3-MRB	3 1/2 NW6R	MR Box	15	6.8
S NW3-238IFB	3 1/2 NW6R	2 3/8 IF Box	20	9.1
S NW3-278IFB	3 1/2 NW6R	2 7/8 IF Box	22	10.0
S NW4-312RP	4 1/2 NW6R	3 1/2 Reg Pin	20	9.1
S NW4-412RP	4 1/2 NW6R	4 1/2 Reg Pin	22	10.0
S NW4-658RP	4 1/2 NW6R	6 5/8 Reg Pin	55	24.9



Box To Box Connector

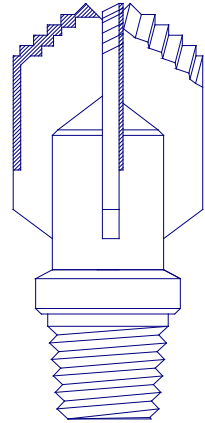
**S—Stock item \*Other threads available upon request.**

NW6R Connectors are manufactured from 4142 heat treated alloy steel and are offered in any thread you need.

"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"

# W6R Drag Bits - Step Type - Standard Duty - One Piece

Standard Duty Drag Bits use 3/4 thick blades and 3/16 thick carbide inserts. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale). Listed below are standard sizes with three or four blades but we also offer 5 or 6 blades in a multiple of custom shapes and styles.



**Standard Duty Drag Bit  
Fabricated Blade Type**

**3 Wing**

**4 Wing**

Part #	Size Range		Stab. Band	Weight	
	Inches	(mm)		Lbs.	Kgs.
W6R512S3	5 1/2	(139.7)			
W6R558S3	5 5/8	(142.9)			
W6R578S3	5 7/8	(149.2)			
W6R600S3	6	(152.4)			
W6R618S3	6 1/8	(155.6)			
W6R614S3	6 1/4	(158.8)			
W6R612S3	6 1/2	(165.1)			
W6R634S3	6 3/4	(171.4)			
W6R700S3	7	(177.8)			
W6R778S3	7 7/8	(200.0)			
W6R812S3	8 1/2	(208.3)			
W6R834S3	8 3/4	(222.2)			
W6R978S3	9 7/8	(250.8)			
W6R1058S3	10 5/8	(269.9)			
W6R1214S3	12 1/4	(311.1)			
W6R1434S3	14 3/4	(374.7)			
W6R1712S3	17 1/2	(444.5)	Yes		

Part #	Size Range		Stab. Band	Weight	
	Inches	(mm)		Lbs.	Kgs.
W6R512S4	5 1/2	(139.7)			
W6R558S4	5 5/8	(142.9)			
W6R578S4	5 7/8	(149.2)			
W6R600S4	6	(152.4)			
W6R618S4	6 1/8	(155.6)			
W6R614S4	6 1/4	(158.8)			
W6R612S4	6 1/2	(165.1)			
W6R634S4	6 3/4	(171.4)			
W6R700S4	7	(177.8)			
W6R778S4	7 7/8	(200.0)			
W6R812S4	8 1/2	(208.3)			
W6R834S4	8 3/4	(222.2)			
W6R978S4	9 7/8	(250.8)			
W6R1058S4	10 5/8	(269.9)			
W6R1214S4	12 1/4	(311.1)			
W6R1434S4	14 3/4	(374.7)			
W6R1712S4	17 1/2	(444.5)	Yes		

\*Other sizes available upon request.

**Standard Pin or Box**

We can supply these bits with the following standard connections.

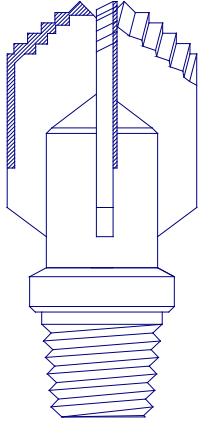
Connection
MJR Box
MR Box
2 3/8 IF Box
2 7/8 IF Pin
2 3/8 Reg Pin
2 7/8 Reg Pin
3 1/2 Reg Pin
4 1/2 Reg Pin
6 5/8 Reg Pin

Other pin and box connections are available on request.

"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"



# W6R Drag Bits - Step Type - Heavy Duty - One Piece



Heavy Duty drag bits have 1 inch thick blades and 1/4 thick carbide inserts. This bit is designed for rapid penetration in soft to medium formations (clay, sand rock or shale) while the thicker blades and carbide extend the life of the bit. Listed below is our standard three and four blade but we also offer 5 or 6 blades in a variety of custom shapes and styles.

## Heavy Duty Drag Bit Fabricated Blade Type

### 3 Wing

### 4 Wing

Part #	Size Inches	Range (mm)	Stab. Band	Weight Lbs.	Weight Kgs.
W6R512S3HD	5 1/2	(139.7)			
W6R558S3HD	5 5/8	(142.9)			
W6R578S3HD	5 7/8	(149.2)			
W6R600S3HD	6	(152.4)			
W6R618S3HD	6 1/8	(155.6)			
W6R614S3HD	6 1/4	(158.8)			
W6R612S3HD	6 1/2	(165.1)			
W6R634S3HD	6 3/4	(171.4)			
W6R700S3HD	7	(177.8)			
W6R778S3HD	7 7/8	(200.0)			
W6R812S3HD	8 1/2	(208.3)			
W6R834S3HD	8 3/4	(222.2)			
W6R978S3HD	9 7/8	(250.8)			
W6R1058S3HD	10 5/8	(269.9)			
W6R1214S3HD	12 1/4	(311.1)			
W6R1434S3HD	14 3/4	(374.7)			
W6R1712S3HD	17 1/2	(444.5)	Yes		

Part #	Size Inches	Range (mm)	Stab. Band	Weight Lbs.	Weight Kgs.
W6R512S4HD	5 1/2	(139.7)			
W6R558S4HD	5 5/8	(142.9)			
W6R578S4HD	5 7/8	(149.2)			
W6R600S4HD	6	(152.4)			
W6R618S4HD	6 1/8	(155.6)			
W6R614S4HD	6 1/4	(158.8)			
W6R612S4HD	6 1/2	(165.1)			
W6R634S4HD	6 3/4	(171.4)			
W6R700S4HD	7	(177.8)			
W6R778S4HD	7 7/8	(200.0)			
W6R812S4HD	8 1/2	(208.3)			
W6R834S4HD	8 3/4	(222.2)			
W6R978S4HD	9 7/8	(250.8)			
W6R1058S4HD	10 5/8	(269.9)			
W6R1214S4HD	12 1/4	(311.1)			
W6R1434S4HD	14 3/4	(374.7)			
W6R1712S4HD	17 1/2	(444.5)	Yes		

\*Other sizes available upon request.

## Standard Pin or Box

We can supply these bits with the following standard connections.

### Connection

MJR Box
MR Box
2 3/8 IF Box
2 7/8 IF Pin
2 3/8 Reg Pin
2 7/8 Reg Pin
3 1/2 Reg Pin
4 1/2 Reg Pin
6 5/8 Reg Pin

Other pin and box connections are available on request.

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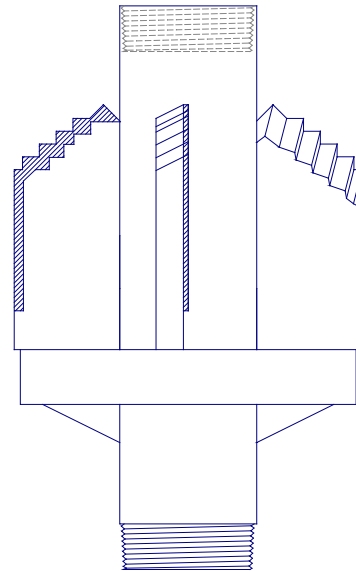
# NW6R Drag Reamer - Standard Duty

The NW6R Drag Reamer (Holeopener) is designed to fit between a NW6R Connector (top) and a NW6R Drag Bit Head (bottom). The NW6R Drag Reamer can be used with any size NW6R Head and is available with 3 or 4 blades. The Standard Duty has 3/4 inch thick blades with 3/16 inch carbide inserts. Other shapes and sizes are available.

## Standard Duty - 3 Wing - Drag Reamer

Part #	Inches	(mm)	Box to Pin	Weight	
				Lbs	Kgs
NW6RREAM812-3	8 1/2	(208.3)	3 1/2 NW6R	26	11.8
NW6RREAM834-3	8 3/4	(222.2)	3 1/2 NW6R	26	11.8
NW6RREAM978-3	9 7/8	(250.8)	3 1/2 NW6R	28	12.7
NW6RREAM1058-3	10 5/8	(269.9)	3 1/2 NW6R	34	15.5
NW6RREAM1214-3	12 1/4	(311.1)	3 1/2 NW6R	42	19.1
NW6RREAM1434-3	14 3/4	(374.7)	3 1/2 NW6R**	49	22.2
NW6RREAM1712-3	17 1/2 *	(444.5)	3 1/2 NW6R**	71	32.2
NW6RREAM2000-3	20 *		3 1/2 NW6R**		
NW6RREAM2200-3	22 *		3 1/2 NW6R**		
NW6RREAM2400-3	24 *		3 1/2 NW6R**		

- \* Reamer has Stabilizer Band.
- \*\* Built with Heavy Duty Body.
- Other sizes available upon request.



## Standard Duty - 4 Wing - Drag Reamer

Part #	Inches	(mm)	Box to Pin	Weight	
				Lbs	Kgs
NW6RREAM778-4	7 7/8	(200.0)	3 1/2 NW6R	30	13.6
NW6RREAM812-4	8 1/2	(208.3)	3 1/2 NW6R	30	13.6
NW6RREAM834-4	8 3/4	(222.2)	3 1/2 NW6R	30	13.6
NW6RREAM978-4	9 7/8	(250.8)	3 1/2 NW6R	38	17.2
NW6RREAM1058-4	10 5/8	(269.9)	3 1/2 NW6R	40	18.1
NW6RREAM1214-4	12 1/4	(311.1)	3 1/2 NW6R	50	22.7
NW6RREAM1434-4	14 3/4	(374.7)	3 1/2 NW6R**	57	25.9
NW6RREAM1712-4	17 1/2	(444.5)	3 1/2 NW6R**	81	36.7
NW6RREAM2000-4	20 *		3 1/2 NW6R**		
NW6RREAM2200-4	22 *		3 1/2 NW6R**		
NW6RREAM2400-4	24 *		3 1/2 NW6R**		

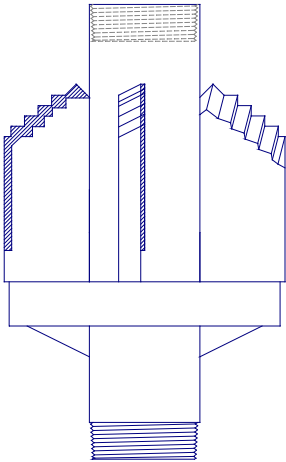
- \* Reamer has a Stabilizer Band.
- \*\* Built with Heavy Duty Body.
- Other sizes available upon request.

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# NW6R Drag Reamer - Heavy Duty

The NW6R Drag Reamer (Holeopener) is designed to fit between a NW6R Connector (top) and a NW6R Drag Bit Head (bottom). The NW6R Drag Reamer can be used with any size NW6R Head and is available in 3 or 4 blades. The Heavy Duty has 1 inch blades with 1/4 inch carbide. Other shapes and sizes are available.

## Heavy Duty - 3 Wing - Drag Reamers



Part #	Inches	(mm)	Box to Pin	Weight	
				Lb	Kgs.
NW6RREAM512-3HD	5 1/2	(139.7)	3 1/2 NW6R	18	8.2
NW6RREAM558-3HD	5 5/8	(142.9)	3 1/2 NW6R	18	8.2
NW6RREAM578-3HD	5 7/8	(149.2)	3 1/2 NW6R	18	8.2
NW6RREAM600-3HD	6	(152.4)	3 1/2 NW6R	18	8.2
NW6RREAM618-3HD	6 1/8	(155.6)	3 1/2 NW6R	19	8.6
NW6RREAM614-3HD	6 1/4	(158.8)	3 1/2 NW6R	19	8.6
NW6RREAM612-3HD	6 1/2	(165.1)	3 1/2 NW6R	19	8.6
NW6RREAM634-3HD	6 3/4	(171.4)	3 1/2 NW6R	21	9.5
NW6RREAM700-3HD	7	(177.8)	3 1/2 NW6R	21	9.5
NW6RREAM778-3HD	7 7/8	(200.0)	3 1/2 NW6R	21	9.5
NW6RREAM812-3HD	8 1/2	(208.3)	3 1/2 NW6R	26	11.8
NW6RREAM834-3HD	8 3/4	(222.2)	3 1/2 NW6R	26	11.8
NW6RREAM978-3HD	9 7/8	(250.8)	3 1/2 NW6R	28	12.7
NW6RREAM1058-3HD	10 5/8	(269.9)	3 1/2 NW6R	34	15.5
NW6RREAM1214-3HD	12 1/4	(311.1)	4 1/2 NW6R	42	19.1
NW6RREAM1434-3HD	14 3/4	(374.7)	4 1/2 NW6R	49	22.2
NW6RREAM1712-3HD	17 1/2	(444.5)	4 1/2 NW6R	71	32.2

**17 1/2 has a Stabilizer Band**

**\*Other sizes available upon request.**

## Heavy Duty - 4 Wing - Drag Reamer

Part #	Inches	(mm)	Box to Pin	Weight	
				Lbs.	Kgs.
NW6RREAM512-4HD	5 1/2	(139.7)	3 1/2 NW6R	19	8.6
NW6RREAM558-4HD	5 5/8	(142.9)	3 1/2 NW6R	19	8.6
NW6RREAM578-4HD	5 7/8	(149.2)	3 1/2 NW6R	19	8.6
NW6RREAM600-4HD	6	(152.4)	3 1/2 NW6R	19	8.6
NW6RREAM618-4HD	6 1/8	(155.6)	3 1/2 NW6R	20	9.1
NW6RREAM614-4HD	6 1/4	(158.8)	3 1/2 NW6R	20	9.1
NW6RREAM612-4HD	6 1/2	(165.1)	3 1/2 NW6R	20	9.1
NW6RREAM634-4HD	6 3/4	(171.4)	3 1/2 NW6R	27	12.2
NW6RREAM700-4HD	7	(177.8)	3 1/2 NW6R	27	12.2
NW6RREAM778-4HD	7 7/8	(200.0)	3 1/2 NW6R	30	13.6
NW6RREAM812-4HD	8 1/2	(208.3)	3 1/2 NW6R	30	13.6
NW6RREAM834-4HD	8 3/4	(222.2)	3 1/2 NW6R	30	13.6
NW6RREAM978-4HD	9 7/8	(250.8)	3 1/2 NW6R	38	17.2
NW6RREAM1058-4HD	10 5/8	(269.9)	3 1/2 NW6R	40	18.1
NW6RREAM1214-4HD	12 1/4	(311.1)	4 1/2 NW6R	50	22.7
NW6RREAM1434-4HD	14 3/4	(374.7)	4 1/2 NW6R	57	25.9
NW6RREAM1712-4HD	17 1/2	(444.5)	4 1/2 NW6R	81	36.7

**17 1/2 has a Stabilizer Band**

**\*Other sizes available upon request.**

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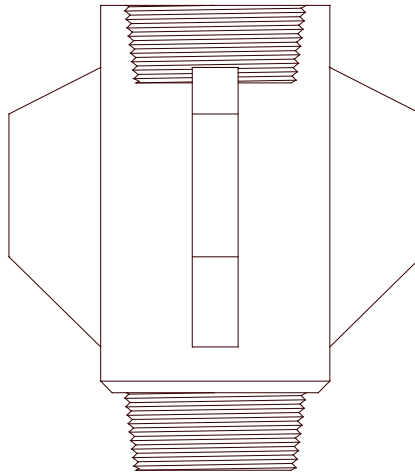
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# NW6R Drag Stabilizers

The NW6R Drag Stabilizer is designed to fit between a NW6R Connector (top) and a NW6R Drag Bit Head (bottom). The NW6R Drag Stabilizer can be used with any size NW6R Head and is available with 3 or 4 blades. The standard configuration has 3 - 3/4 inch thick blades with tungsten carbide hard faced blades. Other shapes and sizes are available.



**3 Wing Stabilizer**

Part #	Size Inches	Range (mm)	Stab. Band	Weight	
				Lbs.	Kgs.
NW6RSTAB512-3	5 1/2	(139.7)		39	17.7
NW6RSTAB558-3	5 5/8	(142.9)		39	17.7
MW6RSTAB578-3	5 7/8	(149.2)		39	17.7
NW5RSTAB600-3	6	(152.4)		39	17.7
NW6RSTAB618-3	6 1/8	(155.6)		40	18.1
NW6RSTAB614-3	6 1/4	(158.8)		40	18.1
NW6RSTAB612-3	6 1/2	(165.1)		40	18.1
NW6RSTAB634-3	6 3/4	(171.4)		41	18.6
NW6RSTAB700-3	7	(177.8)		41	18.6
NW6RSTAB778-3	7 7/8	(200.0)		44	20.0
NW6RSTAB812-3	8 1/2	(208.3)		46	20.9
NW6RSTAB834-3	8 3/4	(222.2)		47	21.3
NW6RSTAB978-3	9 7/8	(250.8)		48	21.8
NW6RSTAB1058-3	10 5/8	(269.9)		49	22.2
NW6RSTAB1214-3	12 1/4	(311.1)		53	24.0
NW6RSTAB1434-3	14 3/4	(374.7)		83	37.6
NW6RSTAB1712-3	17 1/2	(444.5)	Yes	112	50.8

**Other sizes and styles available upon request.**

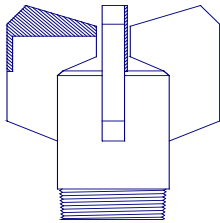
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# NW6R Drag Bits – Chevron - 3 Wing - Heavy Duty

NW6R Chevron drag bits are heavy duty with 1 inch thick blades and 1/4 carbide. The Chevron (Apex) style drag bit does not penetrate as fast as the step type, however it will cut harder formations such as medium soft to medium hard sand rock and shale. The standard design has three blades but we also offer 4, 5 or 6 blades in a variety of custom shapes and styles.

## NW6R Chevron - Head Only - 3 Wing - Heavy Duty

The NW6R heads and connectors listed below are what we consider to be standard sizes but we can custom manufacture any size that you need! The heads can be furnished with a stopper ring to provide a shouldered thread connection.

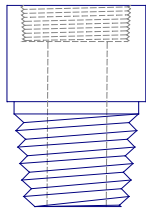


Standard

Part #	Inches	(mm)	Connection	Lbs.	Kgs.
NW6R512C-3	5 1/2	(139.7)	3 1/2 NW6R	18	8.2
NW6R558C-3	5 5/8	(142.9)	3 1/2 NW6R	18	8.2
NW6R578C-3	5 7/8	(149.2)	3 1/2 NW6R	19	8.6
NW6R600C-3	6	(152.4)	3 1/2 NW6R	19	8.6
NW6R618C-3	6 1/8	(155.6)	3 1/2 NW6R	19	8.6
NW65614C-3	6 1/4	(158.8)	3 1/2 NW6R	20	9.1
NW6R612C-3	6 1/2	(165.1)	3 1/2 NW6R	20	9.1
NW6R634C-3	6 3/4	(171.4)	3 1/2 NW6R	21	8.5
NW6R700C-3	7	(177.8)	3 1/2 NW6R	21	9.5
NW6R778C-3	7 7/8	(200.0)	3 1/2 NW6R	24	10.9
NW6R812C-3	8 1/2	(208.3)	3 1/2 NW6R	27	12.2
NW6R834C-3	8 3/4	(222.2)	3 1/2 NW6R	28	12.7
NW6R978C-3	9 7/8	(250.8)	3 1/2 NW6R	31	14.1
NW6R1258C-3	10 5/8	(269.9)	3 1/2 NW6R	38	17.2
NW6R1214C-3	12 1/4	(311.1)	3 1/2 NW6R	57	25.9
NW6R1434C-3	14 3/4	(374.7)	4 1/2 NW6R	71	32.2

\*Other sizes available upon request.

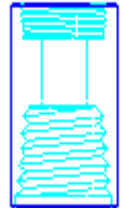
## Connector Only



Box to Pin Connector

Part #	NW6R Box Connection	Connector
S NW3-312RP	3 1/2 NW6R	3 1/2 Reg Pin
S NW3-412RP	3 1/2 NW6R	4 1/2 Reg Pin
S NW3-658RP	3 1/2 NW6R	6 5/8 Reg Pin
S NW3-MRB	3 1/2 NW6R	MR Box
S NW3-238IFB	3 1/2 NW6R	2 3/8 IF Box
S NW3-278IFB	3 1/2 NW6R	2 7/8 IF Box
S NW4-312RP	4 1/2 NW6R	3 1/2 Reg Pin
S NW4-412RP	4 1/2 NW6R	4 1/2 Reg Pin
S NW4-658RP	4 1/2 NW6R	6 5/8 Reg Pin

Weight	
Lbs.	Kgs.
15	6.8
22	10.0
55	24.9
15	6.8
20	9.1
22	10.0
20	9.1
22	10.0
55	24.9



Box to Box Connector

**S-Stock item \*Other threads available upon request.**

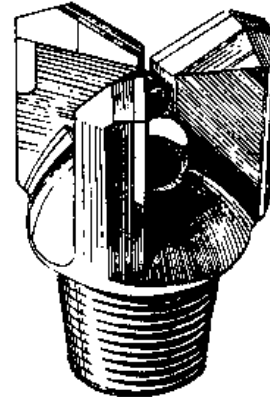
NW6R Connectors are manufactured from 4142 heat treated alloy steel and are offered in any thread you need.

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# Drag Bits – Forged - Step Type - One Piece

## Forged Step Type - 3 Wing - Pin

SIZES				TYPE PIN	WEIGHT	
Inches	(mm)	Inches	(mm)		Lbs	Kgs
2 3/4	(69.9)	3 1/2	(88.9)	4 THD	3.5	1.6
3 5/8	(92.1)	4 3/4	(120.7)	2 3/8 Reg Pin	5	2.3
5	(127.0)			2 3/8 Reg Pin	6	2.8
5 1/8	(130.2)			2 3/8 Reg Pin	6	2.8
5 1/4	(133.4)			2 3/8 Reg Pin	7	3.2
5 1/2	(139.7)			2 3/8 Reg Pin	7.5	3.5
5 5/8	(144.1)			2 3/8 Reg Pin	8	3.7
6	(152.4)			2 3/8 Reg Pin	8.5	3.9
6 1/4	(158.8)			2 3/8 Reg Pin	8.5	3.9
6 1/2	(165.1)			2 3/8 Reg Pin	9	4.2
6 3/4	(171.5)			2 3/8 Reg Pin	9	4.2
5 1/2	(139.7)	6 3/4	(171.5)	3 1/2 Reg Pin	21	9.7
6 7/8	(174.6)	7 7/8	(200.0)	3 1/2 Reg Pin	25	11.6
8	(203.2)			3 1/2 Reg Pin	28	13.0
9 1/4	(231.8)	10	(254.0)	3 1/2 Reg Pin	32	14.8
10 1/8	(257.2)	10 7/8	(276.2)	3 1/2 Reg Pin	36	16.7
7 7/8	(200.0)	8 7/8	(225.4)	4 1/2 Reg Pin	38	17.6
9	(228.6)	9 7/8	(250.8)	4 1/2 Reg Pin	40	18.5
10	(254.0)	10 7/8	(276.2)	4 1/2 Reg Pin	42	19.5
11	(279.4)	12	(304.8)	3 1/2 OR 4 1/2 Reg Pin	45	20.9
12 1/8	(308.0)			3 1/2 OR 4 1/2 Reg Pin	47	21.8

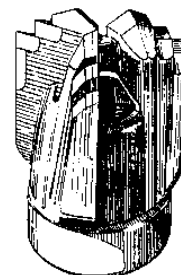


The Drag Bits listed below are STOCK items.

PART#	SIZE	TYPE PIN	WEIGHT	
			Lbs	Kgs
DB378S238	3 7/8	2 3/8 Reg Pin	3.5	1.6
DB424S238	4 1/4	2 3/8 Reg Pin	3.8	1.7
DP412S238	4 1/2	2 3/8 Reg Pin	4.2	1.9
DB434S238	4 3/4	2 3/8 Reg Pin	5.0	2.3

## Forged Step Type - Kelly Bit - 3 Wing - Box

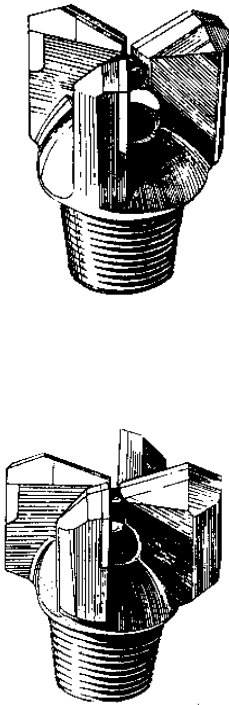
SIZE				TYPE BOX	WEIGHT	
Inches	(mm)	Inches	(mm)		Lbs	Kgs
3 7/8	(98.4)			ACRO, MHJR	5.5	2.5
4 3/4	(120.7)	5 1/4	(133.4)	MHJR, FA, MR, IF	10	4.6
5 1/2	(139.7)	6 3/4	(171.5)	MHJR, FA, MR, IF	12	5.6
6 7/8	(174.6)	7 7/8	(200.0)	MHJR, FA, MR, IF	14	6.5
8	(203.2)	9	(228.6)	MHJR, FA, MR, IF	16	7.4
9 1/4	(235.0)	10	(254.0)	MHJR, FA, MR, IF	18	8.3



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# Drag Bits - Forged - Chevron Type - One Piece

## Forged Chevron Type - 3 and 4 Wing - Pin



SIZE		Inches (mm)		TYPE PIN	Three Wing		Four Wing	
					WEIGHT		WEIGHT	
Inches	(mm)	Inches	(mm)		Lbs	Kgs	Lbs	Kgs
1 7/8	(47.6)	2 1/2	(63.5)	AW, A-ROD	2	0.9		
2 3/4	(69.9)			AW, A-ROD	2.5	1.1		
2 7/8	(70.0)			AW, A-ROD	2.5	1.1		
2 3/4	(69.9)	3 1/8	(79.4)	3 THD/4 THD, 2 IF	3	1.4	4	1.8
3 1/4	(82.6)			3 THD/4 THD, 2 IF	3.5	1.6	4	1.8
3 1/2	(88.9)			3 THD/4 THD, 2 IF	4	1.8	4.5	2
3 3/4	(95.3)			3 THD/4 THD, 2 IF	4	1.8	5	2.3
3 7/8	(98.4)	4	(101.6)	3 THD/4 THD, 2 IF	4.5	2	5.5	2.5
3 3/4	(95.3)	4 3/4	(120.7)	2 3/8 Reg Pin	5	2.3	8	3.6
4 7/8	(123.8)	5	(125.0)	2 3/8 Reg Pin	6	2.7	9	4.1
5 1/8	(130.2)			2 3/8 Reg Pin	6	2.7	9	4.1
5 1/4	(133.4)	5.5	(139.7)	2 3/8 Reg Pin	7	3.2	10	4.5
5 5/8	(142.9)			2 3/8 Reg Pin	7	3.2	10	4.5
4 5/8	(117.5)	4 7/8	(123.8)	2 7/8 Reg Pin	9	4.1		
5	(125.0)			2 7/8 Reg Pin	10	4.5		
5 1/8	(130.2)	5 5/8	(142.9)	2 7/8 Reg Pin	12	5.4		
5 1/2	(139.7)			3 1/2 Reg Pin	16	7.3	18	8.2
5 5/8	(142.9)			3 1/2 Reg Pin	16	7.3	18	8.2
6	(152.4)			3 1/2 Reg Pin	17	7.7	19	8.6
6 1/8	(155.6)			3 1/2 Reg Pin	17	7.7	20	9.1
6 1/4	(158.8)			3 1/2 Reg Pin	18	8.2	21	9.5
6 1/2	(165.1)			3 1/2 Reg Pin	19	8.6	23	10.4
6 3/4	(171.5)			3 1/2 Reg Pin	20	9.1	24	10.9
7	(177.8)			3 1/2 Reg Pin	20	9.1		
7 1/8	(181.0)			3 1/2 Reg Pin	21	9.5		
7 1/2	(190.5)			3 1/2 Reg Pin	22	10		
7 7/8	(200.0)			3 1/2 Reg Pin	23	10.4		
8	(203.2)			3 1/2 Reg Pin	24	10.9		

**The Drag Bits listed below are STOCK items**

PART #	Inches	TYPE PIN	Three Wing	
			WEIGHT	
			Lbs	Kgs
DB378C238	3 7/8	2 3/8 Reg Pin	5	2.3
DB414C238	4 1/4	2 3/8 Reg Pin	6	2.7
DB412C238	4 1/2	2 3/8 Reg Pin	6	2.7
DB434C238	4 3/4	2 3/8 Reg Pin	7	3.2

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Phone: 800-654-2703 or 405-273-4900 Fax: 405-273-4956

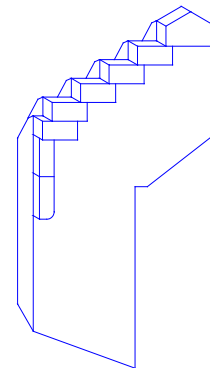
0203  
**6-13**

# Drag Bit Blades – Step Type for NW6R and W6R

## Standard Duty 3/4 Inch Thick

Part #	Size		Description	Weight	
	Inches	(mm)		Lbs	Kgs
NW6RIW512S	5 1/2	(139.7)	Inserted Wing	2.0	0.9
NW6RIW558S	5 5/8	(142.9)	Inserted Wing	2.0	0.9
NW6RIW578S	5 7/8	(149.2)	Inserted Wing	2.0	0.9
NW6RIW600S	6	(152.4)	Inserted Wing	2.0	0.9
NW6RIW618S	6 1/8	(155.6)	Inserted Wing	2.7	1.2
NW6RIW614S	6 1/4	(158.8)	Inserted Wing	2.7	1.2
NW6RIW612S	6 1/2	(165.1)	Inserted Wing	2.7	1.2
NW6RIW634S	6 3/4	(171.4)	Inserted Wing	3.0	1.4
NW6RIW700S	7	(177.8)	Inserted Wing	3.0	1.4
NW6RIW778S	7 7/8	(200.0)	Inserted Wing	3.4	1.5
NW6RIW812S	8 1/2	(208.3)	Inserted Wing	4.4	2.9
NW6RIW834S	8 3/4	(222.2)	Inserted Wing	4.4	2.0
NW6RIW978S	9 7/8	(250.8)	Inserted Wing	5.0	2.3
NW6RIW1058S	10 5/8	(269.9)	Inserted Wing	5.4	2.3
NW6RIW1214S	12 1/4	(311.1)	Inserted Wing	5.7	2.6
NW6RIW1434S	14 3/4	(374.7)	Inserted Wing	10.0	4.5
NW6RIW1712S	17 1/2	(444.5)	Inserted Wing	12.7	5.8

Weld on replacement blades for NW6R and W6R Step Type Drag Bits made with 3/4 Steel Plate and 3/16 carbide. Other shapes and styles are available.



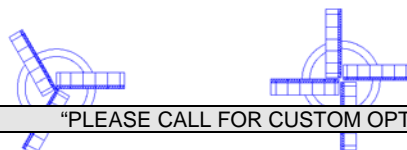
\*5½-12 ¼ fit 3½ O.D. and 14¾ and larger fit 4½ O.D. shank

## Heavy Duty 1 Inch Thick

Part #	Size		Description	Weight	
	Inches	(mm)		Lbs	Kgs
NW6RIW512HD	5 1/2	(139.7)	Inserted Wing		
NW6RIW558HD	5 5/8	(142.9)	Inserted Wing		
NW6RIW578HD	5 7/8	(149.2)	Inserted Wing		
NW6RIW600HD	6	(152.4)	Inserted Wing		
NW6RIW618HD	6 1/8	(155.6)	Inserted Wing		
NW6RIW614HD	6 1/4	(158.8)	Inserted Wing		
NW6RIW612HD	6 1/2	(165.1)	Inserted Wing		
NW6RIW634HD	6 3/4	(171.4)	Inserted Wing		
NW6RIW700HD	7	(177.8)	Inserted Wing		
NW6RIW778HD	7 7/8	(200.0)	Inserted Wing		
NW6RIW812HD	8 1/2	(208.3)	Inserted Wing		
NW6RIW834HD	8 3/4	(222.2)	Inserted Wing		
NW6RIW978HD	9 7/8	(250.8)	Inserted Wing		
NW6RIW1058HD	10 5/8	(269.9)	Inserted Wing		
NW6RIW1214HD	12 1/4	(311.1)	Inserted Wing		
NW6RIW1434HD	14 3/4	(374.7)	Inserted Wing		
NW6RIW1712HD	17 ½	(444.5)	Inserted Wing		

Weld on Replacement Blades for Heavy Duty NW6R and W6R Step Type Drag Bits made with 1 inch Steel Plate and 1/4 inch carbide. Other shapes and styles are available.

\*5½-12¼ fit 3½ O.D. and 14¾ and larger fit 4½ O.D. shank  
These blades are normally used to make 3 or 4 wing bits.



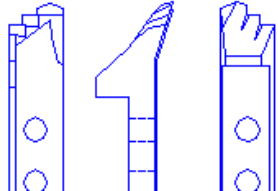
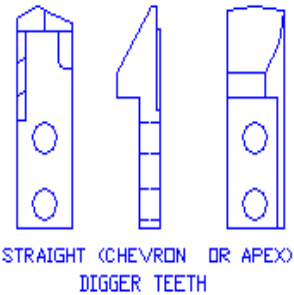
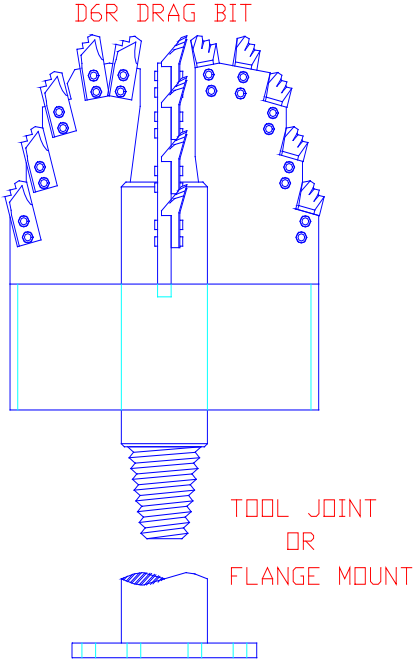
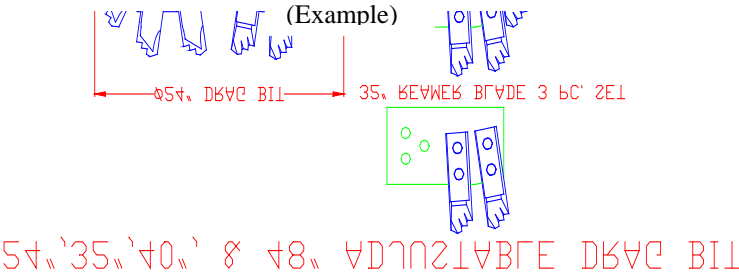
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# D6R Drag Bits

Mills Machine manufactures an extensive line of D6R bolt-on tooth drag bits that can be made for a specific hole size or can be enlarged with bolt on reamer blades (see example below). These bits start at 12 1/4 diameter and can be made as large as you need. The basic bit is designed for the specific diameter of the hole desired or as a Reamer (Holeopener). Bits are available for standard or reverse circulation (flanged or threaded).

The bolt-on digger teeth are heavy duty castings with carbide inserts, the outside teeth have additional carbide on the outer edge for gage protection. The teeth are available in Straight (chevron or apex) type for medium soft to medium hard formation or Scoop (step) type for soft to medium formation.



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Company \_\_\_\_\_  
Address \_\_\_\_\_  
City, State Zip \_\_\_\_\_

Phone \_\_\_\_\_  
Fax \_\_\_\_\_  
Contact \_\_\_\_\_

Sketch:

Quantity\*\*: \_\_\_\_\_ Diameter \_\_\_\_\_  
Bolt-on Blade Type\*\*: Chevron  Step   
Circulation\*\*: Standard  Reverse   
Top Connection\*\*: \_\_\_\_\_ Pin  Box   
OR Flange Mount\*\*: Flange OD \_\_\_\_\_ Flange ID \_\_\_\_\_  
Bolt Circle \_\_\_\_\_ Bolt Hole Size \_\_\_\_\_ No of Bolts \_\_\_\_\_

For Adjustable, Bolt-on Stages

Stage Diameter \_\_\_\_\_  
Stage Diameter \_\_\_\_\_  
Stage Diameter \_\_\_\_\_

**\*\*Must fill out these items. Fill out more if possible or custom product requested.**

Top Neck Dimensions: OD \_\_\_\_\_ ID \_\_\_\_\_  
Knurled  Length \_\_\_\_\_

Breakout Flats: Two Sided  Four Sided   
Special \_\_\_\_\_

Flat Length \_\_\_\_\_ Location \_\_\_\_\_  
Dimensions: Flat to Flat \_\_\_\_\_  
OR Depth per Side \_\_\_\_\_

Location \_\_\_\_\_

Float Valve: Bore Only  Install: Customer Furnished   
Mills Furnished

Brand \_\_\_\_\_ Model & Size \_\_\_\_\_

Special Requirements: \_\_\_\_\_  
\_\_\_\_\_

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