

PARTESPRO ◆

◆ Construção, Mineração & Logística

## Top hammer drilling tools

## Product catalogue

Products PARTESPRO Mining and Construction Tools





Partes Pro provide on-site technical service, performance monitoring and inventory management to ensure that our customers in mining and construction challenges are met and overcome. Product design and application in mining areas, and the quality of rock drilling tools is in the advanced level of the whole world. Covering the open-air and underground mining, tunneling, and other civil engineering, our product technology is widely used throughout the non-ferrous mines and tunnel construction in the worldwide. With outstanding quality and reasonable price, our products have effectively reduced the cost and raised the productivity for the customers and won a good reputation among them.



## Top hammer products

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# Button bit insert types

## Hemispherical Button



- Application Strength - universal button
- Best suited to hard ground
- 25,000 to 45,000 PSI (170 to 300 MPa)
- Abrasive to very abrasive

## Parabolic Button (semi ballistic)



- Application Strength - fast penetration
- Best suited to medium ground
- 15,000 to 25,000 PSI (100 to 170 MPa)
- Mildly abrasive ground

## Conical Button



- Application Strength – fast penetration
- Suited for all non-abrasive ground types
- Smaller contact area
- Best suited for smaller diameter bits

## Ballistic Button



- Application Strength - fast penetration
- Best suited to soft ground
- 10,000 to 20,000 PSI (70 to 140 MPa)
- Non abrasive ground

## Bit Selection Guide

ROCK TYPE	DUCTILITY	BREAK ABILITY	WEAR ABILITY	CONTROL ABILITY	THREADED BIT INSERT	THREADED BIT STYLE	TAPER BIT STYLE
Talc	High	Low	Low	High	Blade	2 – Prong 3 – Prong	2 – Prong 3 – Prong
Shale	High	Low	Medium	Medium	Parabolic Ballistic	Flat face Drop center	Button bit Blade - Multi
Limestone	Medium	High	Low	High	Parabolic Ballistic	Flat face Drop center	Button bit Blade - Multi
Sandstone	Medium	High	High	Medium	Parabolic	Flat face Drop center	Button bit Blade - Multi
Marble	Low	Medium	Low	High	Hemi	Flat face	Blade - Multi
Gniess	Low	Medium	High	High	Hemi	Flat face	Blade
Feldspar	Low	Medium	Low	High	Hemi	Flat face	Blade
Granite	Low	Low	Medium	High	Hemi	Flat face	Blade
Diorite	Low	Low	Low	High	Hemi, Tent	Flat face X-Cross	Blade
Quartzite	Low	Low	High	High	Hemi, Tent	Flat face X-Cross	Blade





## Small hole drilling

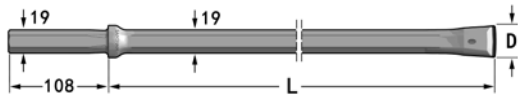
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# Small hole drilling

## H19 (3/4") Integral drill steels

	Series	Length		Bit diameter		Weight approx kg	Part No.
		mm	ft/in	mm	inch		

Shank 19 x 108 mm (3/4" x 4 1/4")

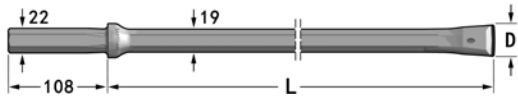


	21	400	1' 4"	29	1 5/32"	1.3	5H19-291508-0400-40-2
		500	1' 8"	29	1 5/32"	1.5	5H19-291508-0500-40-2
		800	2' 7"	28	1 1/8"	2.2	5H19-281508-0800-40-2
		1200	3' 11"	27	1 1/16"	3.0	5H19-271508-1200-40-2
		1600	5' 3"	27	1 1/16"	4.0	5H19-271508-1600-40-2
		2400	7' 10"	26	1 1/32"	5.7	5H19-261508-2400-40-2
		3200	10' 6"	25	1"	7.5	5H19-251206-3200-40-2
		4000	13' 1"	24	15/16"	9.2	5H19-241206-4000-40-2

22	400	1' 4"	24	15/16"	1.3	5H19-241206-0400-40-2
	800	2' 7"	23	29/32"	2.2	5H19-231206-0800-40-2


24	600	2'	27	1 1/16"	1.7	5H19-271508-0600-40-2
	1200	3' 11"	26	1 1/32"	3.1	5H19-261508-1200-40-2
	2400	7' 10"	24	15/16"	5.7	5H19-241206-2400-40-2

Shank 22 x 108 mm (7/8" x 4 1/4")

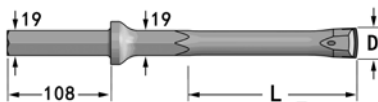


400	1' 4"	24	15/16"	1.4	5H19/22-241206-0400-40-2
400	1' 4"	29	1 5/32"	1.4	5H19/22-291508-0400-40-2
800	2' 7"	28	1 1/8"	2.3	5H19/22-281508-0800-40-2
1600	5' 3"	27	1 1/16"	4.0	5H19/22-271508-1600-40-2
2400	7' 10"	26	1 1/32"	5.8	5H19/22-261508-2400-40-2

## Stone working tools

	Series	Length		Bit diameter		Weight approx kg	Part No.
		mm	inch	mm	inch		


Plug hole integral steel



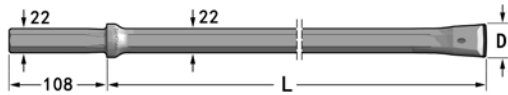
150	6"	17	21/32"	0.6	5H19-171206-0150-40-2
160	6 1/4"	20	25/32"	0.7	5H19-201206-0160-40-2
200	7 7/8"	20	25/32"	0.8	5H19-201206-0200-40-2
240	9 29/64"	20	25/32"	0.8	5H19-201206-0240-40-2
280	11 1/32"	20	25/32"	0.9	5H19-201206-0280-40-2
310	11 1/4"	20	25/32"	1.0	5H19-201206-0310-40-2
160	6 1/4"	22	7/8"	0.7	5H19-221206-0160-40-2
190	7 1/2"	22	7/8"	0.8	5H19-221206-0190-40-2

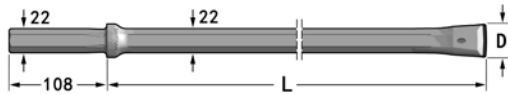
# Small hole drilling

## H22 (7/8") Integral drill steels

	Series	Length		Bit diameter		Weight approx kg	Part No.
		mm	ft/in	mm	inch		

Shank 22 x 108 mm (7/8" x 4 1/4" )



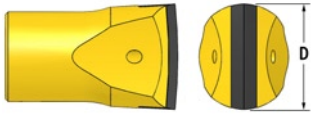
	11	800	2' 7"	34	1 11/32"	3.0	5H22-341810-0800-40-2
		1600	5' 3"	33	1 19/64"	5.4	5H22-331810-1600-40-2
		2400	7' 10"	32	1 1/4"	7.9	5H22-321508-2400-40-2
		3200	10' 6"	31	1 7/32"	10.3	5H22-311508-3200-40-2
		4000	13' 1"	30	1 3/16"	12.6	5H22-301508-4000-40-2
		4800	15' 9"	29	1 9/64"	15.1	5H22-291508-4800-40-2
		5600	18' 4"	28	1 7/64"	17.6	5H22-281508-5600-40-2
		6400	21'	27	1 1/16"	19.9	5H22-271508-6400-40-2
		7200	23' 8"	26	1 1/32"	22.3	5H22-261508-7200-40-2
12	800	2' 7"	40	1 37/64"	3.0	5H22-401810-0800-40-2	
	1600	5' 3"	39	1 17/32"	5.4	5H22-391810-1600-40-2	
	2400	7' 10"	38	1 1/2"	7.9	5H22-381810-2400-40-2	
	3200	10' 6"	37	1 29/64"	10.3	5H22-371810-3200-40-2	
	4000	13' 1"	36	1 27/64"	12.6	5H22-361810-4000-40-2	
	4800	15' 9"	35	1 3/8"	15.1	5H22-351810-4800-40-2	
	5600	18' 4"	34	1 11/32"	17.6	5H22-341810-5600-40-2	
	6400	21'	33	1 19/64"	19.9	5H22-331810-6400-40-2	
	7200	23' 8"	32	1 1/4"	22.3	5H22-321508-7200-40-2	
13	400	1' 4"	34	1 11/32"	1.8	5H22-341810-0400-40-2	
	800	2' 7"	33	1 19/64"	3.0	5H22-331810-0800-40-2	
	1200	3' 11"	32	1 1/4"	4.2	5H22-321508-1200-40-2	
	1600	5' 3"	31	1 7/32"	5.3	5H22-311508-1600-40-2	
	2000	6' 7"	30	1 3/16"	6.5	5H22-301508-2000-40-2	
16	600	2'	35	1 3/8"	2.4	5H22-351810-0600-40-2	
	1200	3' 11"	34	1 11/32"	4.2	5H22-341810-1200-40-2	
	1800	5' 11"	33	1 19/64"	6.1	5H22-331810-1800-40-2	
	2400	7' 10"	32	1 1/4"	7.9	5H22-321508-2400-40-2	
17	600	2'	41	1 5/8"	2.4	5H22-411810-0600-40-2	
	1200	3' 11"	40	1 37/64"	4.3	5H22-401810-1200-40-2	
	1800	5' 11"	39	1 17/32"	6.1	5H22-391810-1800-40-2	
	2400	7' 10"	38	1 1/2"	7.9	5H22-381810-2400-40-2	
	800	2' 7"	29	1 9/64"	3.0	5H22-291508-0800-40-2	
	1600	5' 3"	28	1 7/64"	5.3	5H22-281508-1600-40-2	
	2400	7' 10"	27	1 1/16"	7.9	5H22-271508-2400-40-2	


H22 (7/8")

# Small hole drilling

## Tapered tools, 7° taper

7° taper

Bits	Diameter		Dimensions of carbide,mm			Flushing hole		Weight approx kg	Part No.
	mm	in	Height	Width	Class	Front	Gauge		
Chisel bit (Horseshoe type)									
	32	1 1/4"	13.5	8	3A	-	2	0.22	1111-32722-13/8-40-13
	34	1 11/32"	13.5	8	3A	-	2	0.26	1111-34722-13/8-40-13
	36	1 7/16"	13.5	8	3A	-	2	0.29	1111-36722-13/8-40-13
	38	1 1/2"	13.5	8	3A	-	2	0.32	1111-38723-13/8-40-13
	38	1 1/2"	15	9	3A	-	2	0.32	1111-38723-15/9-40-13
	40	1 37/64"	13.5	9.2	3A	-	2	0.37	1111-40723-13/9-40-13
	40	1 37/64"	13.5	9.2	4A	-	2	0.37	1111-40723-13/9-40-12
	40	1 37/64"	15	9.8	3A	-	2	0.37	1111-40723-15/10-40-13
	40	1 37/64"	15	9.8	4A	-	2	0.37	1111-40723-15/10-40-12
	42	1 21/32"	13.5	9.2	3A	-	2	0.41	1111-42723-13/9-40-13
	42	1 21/32"	13.5	9.2	4A	-	2	0.41	1111-42723-13/9-40-12
	42	1 21/32"	15	9.8	3A	-	2	0.41	1111-42723-15/10-40-13
	42	1 21/32"	15	9.8	4A	-	2	0.41	1111-42723-15/10-40-12

Chisel bit (Oblique—chipways)									
	30	1 3/16"	13.5	8	4A	-	2	0.21	1112-30722-13/8-42-22
	32	1 1/4"	13.5	8	4A	-	2	0.22	1112-32722-13/8-42-22
	34	1 11/32"	13.5	8	4A	-	2	0.26	1112-34722-13/8-42-22
	36	1 7/16"	13.5	8	4A	-	2	0.29	1112-36722-13/8-42-22
	38	1 1/2"	15	9	4A	-	2	0.33	1112-38723-15/9-42-22
	40	1 37/64"	15	9.8	4A	-	2	0.37	1112-40723-15/10-42-22
	42	1 21/32"	15	9.8	4A	-	2	0.41	1112-42723-15/10-42-22

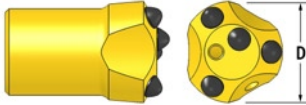








Chisel bit (Flat—chipways)									
	45	1 3/4"	16	10	4A	1	2	0.56	1113-45723-16/10-42-22
	50	1 31/32"	16	10	4A	1	2	0.61	1113-50723-16/10-42-22
	55	1 1/4"	16	10	4A	1	2	0.75	1113-55723-16/10-42-22
	60	2 23/64"	16	10	4A	1	2	0.86	1113-45723-16/10-42-22

Cross bit									
	32	1 1/4"	12	8	3A	1	2	0.26	1221-32722-12/8-42-23
	34	1 11/32"	12	8	3A	1	2	0.29	1221-34722-12/8-42-23
	36	1 7/16"	12	8	3A	1	2	0.32	1221-36722-12/8-42-23
	38	1 1/2"	12	8	3A	1	2	0.37	1221-38723-12/8-42-23
	40	1 37/64"	12	8	3A	1	2	0.40	1221-40723-12/8-42-23
	42	1 21/32"	12	8	3A	1	2	0.43	1221-42723-12/8-42-23
	45	1 3/4"	14	8	3A	1	2	0.49	1221-45723-14/8-42-23
	50	1 31/32"	14	8	3A	1	2	0.62	1221-50723-14/8-42-23
	55	2 1/4"	16	10	3A	1	2	0.82	1221-55723-16/10-42-23





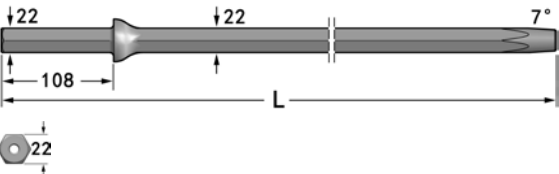
# Small hole drilling

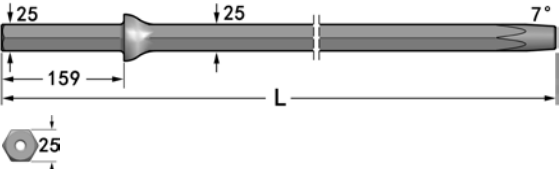
## Tapered tools, 7° taper

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
Button bit—For 22mm (7/8" ) hex. rod.										
	32	1 1/4"	1×8	3×8		35°	1	1	0.24	1431-32722-18/38-42-53
	34	1 11/32"	1×8	3×8		35°	1	1	0.26	1431-34722-18/38-42-53
	36	1 7/16"	1×8	3×9		35°	1	1	0.27	1431-36722-18/39-42-53
	38	1 1/2"	1×8	3×9		35°	1	1	0.32	1431-38723-18/39-42-53
	40	1 37/64"	1×8	3×9		30°	1	1	0.36	1431-40723-18/39-42-53
	40	1 37/64"	1×9	3×9		35°	1	1	0.36	1431-40723-19/39-42-53
	42	1 21/32"	1×8	3×9		30°	1	1	0.40	1431-42723-18/39-42-53
	42	1 21/32"	1×9	3×9		35°	1	1	0.40	1431-42723-19/39-42-53

Button bit—For 22mm (7/8" ) hex. rod. Long skirt.										
	32	1 1/4"	2×7	5×7		35°	2	1	0.24	1435-32722-27/57-42-53
	34	1 11/32"	2×7	5×7		35°	2	1	0.29	1435-34722-27/57-42-53
	36	1 7/16"	2×7	5×8		35°	2	1	0.32	1435-36722-27/58-42-53
	38	1 1/2"	2×7	5×8		35°	2	1	0.34	1435-38723-27/58-42-53
	38	1 1/2"	2×7	5×9		35°	2	1	0.34	1435-38723-27/59-42-53
	40	1 37/64"	2×7	5×9		35°	2	1	0.39	1435-40723-27/59-42-53
	41	1 5/8"	2×8	5×9		35°	2	1	0.39	1435-41723-28/59-42-53

Button bit—For 25mm (1" ) hex. rod. Long skirt.										
	41	1 5/8"	2×8	5×9		35°	2	1	0.39	1435-41725-28/59-42-53
	43	1 11/16"	2×8	5×9		35°	2	1	0.39	1435-43725-28/59-42-53
	45	1 3/4"	2×8	5×9		35°	2	1	0.45	1435-45725-28/59-42-53
	51	1 31/32"	2×9	5×10		35°	2	1	0.62	1435-51725-29/510-42-53

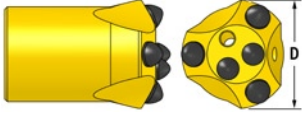





Rods	Length		Weight approx kg	Part No.
	mm	ft/in		
Shank 22 x 108 mm (7/8" x 4 1/4" )				
	1500	4' 11"	4.68	21H22-7/108-1500-40
	2000	6' 7"	6.20	21H22-7/108-2000-40
	2500	8' 2"	7.73	21H22-7/108-2500-40
	3000	9' 10"	9.25	21H22-7/108-3000-40
	3500	11' 5"	10.78	21H22-7/108-3500-40
	4000	13' 1"	12.30	21H22-7/108-4000-40
	4500	14' 8"	13.83	21H22-7/108-4500-40

Shank 25 x 159 mm (1" x 6 1/4" )				
	4000	13' 1"	16.65	5H25-7/159-4000-40
	4700	15' 4"	18.9	5H25-7/159-4700-40
	5000	16' 4"	22.1	5H25-7/159-5000-40
	5500	18' 1"	22.1	5H25-7/159-5500-40



# Small hole drilling

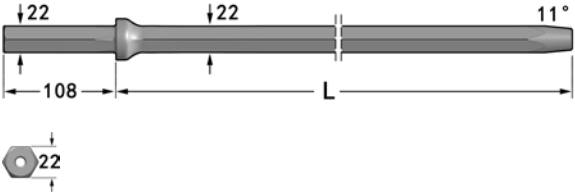
## Tapered tools, 11° taper

11° taper

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
Button bit—Short skirt.										
	32	1 1/4"	2×7	3×8		35°	1	2	0.24	1431-321122-27/38-45-51
	34	1 11/32"	1×8	3×8		35°	1	1	0.26	1431-341122-18/38-45-51
	36	1 7/16"	1×8	3×9		40°	1	1	0.29	1431-361122-18/39-45-51
	38	1 1/2"	2×8	3×9		40°	1	1	0.32	1431-381122-28/39-45-51
	40	1 37/64"	2×8	3×9		40°	1	1	0.36	1431-401122-28/39-45-51

Button bit—Short skirt.										
	32	1 1/4"	2×7	4×7		35°	1	1	0.24	1431-321122-27/47-45-51
	34	1 11/32"	2×7	4×7		35°	2	1	0.29	1431-341122-27/47-45-51
	36	1 7/16"	2×7	4×8		35°	2	1	0.32	1431-361122-27/48-45-51

Button bit—Short skirt.										
	32	1 1/4"	2×7	5×7		40°	1	1	0.24	1431-321122-27/57-45-51
	34	1 11/32"	2×7	5×7		35°	1	1	0.29	1431-341122-27/57-45-51
	36	1 7/16"	2×7	5×8		35°	1	1	0.32	1431-361122-27/58-45-51
	38	1 1/2"	2×7	5×8		35°	1	1	0.34	1431-381123-27/58-45-51
	38	1 1/2"	2×7	5×9		40°	1	1	0.34	1431-381123-27/59-45-51
	40	1 37/64"	2×7	5×9		35°	1	1	0.39	1431-401123-27/59-45-51
	41	1 5/8"	2×8	5×9		35°	1	1	0.39	1431-411123-28/59-45-51

Rods	Length		Weight approx kg	Part No.
	mm	ft/in		
Shank 22 x 108 mm (7/8" x 4 1/4" )				
	610	2'	2.20	21H22-11/108-0610-40
	800	3' 3"	2.78	21H22-11/108-0800-40
	1220	4'	4.06	21H22-11/108-1220-40
	1830	6'	5.92	21H22-11/108-1830-40
	2000	6' 7"	6.44	21H22-11/108-2000-40
	2435	8'	7.76	21H22-11/108-2435-40
	3050	10'	9.64	21H22-11/108-3050-40
	3660	12'	11.50	21H22-11/108-3660-40
	4000	13' 1"	12.54	21H22-11/108-4000-40
	4800	15' 9"	14.98	21H22-11/108-4800-40
	5600	18' 4"	17.42	21H22-11/108-5600-40
	6400	21'	19.86	21H22-11/108-6400-40
	7200	23' 6"	22.30	21H22-11/108-7200-40
8000	26' 2"	24.74	21H22-11/108-8000-40	

# Small hole drilling

## Tapered tools, 12° taper



12° taper



Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		

Button bit—Short skirt.										
	28	1 1/8"	1×7	4×7		35°	1	1	0.20	1431-281222-17/47-45-51
	30	1 3/16"	1×7	4×7		35°	1	1	0.22	1431-301222-17/47-45-51

Button bit—Short skirt.										
	28	1 1/8"	1×7	3×7		35°	1	1	0.20	1431-281222-17/37-45-51
	30	1 3/16"	1×7	3×7		35°	1	1	0.22	1431-281222-17/37-45-51
	32	1 1/4"	2×7	3×8		35°	1	2	0.24	1431-321222-27/38-45-51
	34	1 11/32"	1×8	3×8		35°	1	1	0.26	1431-341222-18/38-45-51
	36	1 7/16"	1×8	3×9		40°	1	1	0.29	1431-361222-18/39-45-51
	38	1 1/2"	2×8	3×9		40°	1	1	0.32	1431-381222-28/39-45-51
	40	1 37/64"	2×8	3×9		40°	1	1	0.36	1431-401222-28/39-45-51

Button bit—Short skirt.										
	32	1 1/4"	2×7	4×7		35°	1	1	0.24	1431-321222-27/47-45-51
	34	1 11/32"	2×7	4×7		35°	2	1	0.29	1431-341222-27/47-45-51
	36	1 7/16"	2×7	4×8		35°	2	1	0.32	1431-361222-27/48-45-51

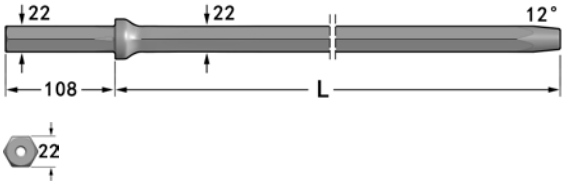
Button bit—Short skirt.										
	32	1 1/4"	2×7	5×7		40°	2	1	0.24	1431-321222-27/57-45-51
	34	1 11/32"	2×7	5×7		35°	2	1	0.29	1431-341222-27/57-45-51
	35	1 3/8"	2×7	5×8		40°	2	1	0.32	1431-351222-27/58-45-51
	36	1 7/16"	2×7	5×8		40°	2	1	0.32	1431-361222-27/58-45-51
	38	1 1/2"	2×7	5×8		35°	2	1	0.34	1431-381223-27/58-45-51
	38	1 1/2"	2×7	5×9		40°	2	1	0.34	1431-381223-27/59-45-51
	41	1 5/8"	2×8	5×9		40°	2	1	0.39	1431-411223-28/59-45-51

Button bit—Long skirt.										
	33	1 9/64"	2×7	5×7		40°	2	1	0.29	1435-331222-27/57-45-51
	35	1 3/8"	2×7	5×8		40°	2	1	0.32	1435-351222-27/58-45-51
	38	1 1/2"	2×7	5×9		40°	2	1	0.34	1435-381223-27/59-45-51

Cross bit—Long skirt.										
	30	1 3/16"	-	-	-	-	1	2	0.24	1221-301222-12/8-42-23
	32	1 1/4"	-	-	-	-	1	2	0.24	1221-321222-12/8-42-23
	34	1 11/32"	-	-	-	-	1	2	0.29	1221-341222-12/8-42-23
	35	1 3/8"	-	-	-	-	1	2	0.29	1221-351222-12/8-42-23
	36	1 7/16"	-	-	-	-	1	2	0.32	1221-361222-12/8-42-23
	38	1 1/2"	-	-	-	-	1	2	0.34	1221-381222-12/8-42-23

# Small hole drilling


## Tapered tools, 12° taper


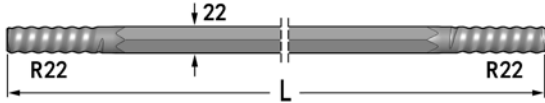
Rods	Length		Weight approx kg	Part No.
	mm	ft/in		
Shank 22 x 108 mm (7/8" x 4 1/4" )				
	610	2'	2.20	21H22-12/108-0610-40
	800	3' 3"	2.78	21H22-12/108-0800-40
	1220	4'	4.06	21H22-12/108-1220-40
	1830	6'	5.92	21H22-12/108-1830-40
	2000	6' 7"	6.44	21H22-12/108-2000-40
	2435	8'	7.76	21H22-12/108-2435-40
	3050	10'	9.64	21H22-12/108-3050-40
	3660	12'	11.50	21H22-12/108-3660-40
	4000	13' 1"	12.54	21H22-12/108-4000-40
	4800	15' 9"	14.98	21H22-12/108-4800-40
	5600	18' 4"	17.42	21H22-12/108-5600-40
	6400	21'	19.86	21H22-12/108-6400-40
	7200	23' 6"	22.30	21H22-12/108-7200-40
	8000	26' 2"	24.74	21H22-12/108-8000-40


12° taper

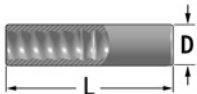
# Small hole drilling

## R22 (7/8") Extension drilling tools

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Cross bit</b>										
	38	1 1/2"	-	-	-	-	1	2	0.34	1221-38R22-12/8-42-23
	40	1 37/64"	-	-	-	-	1	2	0.37	1221-40R22-12/8-42-23

	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Extension rod R22 – Hex22 – R22</b>						
	800	2' 7"	22	7/8"	2.44	23H22-R22-0800-40
	1200	3' 11"	22	7/8"	3.66	23H22-R22-1200-40
	1600	5' 3"	22	7/8"	4.88	23H22-R22-1600-40
	2000	6' 7"	22	7/8"	6.10	23H22-R22-2000-40
	2435	8'	22	7/8"	7.44	23H22-R22-2435-40

<b>Shank adapter/Shank rod Hex22 – R22</b>						
	255	10 3/64"	22	7/8"	1.12	21H22-R22/108-0255-40
	1000	3' 3"	22	7/8"	3.39	21H22-R22/108-1000-40

<b>Coupling sleeve, R22</b>						
	140	5 1/2"	32	1 1/4"	0.6	31-R22-32-140-23

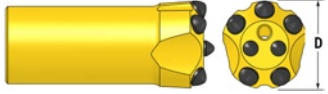






R22 (7/8")





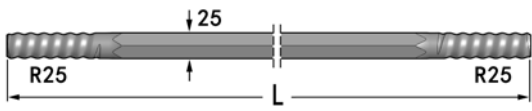
# Small hole drilling


## R25 (1") Extension drilling tools

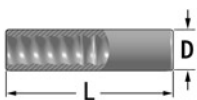
R25 (1")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	35	1 3/8"	2×7	5×8		35°	1	1	0.4	1431-35R25-27/58-45-41
	35	1 3/8"	2×7	5×8		35°	1	1	0.4	1431-35R25-27/58-45-51
	38	1 1/2"	2×7	5×9		30°	1	1	0.5	1431-38R25-27/59-45-41
	38	1 1/2"	2×7	5×9		35°	1	1	0.5	1431-38R25-27/59-45-51
	41	1 5/8"	2×8	5×9		35°	1	1	0.6	1431-41R25-28/59-45-41
	41	1 5/8"	2×8	5×9		35°	1	1	0.6	1431-43R25-28/59-45-51

<b>Button bit</b>										
	45	1 3/4"	3×8	6×9		40°	3	-	0.8	1431-45R25-38/69-45-51

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Extension rod R25 – Hex25 – R25</b>						
	915	2' 7"	25	1"	3.66	23H25-R25-0915-40
	1220	3' 11"	25	1"	4.88	23H25-R25-1220-40
	1525	5' 3"	25	1"	6.10	23H25-R25-1525-40
	1830	6' 7"	25	1"	7.32	23H25-R25-1830-40
	2435	8'	25	1"	9.74	23H25-R25-2435-40
	3050	10'	25	1"	12.2	23H25-R25-3050-40

<b>Shank adapter/Shank rod Hex22 – R25</b>						
	255	10 3/64"	22	7/8"	1.14	21H22-R25/108-0255-40
	800	2' 7"	22	7/8"	2.78	21H22-R25/108-0800-40
	1000	3' 3"	22	7/8"	3.39	21H22-R25/108-1000-40

<b>Coupling sleeve, R25</b>						
	150	5 7/8"	35	1 3/8"	0.7	31-R25-35-150-23










## Drifting and tunneling

	Page
R25 (1") bit thread	14
R28 (1 1/8") bit thread	15
R32 (1 1/4") bit thread	16
R35 (1 3/8") bit thread	18


# Drifting and tunneling

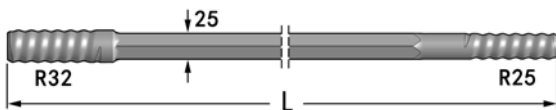
## R25 (1") bit thread

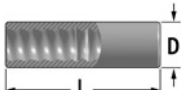
Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	33	1 5/16"	2×7	5×7		35°	1	1	0.4	1431-33R25-27/57-45-41
	35	1 3/8"	2×7	5×9		30°	1	1	0.5	1431-35R25-27/59-45-41
	37	1 29/64"	2×7	5×9		30°	1	1	0.6	1431-37R25-27/59-45-41
	38	1 1/2"	2×7	5×9		30°	1	1	0.6	1431-38R25-27/59-45-41
	41	1 5/8"	2×8	5×9		35°	1	1	0.6	1431-41R25-28/59-45-41

<b>Cross bit</b>										
	33	1 5/16"	-	-	-	-	1	2	0.4	1221-33R25-12/8-42-23
	35	1 3/8"	-	-	-	-	1	2	0.5	1221-35R25-14/8-42-23
	38	1 1/2"	-	-	-	-	1	2	0.6	1221-38R25-14/8-42-23

<b>Reaming bit, 6° taper</b>										
	64	2 1/2"	4×8	8×9		25°	-	-	0.9	1441-646-48/89-45-41
	76	3"	4×10	8×10		30°	-	-	1.3	1441-766-410/810-45-41
	89	3 1/2"	4×11	8×11		30°	-	-	1.7	1441-896-411/811-45-41

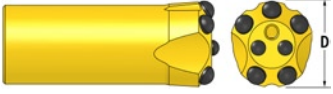




<b>Pilot adapter, 6° taper, R25 thread</b>										
	26	1 1/32"	-	-	-	-	-	-	1.3	1442-26R25-15/8-45-23

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Drifter rod, R32 – Hex25 – R25</b>						
	2200	7' 2 <sup>5</sup> / <sub>8</sub> "	25	1"	8.9	22H25-R25/R32-2200-23
	2400	7' 10 <sup>1</sup> / <sub>2</sub> "	25	1"	9.7	22H25-R25/R32-2400-23
	2600	8' 6 <sup>3</sup> / <sub>8</sub> "	25	1"	10.5	22H25-R25/R32-2600-23
	2800	9' 2 <sup>1</sup> / <sub>4</sub> "	25	1"	11.3	22H25-R25/R32-2800-23
	3090	10' 1 <sup>5</sup> / <sub>8</sub> "	25	1"	12.4	22H25-R25/R32-3090-23
	3700	12' 1 <sup>5</sup> / <sub>8</sub> "	25	1"	14.9	22H25-R25/R32-3700-23





<b>Coupling sleeve</b>						
	R32	150	5 7/8"	44	1 23/32"	31-R32-44-150-23


# Drifting and tunneling

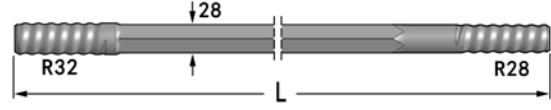
## R28 (1 1/8") bit thread

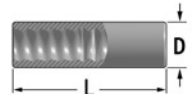
Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No	Gauge No	Type		Front	Gauge		
<b>Button bit</b>										
	38	1 1/2"	2×7	5×9		30°	1	1	0.6	1431-38R28-27/59-45-41
	38	1 1/2"	2×7	5×9		35°	1	1	0.6	1431-38R28-27/59-45-51
	41	1 5/8"	2×8	5×9		35°	1	1	0.7	1431-41R28-28/59-45-41
	43	1 11/16"	2×8	5×10		30°	1	1	0.7	1431-43R28-28/510-45-41

<b>Cross bit</b>										
	38	1 1/2"	-	-	-	-	1	2	0.6	1221-38R28-14/8-42-23
	41	1 5/8"	-	-	-	-	1	2	0.7	1221-41R28-14/8-42-23

<b>Reaming bit, 6° taper</b>										
	64	2 1/2"	4×8	8×9		25°	-	-	0.9	1441-646-48/89-45-41
	76	3"	4×10	8×10		30°	-	-	1.3	1441-766-410/810-45-41
	89	3 1/2"	4×11	8×11		30°	-	-	1.7	1441-896-411/811-45-41

<b>Pilot adapter, 6° taper, R28 thread</b>										
	26	1 1/32"	-	-	-	-	-	-	1.3	1442-26R28-15/8-45-23






Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Drifter rod, R32—Hex28—R28</b>						
	2400	7' 10 1/2"	28	1 1/8"	12.3	22H28-R28/R32-2400-23
	2750	9' 1 1/4"	28	1 1/8"	14.1	22H28-R28/R32-2750-23
	3090	10' 1 5/8"	28	1 1/8"	15.8	22H28-R28/R32-3090-23
	3700	12' 1 5/8"	28	1 1/8"	18.9	22H28-R28/R32-3700-23
	4310	14' 1 5/8"	28	1 1/8"	22.0	22H28-R28/R32-4310-23

<b>Coupling sleeve</b>						
	R32	150	5 7/8"	44	1 23/32"	31-R32-44-150-23

R28 (1 1/8")


# Drifting and tunneling

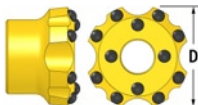




## R32 (1 1/4") bit thread






Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	43	1 11/16"	2×9	5×10		35°	1	2	0.7	1431-43R32-29/510-45-41
	45	1 3/4"	2×9	5×11		30°	1	2	0.8	1431-45R32-29/511-45-41
	48	1 7/8"	2×9	5×11		35°	1	2	0.9	1431-48R32-29/511-45-41
	51	2"	2×10	5×12		35°	1	2	1.0	1431-51R32-210/512-45-41

<b>Button bit</b>										
	43	1 11/16"	2×9	6×9		40°	2	2	0.7	1431-43R32-29/69-45-51
	45	1 3/4"	2×9	6×10		35°	2	2	0.8	1431-45R32-29/610-45-51

<b>Button bit</b>										
	45	1 3/4"	3×8	6×10		25°	3	1	0.8	1431-45R32-38/610-45-41
	45	1 3/4"	3×8	6×10		30°	3	1	0.8	1431-45R32-38/610-45-51
	48	1 7/8"	3×9	6×10		30°	3	1	0.9	1431-48R32-39/610-45-41
	48	1 7/8"	3×9	6×10		30°	3	1	0.9	1431-48R32-39/610-45-51
	51	2"	3×9	6×10		35°	3	1	1.0	1432-51R32-39/610-45-41
	51	2"	3×9	6×10		35°	3	1	1.0	1432-51R32-39/610-45-51

<b>Cross bit</b>										
	45	1 3/4"	-	-	-	-	1	4	0.8	1221-45R32-16/10-42-23
	51	2"	-	-	-	-	1	4	1.0	1221-51R32-16/10-42-23


<b>Reaming bit and pilot adapter, 6° taper, R32 thread</b>										
	64	2 1/2"	4×8	8×9		25°	-	-	0.9	1441-646-48/89-45-41
	76	3"	4×10	8×10		30°	-	-	1.3	1441-766-410/810-45-41
	89	3 1/2"	4×11	8×11		30°	-	-	1.7	1441-896-411/811-45-41
	26	1 1/32"	-	-	-	-	-	-	1.3	1442-26R32-15/8-45-23

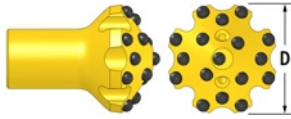
<b>Reaming bit and pilot adapter, 12° taper, R32 thread</b>										
	89	3 1/2"	4×10	8×12		35°	-	-	1.7	1441-8912-410/812-45-41
	102	4"	4×12	8×12		35°	-	-	2.1	1441-10212-412/812-45-41
	127	5"	8×12	8×13		35°	-	-	3.6	1441-12712-812/813-45-41
	40	1 37/64"	-	-	-	-	-	-	2.9	1442-40R32-18/10-45-23



# Drifting and tunneling

## R32 (1 1/4") bit thread

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
Reaming bit, R32										
	102	4"	9×12	8×12		35°	2	2	3.6	1441-102R32-912/812-45-41



Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Drifter rod, R38—Hex32—R32						
	3090	10' 1 5/8"	32	1 1/4"	19.8	22H32-R32/R38-3090-23
	3700	12' 1 5/8"	32	1 1/4"	23.7	22H32-R32/R38-3700-23
	4310	14' 1 5/8"	32	1 1/4"	27.6	22H32-R32/R38-4310-23
	4920	16' 1 3/4"	32	1 1/4"	31.5	22H32-R32/R38-4920-23

Drifter rod, R38—Hex35—R32						
	3090	10' 1 5/8"	35	1 3/8"	24.5	22H35-R32/R38-3090-23
	3700	12' 1 5/8"	35	1 3/8"	29.3	22H35-R32/R38-3700-23
	4310	14' 1 5/8"	35	1 3/8"	34.1	22H35-R32/R38-4310-23
	4920	16' 1 3/4"	35	1 3/8"	38.9	22H35-R32/R38-4920-23

Drifter rod, T38—Hex32—R32						
	3700	12' 1 5/8"	32	1 1/4"	23.7	22H32-R32/T38-3700-23
	4310	14' 1 5/8"	32	1 1/4"	27.6	22H32-R32/T38-4310-23
	4920	16' 1 3/4"	32	1 1/4"	31.5	22H32-R32/T38-4920-23

Drifter rod, T38—Hex35—R32						
	3090	10' 1 5/8"	35	1 3/8"	24.5	22H35-R32/T38-3090-23
	3700	12' 1 5/8"	35	1 3/8"	29.3	22H35-R32/T38-3700-23
	4310	14' 1 5/8"	35	1 3/8"	34.1	22H35-R32/T38-4310-23
	4920	16' 1 3/4"	35	1 3/8"	38.9	22H35-R32/T38-4920-23
	5530	18' 1 3/4"	35	1 3/8"	43.7	22H35-R32/T38-5530-23

Drifter rod, T38—Hex35—R32						
	3700	12' 1 5/8"	35	1 3/8"	31.3	24H35-R32/R38-3700-23
	4310	14' 1 5/8"	35	1 3/8"	36.1	24H35-R32/R38-4310-23
	4920	16' 1 3/4"	35	1 3/8"	40.9	24H35-R32/R38-4920-23
	5530	18' 1 3/4"	35	1 3/8"	45.7	24H35-R32/T38-5530-23

Coupling sleeve							
	R38	170	6 3/4"	55	2 5/32"	1.9	31-R38-55-170-23
	T38	190	6 1/8"	55	2 5/32"	2.0	31-T38-55-190-23

R32 (1 1/4")

# Drifting and tunneling

## R35 (1 3/8") bit thread

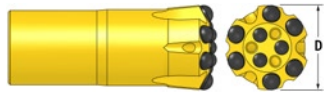
Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		

### Button bit

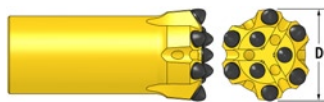


48	1 7/8"	2×9	5×11		35°	1	2	0.9	1431-48R35-29/511-45-41
51	2"	2×10	5×12		35°	1	2	1.0	1431-51R35-210/512-45-41

### Button bit



48	1 7/8"	3×9	6×10		30°	3	1	0.9	1431-48R35-39/610-45-41
48	1 7/8"	3×9	6×10		30°	3	1	0.9	1431-48R35-39/610-45-51



51	2"	3×9	6×10		35°	3	1	1.0	1432-51R35-39/610-45-41
51	2"	3×9	6×10		35°	3	1	1.0	1432-51R35-39/610-45-51

### Cross bit



48	1 7/8"	-	-	-	-	1	2	0.9	1221-48R35-16/10-42-23
51	2"	-	-	-	-	1	2	1.0	1221-51R35-16/10-42-23

### Button bit, Retrac



54	2 1/5"	3×9	6×11		30°	3	1	1.3	1632-54R35-39/611-45-51
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### Reaming bit and pilot adapter, 12° taper, R35 thread

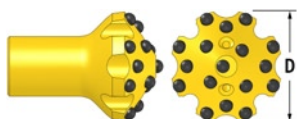


89	3 1/2"	4×10	8×12		35°	-	-	1.7	1441-8912-410/812-45-41
102	4"	4×12	8×12		35°	-	-	2.1	1441-10212-412/812-45-41
127	5"	8×12	8×13		35°	-	-	3.6	1441-12712-812/813-45-41



40	1 37/64"	-	-	-	-	-	-	2.9	1442-40R35-18/10-45-23
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### Reaming bit, R35

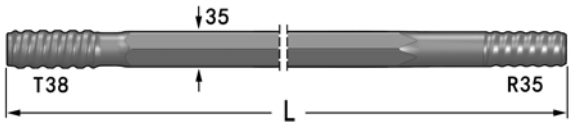


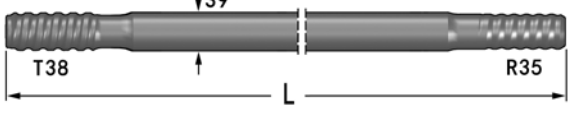
102	4"	9×12	8×12		35°	2	2	3.6	1441-102R35-912/812-45-41
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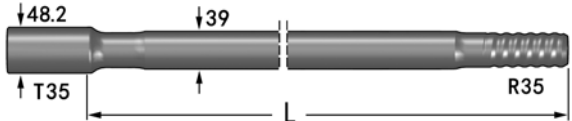
R35 (1 3/8")

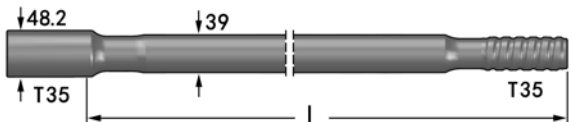
# Drifting and tunneling

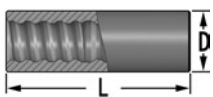
## R35 (1 3/8") bit thread

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Drifter rod, T38—Hex35—R35						
	4310	14' 1 <sup>5</sup> / <sub>8</sub> "	35	1 3/8"	34.1	22H35-R35/T38-4310-23
	4920	16' 1 <sup>3</sup> / <sub>4</sub> "	35	1 3/8"	38.9	22H35-R35/T38-4920-23
	5530	18' 1 <sup>3</sup> / <sub>4</sub> "	35	1 3/8"	43.7	22H35-R35/T38-5530-23
	6100	20' 1 <sup>1</sup> / <sub>8</sub> "	35	1 3/8"	48.2	22H35-R35/T38-6100-23

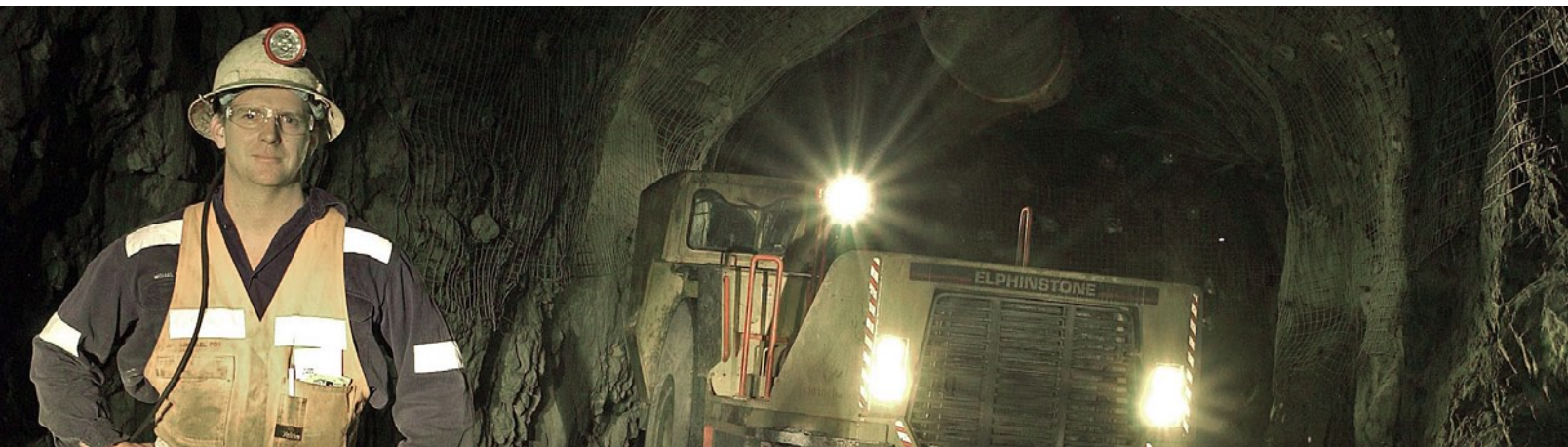
Drifter rod, T38—Round39—R35						
	4310	14' 1 <sup>5</sup> / <sub>8</sub> "	39	1 1/2"	35.0	22R39-R35/T38-4310-23
	4920	16' 1 <sup>3</sup> / <sub>4</sub> "	39	1 1/2"	39.9	22R39-R35/T38-4920-23
	5530	18' 1 <sup>3</sup> / <sub>4</sub> "	39	1 1/2"	44.8	22R39-R35/T38-5530-23
	6100	20' 1 <sup>1</sup> / <sub>8</sub> "	39	1 1/2"	49.5	22R39-R35/T38-6100-23

Drifter rod, T35—Round39—R35						
	4310	14' 1 <sup>5</sup> / <sub>8</sub> "	39	1 1/2"	37.0	22R39-R35/T38-4310-23
	4920	16' 1 <sup>3</sup> / <sub>4</sub> "	39	1 1/2"	41.9	22R39-R35/T38-4920-23
	5530	18' 1 <sup>3</sup> / <sub>4</sub> "	39	1 1/2"	46.8	22R39-R35/T38-5530-23
	6100	20' 1 <sup>1</sup> / <sub>8</sub> "	39	1 1/2"	51.5	22R39-R35/T38-6100-23

Drifter Extension rod, T35—Round39—T35						
	3050	10'	39	1 1/2"	26.7	24R39-T35/48-3050-23
	3660	12'	39	1 1/2"	31.7	24R39-T35/48-3660-23
	4270	14'	39	1 1/2"	36.6	24R39-T35/48-4270-23
	4880	16'	39	1 1/2"	41.6	24R39-T35/48-4880-23

Coupling sleeve							
	T38	190	6 1/8"	55	2 5/32"	2.0	31-T38-55-190-23

R35 (1 3/8")










## Bench and long-hole drilling

	Page
R32 (1 1/4")	22
T35(1 3/8")	24
T38 (1 1/2")	25
T45 (1 3/4")	28
T51 (2")	31
T60 (2 3/8")	34
ST58 (2 1/4") tube drilling tools	35
ST68 (2 3/4") tube drilling tools	36






# Bench and long-hole drilling




## R32 (1 1/4")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	51	2"	3×9	6×10		35°	3	1	1.0	1432-51R32-39/610-45-41
	51	2"	3×9	6×10		35°	3	1	1.0	1432-51R32-39/610-45-51
	57	2 1/4"	3×10	6×11		35°	3	1	1.2	1432-57R32-310/611-45-41
	64	2 1/2"	3×11	6×12		30°	3	-	1.6	1432-64R32-311/612-45-41

<b>Button bit, Retrac</b>										
	51	2"	3×9	6×10		35°	3	-	1.2	1632-51R32-39/610-45-41
	51	2"	3×9	6×10		35°	3	-	1.2	1632-51R32-39/610-45-51
	57	2 1/4"	3×10	6×11		35°	3	-	1.7	1632-57R32-310/611-45-41
	64	2 1/2"	3×11	6×12		30°	3	-	2.1	1632-64R32-311/612-45-41

<b>Cross bit</b>										
	51	2"	-	-	-	-	1	2	1.0	1221-51R32-16/10-42-23

<b>Guide bit</b>										
	51	2"	3×8	6×10		40°	3	-	1.2	1632-51R32-38/610-45-51

<b>Reaming bit, R32</b>										
	102	4"	9×12	8×12		35°	2	2	3.6	1441-102R32-912/812-45-41
	127	5"	9×13	8×13		35°	2	2	6.9	1441-127R32-913/813-45-41

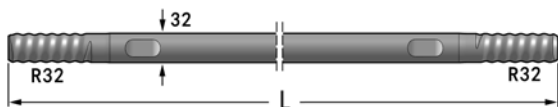
R32 (1 1/4")

# Bench and long-hole drilling

## R32 (1 1/4")

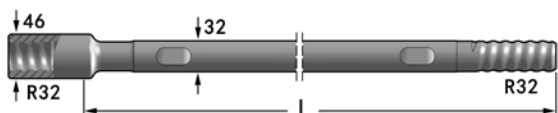
Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		

### Extension rod, R32 – Round32 – R32



915	3'	32	1 1/4"	5.4	23R32-R32-0915-23
1220	4'	32	1 1/4"	7.2	23R32-R32-1220-23
1525	5'	32	1 1/4"	9.0	23R32-R32-1525-23
1830	6'	32	1 1/4"	10.8	23R32-R32-1830-23
2435	8'	32	1 1/4"	14.3	23R32-R32-2435-23
3050	10'	32	1 1/4"	17.9	23R32-R32-3050-23
3660	12'	32	1 1/4"	21.5	23R32-R32-3660-23

### MF – rod, R32 – Round32 – R32



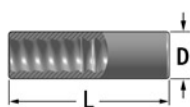
915	3'	32	1 1/4"	6.2	24R32-R32/46-0915-23
1220	4'	32	1 1/4"	8.0	24R32-R32/46-1220-23
1525	5'	32	1 1/4"	9.8	24R32-R32/46-1525-23
1830	6'	32	1 1/4"	11.6	24R32-R32/46-1830-23
2435	8'	32	1 1/4"	15.1	24R32-R32/46-2435-23
3050	10'	32	1 1/4"	18.7	24R32-R32/46-3050-23
3660	12'	32	1 1/4"	22.3	24R32-R32/46-3660-23

### Guide tube



1830	6'	46	1 3/4"	16.0	24G46-R32/46-1830-23
3050	10'	46	1 3/4"	26.0	24G46-R32/46-3050-23

### Coupling sleeve, R32









150	5 7/8"	44	1 23/32"	1.0	31-R32-44-150-23
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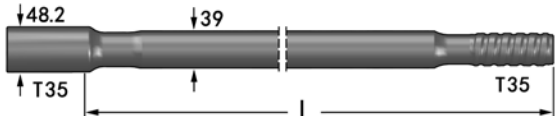
R32 (1 1/4")

# Bench and long-hole drilling

## T35 (1 3/8") bit thread

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	54	2 1/6"	3×9	6×10		35°	3	1	1.1	1432-54T35-39/610-45-41
	57	2 1/4"	3×10	6×11		35°	3	1	1.2	1432-57T35-310/611-45-41

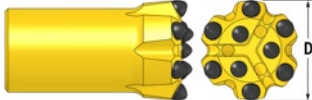


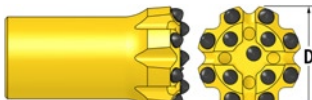





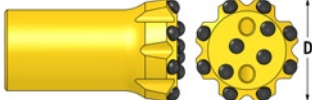








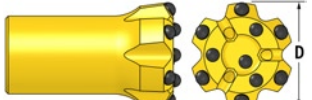













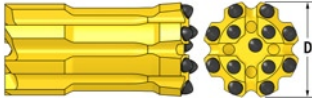





<b>Button bit, Retrac</b>										
	54	2 1/5"	3×9	6×10		35°	3	-	1.3	1632-54T35-39/610-45-51
	57	2 1/4"	3×10	6×11		35°	3	-	1.5	1632-57T35-310/611-45-51

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>MF—rod, T35—Round39-T35</b>						
	1830	6'	39	1 1/2"	16.5	24R39-T35/48-1830-23
	3050	10'	39	1 1/2"	26.4	24R39-T35/48-3050-23
	3660	12'	39	1 1/2"	31.3	24R39-T35/48-3660-23
	4270	14'	39	1 1/2"	36.2	24R39-T35/48-4270-23

T35 (1 3/8")

# Bench and long-hole drilling

## T38 (1 1/2")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	64	2 1/2"	3×11	6×12		30°	3	-	1.6	1432-64T38-311/612-45-41
	64	2 1/2"	3×11	6×12		35°	3	-	1.6	1432-64T38-311/612-45-51
	64	2 1/2"	5×9	8×10		35°	4	-	1.7	1432-64T38-59/810-45-51
	70	2 3/4"	5×10	8×11		30°	4	-	1.9	1432-70T38-510/811-45-41
	76	3"	5×11	8×12		35°	4	-	2.3	1432-76T38-511/812-45-41
	76	3"	5×11	8×11		40°	4	-	2.3	1432-76T38-511/811-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	3.2	1432-89T38-512/812-45-41
<b>Button bit, Flat face</b>										
	64	2 1/2"	4×10	8×10		35°	2	-	1.6	1431-64T38-410/810-45-41
	70	2 3/4"	4×11	8×11		40°	2	-	1.9	1431-70T38-411/811-45-41
	76	3"	4×11	8×11		40°	2	-	2.3	1431-76T38-411/811-45-41
	89	3 1/2"	4×12	8×12		40°	2	-	2.3	1431-89T38-412/812-45-41
	76	3"	6×10	8×11		35°	2	-	2.3	1431-76T38-610/811-45-41
	76	3"	6×10	8×11		40°	2	-	2.3	1431-76T38-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	2	-	3.2	1431-89T38-611/812-45-41
	<b>Button bit, Drop center</b>									
	64	2 1/2"	4×10	6×11		35°	3	-	1.6	1433-64T38-410/611-45-41
	64	2 1/2"	4×10	6×11		35°	3	-	1.6	1433-64T38-410/611-45-51
	70	2 3/4"	4×10	6×11		40°	3	-	1.9	1433-70T38-410/611-45-41
	76	3"	4×11	6×13		35°	3	-	2.3	1433-76T38-411/613-45-41
	76	3"	4×11	6×13		35°	3	-	2.3	1433-76T38-411/613-45-51
	89	3 1/2"	5×11	6×13		35°	3	-	3.2	1433-89T38-511/613-45-41
	76	3"	6×10	8×11		35°	4	-	2.3	1433-76T38-610/811-45-41
	76	3"	6×10	8×11		35°	4	-	2.3	1433-76T38-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	4	-	3.2	1433-89T38-611/812-45-41
	<b>Button bit, Retrac</b>									
	64	2 1/2"	3×11	6×12		30°	3	-	2.2	1632-64T38-311/612-45-41
	64	2 1/2"	3×11	6×12		35°	3	-	2.2	1632-64T38-311/612-45-51
	64	2 1/2"	5×9	8×10		35°	4	-	2.2	1632-64T38-59/810-45-51
	70	2 3/4"	5×10	8×11		30°	4	-	2.4	1632-70T38-510/811-45-41
	76	3"	5×11	8×12		35°	4	-	2.9	1632-76T38-511/812-45-41
	76	3"	5×11	8×11		40°	4	-	2.9	1632-76T38-511/811-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	3.2	1632-89T38-512/812-45-41

T38 (1 1/2")

# Bench and long-hole drilling

## T38 (1 1/2")


Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit, Retrac, Flat face</b>										
	64	2 1/2"	4×10	8×10		35°	2	-	2.2	1531-64T38-410/810-45-41
	64	2 1/2"	4×10	8×10		35°	2	-	2.2	1531-64T38-410/810-45-51
	70	2 3/4"	4×11	8×11		40°	2	-	2.4	1531-70T38-411/811-45-41
	76	3"	6×10	8×11		35°	2	-	3.2	1531-76T38-610/811-45-41
	76	3"	6×10	8×11		40°	2	-	3.2	1531-76T38-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	2	-	4.7	1531-89T38-611/812-45-41
<b>Button bit, Retrac, Drop center</b>										
	64	2 1/2"	4×10	6×11		35°	3	1	2.2	1533-64T38-410/611-45-41
	64	2 1/2"	4×10	6×11		35°	3	1	2.2	1533-64T38-410/611-45-51
	70	2 3/4"	4×10	6×11		40°	3	1	2.4	1533-70T38-410/611-45-41
	76	3"	4×11	6×13		35°	3	1	3.2	1533-76T38-411/613-45-41
	76	3"	4×11	6×13		35°	3	1	3.2	1533-76T38-411/613-45-51
	76	3"	6×10	8×11		35°	4	1	3.2	1533-76T38-610/811-45-41
	76	3"	6×10	8×11		35°	4	1	3.2	1533-76T38-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	4	1	4.7	1533-89T38-611/812-45-41
<b>X bit</b>										
	64	2 1/2"	-	-	-	-	1	2	2.0	1321-64T38-25/13-42-23
	76	3"	-	-	-	-	1	2	2.6	1321-64T38-25/13-42-23
<b>Guide bit</b>										
	64	2 1/2"	4×9	6×11		35°	3	1	1.9	1632-64T38-49/611-45-51
	76	3"	6×10	8×11		35°	4	-	2.4	1632-76T38-610/811-45-51
<b>Reaming bit, T38</b>										
	102	4"	9×12	8×12		35°	2	2	3.6	1441-102T38-912/812-45-41
	127	5"	9×13	8×13		35°	2	2	6.9	1441-127T38-913/813-45-41


T38 (1 1/2")





# Bench and long-hole drilling

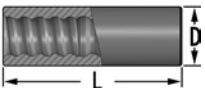
## T38 (1 1/2")

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Extension rod, T38—Round39—T38</b>						
	1220	4'	39	1 1/2"	9.9	23R39-T38-1220-23
	1525	5'	39	1 1/2"	12.4	23R39-T38-1525-23
	1830	6'	39	1 1/2"	14.9	23R39-T38-1830-23
	3050	10'	39	1 1/2"	24.7	23R39-T38-3050-23
	3660	12'	39	1 1/2"	29.7	23R39-T38-3660-23

<b>MF—rod, T38—Round39—T38</b>						
	1220	4'	39	1 1/2"	11.5	24R39-T38/57-1220-23
	1525	5'	39	1 1/2"	14.0	24R39-T38/57-1525-23
	1830	6'	39	1 1/2"	16.5	24R39-T38/57-1830-23
	3050	10'	39	1 1/2"	26.4	24R39-T38/57-3050-23
	3660	12'	39	1 1/2"	31.3	24R39-T38/57-3660-23
	4270	14'	39	1 1/2"	36.2	24R39-T38/57-4270-23

<b>MF—rod, T38—Hex32—T38</b>						
	3050	10'	32	1 1/4"	19.6	23H32-T38-3050-23

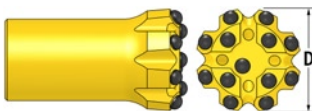







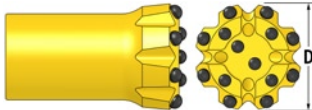



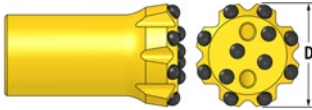



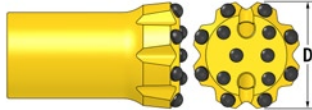






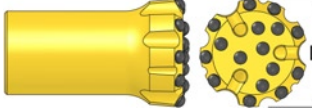




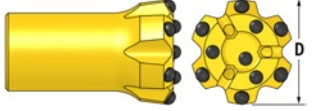




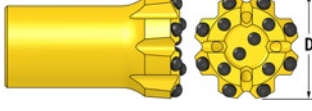







<b>Guide tube</b>						
	1830	6'	56	1 13/64"	18.4	24G56-T38/56-1830-23
	3660	12'	56	1 13/64"	33.8	24G56-T38/56-3660-23

<b>Coupling sleeve</b>							
	T38	190	6 1/8"	55	2 5/32"	2.0	31-T38-55-190-23

T38 (1 1/2")

# Bench and long-hole drilling

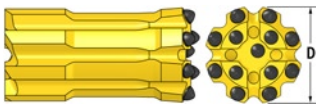











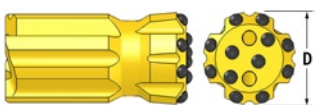



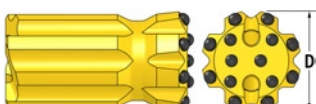









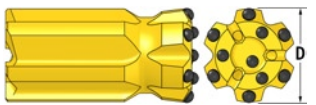



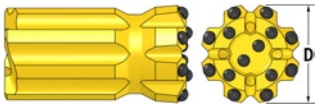







## T45 (1 3/4")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	70	2 3/4"	5×10	8×11		30°	4	-	2.3	1432-70T45-510/811-45-41
	76	3"	5×11	8×12		35°	4	-	2.5	1432-76T45-511/812-45-41
	76	3"	5×11	8×12		35°	4	-	2.5	1432-76T45-511/812-45-51
	76	3"	5×11	8×11		35°	4	-	2.5	1432-76T45-511/811-45-41
	89	3 1/2"	5×13	8×13		35°	4	-	3.2	1432-89T45-513/813-45-41
	89	3 1/2"	5×13	8×13		40°	4	-	3.2	1432-89T45-513/813-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	3.2	1432-89T45-512/812-45-41
	102	4"	6×12	8×13		35°	4	-	4.4	1432-102T45-612/813-45-41
	102	4"	6×12	8×13		35°	4	-	4.4	1432-102T45-612/813-45-51
	102	4"	6×13	8×13		35°	4	-	4.4	1432-102T45-613/813-45-41
<b>Button bit, Flat face</b>										
	76	3"	4×11	8×11		35°	2	-	2.7	1431-76T45-411/811-45-41
	76	3"	4×11	8×11		40°	2	-	2.7	1431-76T45-411/811-45-51
	89	3 1/2"	4×13	8×13		40°	2	-	3.5	1431-89T45-413/813-45-41
	76	3"	6×10	8×11		35°	2	-	2.7	1431-76T45-610/811-45-41
	76	3"	6×10	8×11		40°	2	-	2.7	1431-76T45-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	2	-	3.5	1431-89T45-611/812-45-41
	89	3 1/2"	6×11	8×12		40°	2	-	3.5	1431-89T45-611/812-45-51
	102	4"	6×12	8×13		35°	2	-	4.5	1431-102T45-612/813-45-41
	102	4"	6×12	8×13		35°	2	-	4.5	1431-102T45-612/813-45-51
	89	3 1/2"	7×11	9×11		35°	3	-	3.5	1431-89T45-711/911-45-41
	89	3 1/2"	7×11	9×12		35°	3	-	3.5	1431-89T45-711/912-45-41
	102	4"	7×12	9×12		35°	3	-	4.5	1431-102T45-712/912-45-41
	102	4"	7×12	9×13		35°	3	-	4.5	1431-102T45-712/913-45-41
<b>Button bit, Drop center</b>										
	76	3"	4×11	6×13		35°	3	1	2.5	1433-76T45-411/613-45-41
	76	3"	4×11	6×13		35°	3	1	2.5	1433-76T45-411/613-45-51
	89	3 1/2"	5×11	6×13		35°	3	1	3.2	1433-89T45-511/613-45-41
	89	3 1/2"	5×11	6×13		35°	3	1	3.2	1433-89T45-511/613-45-51
	76	3"	6×10	8×11		35°	4	1	2.7	1433-76T45-610/811-45-41
	76	3"	6×10	8×11		35°	4	1	2.7	1433-76T45-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	4	1	3.5	1433-89T45-611/812-45-41
	89	3 1/2"	6×11	8×12		35°	4	1	3.5	1433-89T45-611/812-45-51
	102	4"	6×12	8×13		35°	4	1	4.5	1433-102T45-612/813-45-41
	102	4"	6×12	8×13		35°	4	1	4.5	1433-102T45-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	4	1	6.2	1433-115T45-613/813-45-41

T45 (1 3/4")

# Bench and long-hole drilling

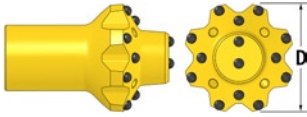


## T45 (1 3/4")

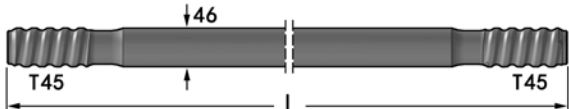
Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit, Retrac</b>										
	70	2 3/4"	5×10	8×11		30°	4	-	2.7	1632-70T45-510/811-45-41
	76	3"	5×11	8×12		35°	4	-	3.2	1632-76T45-511/812-45-41
	76	3"	5×11	8×12		35°	4	-	3.2	1632-76T45-511/812-45-51
	76	3"	5×11	8×11		35°	4	-	3.2	1632-76T45-511/811-45-41
	89	3 1/2"	5×13	8×13		35°	4	-	4.8	1632-89T45-513/813-45-41
	89	3 1/2"	5×13	8×13		40°	4	-	4.8	1632-89T45-513/813-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	4.8	1632-89T45-512/812-45-41
	102	4"	6×12	8×13		35°	4	-	6.8	1632-102T45-612/813-45-41
	102	4"	6×12	8×13		35°	4	-	6.8	1632-102T45-612/813-45-51
	102	4"	6×13	8×13		35°	4	-	6.8	1632-102T45-613/813-45-41
<b>Button bit, Retrac, Flat face</b>										
	76	3"	4×11	8×11		35°	2	-	3.3	1531-76T45-411/811-45-41
	76	3"	4×11	8×11		40°	2	-	3.3	1531-76T45-411/811-45-51
	89	3 1/2"	4×13	8×13		40°	2	-	5.0	1531-89T45-413/813-45-41
	76	3"	6×10	8×11		35°	2	-	3.3	1531-76T45-610/811-45-41
	76	3"	6×10	8×11		40°	2	-	3.3	1531-76T45-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	2	-	5.0	1531-89T45-611/812-45-41
	102	4"	6×12	8×13		35°	2	-	7.0	1531-102T45-612/813-45-41
	89	3 1/2"	7×11	9×11		35°	3	-	5.0	1531-89T45-711/911-45-41
	89	3 1/2"	7×11	9×12		35°	3	-	5.0	1531-89T45-711/912-45-41
	102	4"	7×12	9×12		35°	3	-	7.0	1531-102T45-712/912-45-41
	102	4"	7×12	9×13		35°	3	-	7.0	1531-102T45-712/913-45-41
<b>Button bit, Retrac, Drop center</b>										
	76	3"	4×11	6×13		35°	3	1	3.3	1533-76T45-411/613-45-41
	76	3"	4×11	6×13		35°	3	1	3.3	1533-76T45-411/613-45-51
	89	3 1/2"	5×11	6×13		35°	3	1	5.0	1533-89T45-511/613-45-41
	76	3"	6×10	8×11		35°	4	1	3.3	1533-76T45-610/811-45-41
	76	3"	6×10	8×11		35°	4	1	3.3	1533-76T45-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	4	1	5.0	1533-89T45-611/812-45-41
	102	4"	6×12	8×13		35°	4	1	7.0	1533-102T45-612/813-45-41
<b>Guide bit</b>										
	76	3"	6×10	8×11		35°	4	-	2.5	1632-76T45-610/811-45-51
	89	3 1/2"	6×11	8×12		35°	4	-	3.2	1632-89T45-611/812-45-51


T45 (1 3/4")

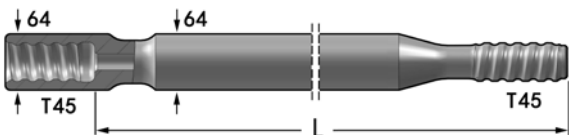
# Bench and long-hole drilling

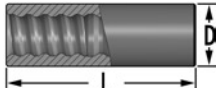
## T45 (1 3/4")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
Reaming bit, T45										
	127	5"	6×14	8×14		35°	4	-	6.9	1441-127T45-614/814-45-41
	152	6"	6×14	8×14		35°	4	-	9.2	1441-152T45-614/814-45-41

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Extension rod, T45 – Round46 – T45						
	3050	10'	45	1 3/4"	34.2	23R46-T45-3050-23
	3660	12'	45	1 3/4"	41.0	23R46-T45-3660-23
	4270	14'	45	1 3/4"	47.8	23R46-T45-4270-23

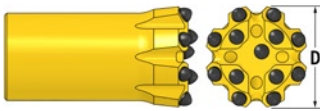



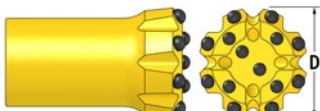




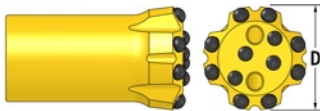



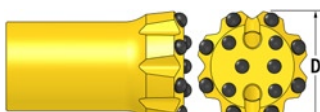













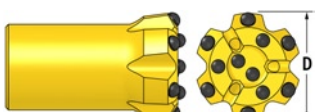




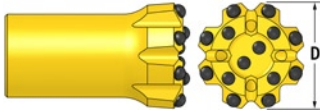








MF – rod, T45 – Round46 – T45						
	1525	5'	45	1 3/4"	18.7	24R46-T45/65-1525-23
	1830	6'	45	1 3/4"	22.1	24R46-T45/65-1830-23
	3050	10'	45	1 3/4"	35.8	24R46-T45/65-3050-23
	3660	12'	45	1 3/4"	42.6	24R46-T45/65-3660-23
	4270	14'	45	1 3/4"	49.4	24R46-T45/65-4270-23
	6100	20'	45	1 3/4"	70.0	24R46-T45/65-6100-23

Guide tube						
	1830	6'	64	2 1/2"	26.0	24G64-T45/64-1830-23
	3660	12'	64	2 1/2"	49.9	24G64-T45/64-3660-23
	3660	12'	76	3"	79.9	24G76-T45/76-3660-23

Coupling sleeve							
	T45	210	8 1/8"	63	2 15/32"	2.7	31-T45-63-210-23
	T45	210	8 1/8"	66	2 5/8"	3.2	31-T45-66-210-23

# Bench and long-hole drilling

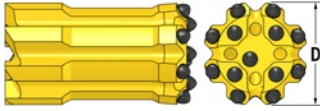



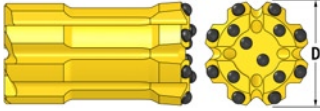




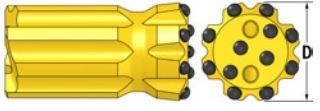










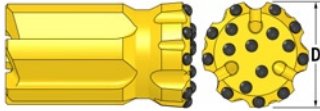












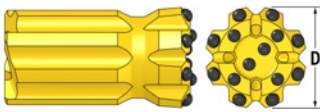









## T51 (2")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	89	3 1/2"	5×13	8×13		35°	4	-	3.5	1432-89T51-513/813-45-41
	89	3 1/2"	5×13	8×13		40°	4	-	3.5	1432-89T51-513/813-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	3.5	1432-89T51-512/812-45-41
	102	4"	6×12	8×13		35°	4	-	4.4	1432-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	4	-	4.4	1432-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	4	-	6.0	1432-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	4	-	6.0	1432-115T51-613/814-45-41
<b>Button bit, Flat face</b>										
	89	3 1/2"	4×13	8×13		40°	2	-	3.6	1431-89T51-413/813-45-41
	89	3 1/2"	4×13	8×13		40°	2	-	3.6	1431-89T51-413/813-45-41
	102	4"	4×14	8×14		40°	2	-	5.0	1431-102T51-414/814-45-41
	89	3 1/2"	6×11	8×12		35°	2	-	3.6	1431-89T51-611/812-45-41
	89	3 1/2"	6×11	8×12		40°	2	-	3.6	1431-89T51-611/812-45-51
	102	4"	6×12	8×13		35°	2	-	5.0	1431-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	2	-	5.0	1431-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	2	-	6.0	1431-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	2	-	6.0	1431-115T51-613/814-45-41
	89	3 1/2"	7×11	9×11		35°	3	-	3.6	1431-89T51-711/911-45-41
	89	3 1/2"	7×11	9×12		35°	3	-	3.6	1431-89T51-711/912-45-41
	102	4"	7×12	9×12		35°	3	-	5.0	1431-102T51-712/912-45-41
	102	4"	7×12	9×13		35°	3	-	5.0	1431-102T51-712/913-45-41
	115	4 1/2"	7×13	9×13		35°	3	-	6.0	1431-115T51-713/913-45-41
	115	4 1/2"	7×13	9×14		35°	3	-	6.0	1431-115T51-713/914-45-41
<b>Button bit, Drop center</b>										
	89	3 1/2"	5×11	6×13		35°	3	1	3.5	1433-89T51-511/613-45-41
	89	3 1/2"	5×11	6×13		35°	3	1	3.5	1433-89T51-511/613-45-51
	102	4"	5×13	6×14		35°	3	1	5.0	1433-102T51-513/614-45-41
	102	4"	5×13	6×14		35°	3	1	5.0	1433-102T51-513/614-45-51
	89	3 1/2"	6×11	8×12		35°	4	1	3.6	1433-89T51-611/812-45-41
	89	3 1/2"	6×11	8×12		40°	4	1	3.6	1433-89T51-611/812-45-51
	102	4"	6×12	8×13		35°	4	1	5.0	1433-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	4	1	5.0	1433-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	4	1	6.0	1431-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	4	1	6.0	1431-115T51-613/814-45-41
	115	4 1/2"	6×13	8×14		40°	4	1	6.0	1431-115T51-613/814-45-51
	127	5"	7×14	8×14		35°	4	1	6.8	1432-127T51-613/814-45-41

T51 (2")

# Bench and long-hole drilling

## T51 (2")

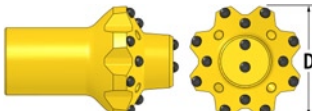


Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit, Retrac</b>										
	89	3 1/2"	5×13	8×13		35°	4	-	4.5	1632-89T51-513/813-45-41
	89	3 1/2"	5×13	8×13		40°	4	-	4.5	1632-89T51-513/813-45-51
	89	3 1/2"	5×12	8×12		35°	4	-	4.5	1632-89T51-512/812-45-41
	102	4"	6×12	8×13		35°	4	-	6.2	1632-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	4	-	6.2	1632-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	4	-	8.4	1632-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	4	-	8.4	1632-115T51-613/814-45-41
<b>Button bit, Retrac, Flat face</b>										
	89	3 1/2"	4×13	8×13		40°	2	-	5.0	1531-89T51-413/813-45-41
	89	3 1/2"	4×13	8×13		40°	2	-	5.0	1531-89T51-413/813-45-51
	102	4"	4×14	8×14		40°	2	-	7.0	1531-102T51-414/814-45-41
	89	3 1/2"	6×11	8×12		35°	2	-	5.0	1531-89T51-611/812-45-41
	89	3 1/2"	6×11	8×12		40°	2	-	5.0	1531-89T51-611/812-45-51
	102	4"	6×12	8×13		35°	2	-	7.0	1531-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	2	-	7.0	1531-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	2	-	9.5	1531-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	2	-	9.5	1531-115T51-613/814-45-41
	89	3 1/2"	7×11	9×11		35°	3	-	5.0	1531-89T51-711/911-45-41
	89	3 1/2"	7×11	9×12		35°	3	-	5.0	1531-89T51-711/912-45-41
	102	4"	7×12	9×12		35°	3	-	7.0	1531-102T51-712/912-45-41
	102	4"	7×12	9×13		35°	3	-	7.0	1531-102T51-712/913-45-41
	115	4 1/2"	7×13	9×13		35°	3	-	9.5	1531-115T51-713/913-45-41
	115	4 1/2"	7×13	9×14		35°	3	-	9.5	1531-115T51-713/914-45-41
	115	4 1/2"	7×13	9×14		35°	3	-	9.5	1531-115T51-713/914-45-41
<b>Button bit, Retrac, Drop center</b>										
	89	3 1/2"	5×11	6×13		35°	3	1	5.0	1533-89T51-511/613-45-41
	89	3 1/2"	5×11	6×13		35°	3	1	5.0	1533-89T51-511/613-45-51
	102	4"	5×13	6×14		35°	3	1	7.0	1533-102T51-513/614-45-41
	102	4"	5×13	6×14		35°	3	1	7.0	1533-102T51-513/614-45-51
	89	3 1/2"	6×11	8×12		35°	4	1	5.0	1533-89T51-611/812-45-41
	89	3 1/2"	6×11	8×12		40°	4	1	5.0	1533-89T51-611/812-45-51
	102	4"	6×12	8×13		35°	4	1	7.0	1533-102T51-612/813-45-41
	102	4"	6×12	8×13		40°	4	1	7.0	1533-102T51-612/813-45-51
	115	4 1/2"	6×13	8×13		35°	4	1	9.5	1533-115T51-613/813-45-41
	115	4 1/2"	6×13	8×14		35°	4	1	9.5	1533-115T51-613/814-45-41
	115	4 1/2"	6×13	8×14		40°	4	1	9.5	1533-115T51-613/814-45-51
	127	5"	7×14	8×14		35°	4	1	11.5	1533-127T51-714/814-45-41
	127	5"	7×14	8×14		35°	4	1	11.5	1533-127T51-714/814-45-41


T51 (2")




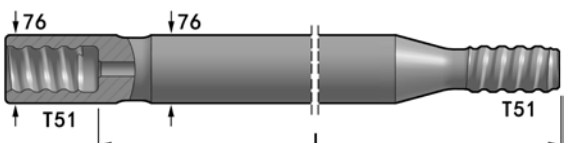
# Bench and long-hole drilling

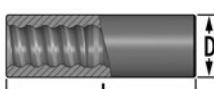
## T51 (2")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
Reaming bit, T51										
	127	5"	6×14	8×14		35°	4	-	8.0	1441-127T51-614/814-45-41
	152	6"	6×14	8×14		35°	4	-	11.0	1441-152T51-614/814-45-41

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Extension rod, T51 – Round52 – T51						
	3660	12'	51	2"	50.9	23R52-T51-3660-23
	4270	14'	51	2"	59.4	23R52-T51-4270-23
	6100	20'	51	2"	84.8	23R52-T51-6100-23

MF – rod, T51 – Round52 – T51						
	1525	5'	51	2"	23.8	24R52-T51/72-1525-23
	1830	6'	51	2"	28.1	24R52-T51/72-1830-23
	3050	10'	51	2"	45.0	24R52-T51/72-3050-23
	3660	12'	51	2"	53.5	24R52-T51/72-3660-23
	4270	14'	51	2"	62.0	24R52-T51/72-4270-23
	6100	20'	51	2"	87.4	24R52-T51/72-6100-23

Guide tube						
	1830	6'	76	3"	40.0	24G76-T51/76-1830-23
	3660	12'	76	3"	79.1	24G76-T51/76-3660-23
	3660	12'	87	3 1/2"	90.9	24G87-T51/87-3660-23

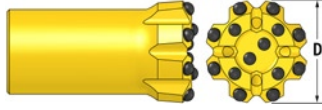
Coupling sleeve							
	T51	235	8 7/8"	72	2 7/8"	4.0	31-T51-72-235-23
	T51	235	8 7/8"	77	3 1/32"	4.6	31-T51-77-235-23

T51 (2")

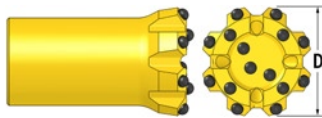
# Bench and long-hole drilling

## T60 (2 3/8")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										



92	3 5/8"	6 × 12	8 × 14		35°	4	-	5.2	1433-92T60-612/814-45-41
96	3 3/4"	6 × 12	8 × 14		35°	4	-	5.3	1433-96T60-612/814-45-41
102	4"	6 × 13	8 × 13		35°	4	-	6.4	1433-102T60-613/813-45-41
115	4 1/2"	6 × 13	8 × 14		35°	4	-	7.3	1433-115T60-613/814-45-41
115	4 1/2"	6 × 13	8 × 14		35°	4	-	7.3	1433-115T60-613/814-45-51

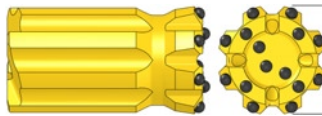


127	5"	7 × 14	8 × 16		35°	4	-	8.9	1433-127T60-714/816-45-41
140	5 1/2"	7 × 16	8 × 16		35°	4	-	12.1	1433-140T60-716/816-45-41
152	6"	7 × 16	8 × 16		35°	4	-	13.6	1433-152T60-716/816-45-41

### Button bit, Retrac



92	3 5/8"	6 × 12	8 × 14		35°	4	-	6.1	1533-92T60-612/814-45-41
96	3 3/4"	6 × 12	8 × 14		35°	4	-	6.2	1533-96T60-612/814-45-41
102	4"	6 × 13	8 × 13		35°	4	-	8.0	1533-102T60-613/813-45-41
115	4 1/2"	6 × 13	8 × 14		35°	4	-	9.4	1533-115T60-613/814-45-41
115	4 1/2"	6 × 13	8 × 14		35°	4	-	9.4	1533-115T60-613/814-45-51



127	5"	7 × 14	8 × 16		35°	4	-	13.1	1533-127T60-714/816-45-41
140	5 1/2"	7 × 16	8 × 16		35°	4	-	16.1	1533-140T60-716/816-45-41

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>MF—rod, T60—Round60—T60</b>						



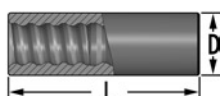
3660	12'	60	2 3/8"	70.0	24R60-T60-3660-23
4270	14'	60	2 3/8"	82.0	24R60-T60-4270-23
6100	20'	60	2 3/8"	116.0	24R60-T60-6100-23

### MF—rod, T60—Round60—T60



4270	14'	60	2 3/8"	86.6	24R60-T60/85-4270-23
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### Coupling sleeve



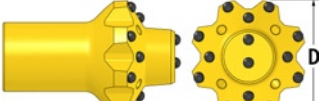

T60	315	1' 3/8"	85	3 11/32"	7.9	31-T60-85-315-23
T60	315	1' 3/8"	89	3 1/2"	8.2	31-T60-89-315-23

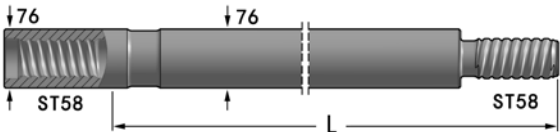
# Bench and long-hole drilling

## ST58 (2 1/4")

Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Button bit</b>										
	89	3 1/2"	6 × 12	8 × 12		35°	4	-	4.1	1432-89ST58-612/812-45-41
	89	3 1/2"	6 × 12	8 × 12		35°	4	-	4.1	1432-89ST58-612/812-45-51

<b>Button bit, Heavy Duty</b>										
	89	3 1/2"	6 × 12	8 × 14		35°	2	-	4.5	1431-89ST58-612/814-45-41
	89	3 1/2"	6 × 12	8 × 14		35°	2	-	4.5	1431-89ST58-612/814-45-51

<b>Reaming bit, ST58</b>										
	152	6"	6 × 14	8 × 14		35°	4	-	13.0	1441-152ST58-614/814-45-41

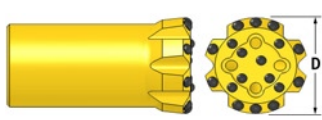


Tubes	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Drill tube, ST58 – Round76 – ST58</b>						
	1525	5'	76	3"	33.2	24G76-ST58/76-1525-23
	1830	6'	76	3"	41.0	24G76-ST58/76-1830-23

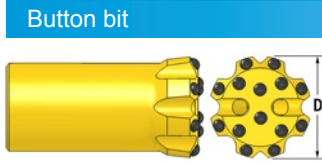

ST58 (2 1/4")

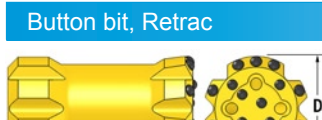


# Bench and long-hole drilling




## ST68 (2 3/4")



Bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	in	Front No Size	Gauge No Size	Type		Front	Gauge		



Button bit										
	102	4"	8×12	10×12		35°	4	-	5.2	1432-102ST68-812/1012-45-51
	115	4 1/2"	8×14	10×14		35°	4	-	5.9	1432-115ST68-814/1014-45-51

Button bit										
	102	4"	6×13	8×14		35°	2	-	5.5	1431-102ST68-613/814-45-41

Button bit, Retrac										
	102	4"	8×12	10×12		35°	4	-	6.2	1632-102ST68-812/1012-45-51
	115	4 1/2"	8×14	10×14		35°	4	-	8.4	1632-115ST68-814/1014-45-51

	102	4"	7×12	9×12		35°	3	-	6.2	1531-102ST68-712/912-45-41
	115	4 1/2"	7×13	9×13		35°	3	-	8.4	1531-115ST68-713/913-45-41

Collaring bit, ST68										
	152	6"	8×16	9×16		35°	3	-	9.8	1431-152ST68-816/916-45-41

Reaming bit, ST68										
	152	6"	6×14	8×14		35°	4	-	14.0	1441-152ST68-614/814-45-41

Tubes	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		

Drill tube, ST68 – Round87 – ST68						
	1525	5'	87	3 1/2"	40.0	24G87-ST68/87-1525-23
	1830	6'	87	3 1/2"	47.0	24G87-ST68/87-1830-23



## Shank adapter

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# Shank adapters

## Hexagonal shank adapters

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>For hexagonal bushing 22 x 108 mm</b>					
	R22	255	6	1.1	21H22-R22/108-0255-40
	R23	255	6	1.1	21H22-R23/108-0255-40
	R25	255	7	1.1	21H22-R25/108-0255-40

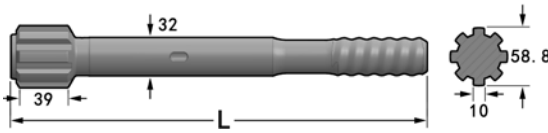
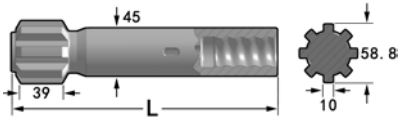
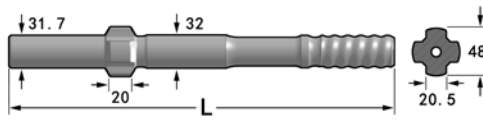
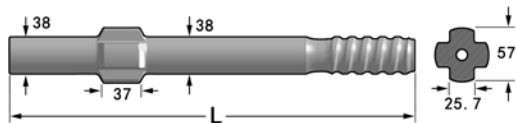
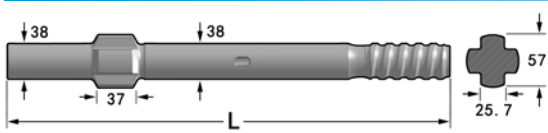
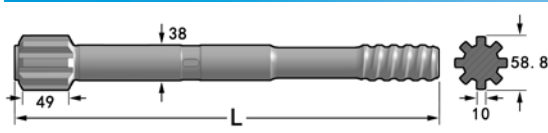
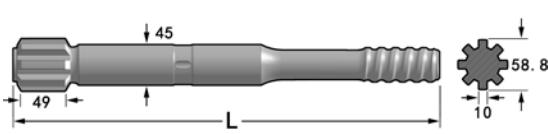
<b>For hexagonal bushing 25 x 108 mm</b>					
	R23	255	6	1.3	21H25-R23/108-0255-40
	R25	255	7	1.3	21H25-R25/108-0255-40

<b>For hexagonal bushing 25 x 159</b>					
	R25	255	7	1.6	21H25-R25/159-0255-40



# Shank adapters

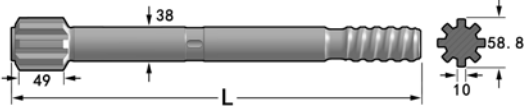
## Sandvik

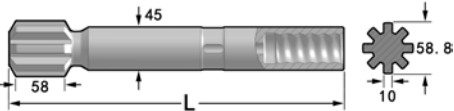
	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>HL 300</b>					
	R32	400	-	2.8	4HL300-32R32-0400-23
<b>HL 300S</b>					
	R28	245	-	2.8	4HL300-45R28-0245-23
	R32	245	-	2.8	4HL300-45R32-0245-23
<b>L400, L410, L500, L510, L550</b>					
	R32	380	10	2.2	4L400-32R32-0380-23
<b>HLR 438L and HLR 438T</b>					
	R32	380	10	2.7	4HL438-38R32-0380-23
	T38	400	12	3.3	4HL438-38T38-0400-23
<b>HLR 438LS, 438TS, HL 538, HL538L, L550S</b>					
	R32	450	-	3.7	4HL538-38R32-0450-23
	R38	450	-	3.9	4HL538-38R38-0450-23
	T38	455	-	4.0	4HL538-38T38-0455-23
	T38	545	-	4.7	4HL538-38T38-0545-23
<b>HL 500-38 / 510-38</b>					
	R32	550	-	4.2	4HL500-38R32-0550-23
	T35	550	-	4.4	4HL500-38T35-0550-23
	T38	550	-	4.6	4HL500-38T38-0550-23
	R38	550	-	4.5	4HL500-38R38-0550-23
<b>HL 500-45 / 510-45</b>					
	T35	550	-	5.6	4HL500-45T35-0550-23
	T38	550	-	5.6	4HL500-45T38-0550-23
	T45	550	-	5.9	4HL500-45T45-0550-23
	R32	550	-	5.6	4HL500-45R32-0550-23

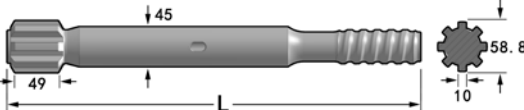
Sandvik


# Shank adapters


## Sandvik


	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>HL 500 S-38 / 510 S-38 / 510 B / 510 LH</b>					
	R32	460	-	3.9	4HL500S-38R32-0460-23
	R38	460	-	4.2	4HL500S-38R38-0460-23
	T38	460	-	4.0	4HL500S-38T38-0460-23
	R38	500	-	4.4	4HL500S-38R38-0500-23
	T38	500	-	4.3	4HL500S-38T38-0500-23

<b>HL 500 F / 510 F</b>					
	R32	350	-	3.9	4HL500F-45R32-0350-23

<b>HL 550 SUPER / 560 SUPER / 510 S-45</b>					
	T35	460	-	4.9	4HL550-45T35-0460-23
	T35	550	-	5.6	4HL550-45T35-0550-23
	R38	500	-	5.2	4HL550-45R38-0500-23
	T38	500	-	5.3	4HL550-45T38-0500-23

<b>HLX 1</b>					
	R23	235	-	1.0	4HLX1-28R23-0235-23
	R25	255	-	1.1	4HLX1-28R25-0255-23

<b>HLX 5 / HLX 5T</b>					
	R32	500	-	5.1	4HLX5-45R32-0500-23
	T35	500	-	5.3	4HLX5-45T35-0500-23
	T38	500	-	5.3	4HLX5-45T38-0500-23
	R38	500	-	5.3	4HLX5-45R38-0500-23
	R32	575	-	5.4	4HLX5-45R32-0575-23
	T35	575	-	5.6	4HLX5-45T35-0575-23
	T38	575	-	5.9	4HLX5-45T38-0575-23
	T45	575	-	6.2	4HLX5-45T45-0575-23

<b>HLX5 PE-45</b>					
	R32	575	-	5.9	4HLX5PE-45R32-0575-23
	T38	575	-	6.4	4HLX5PE-45T38-0575-23

# Shank adapters

## Sandvik

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>HL 600-45 / 600 S-45</b>					
	R32	600	-	5.7	4HL600-45R32-0600-23
	T38	600	-	5.9	4HL600-45T38-0600-23
	T45	600	-	6.3	4HL600-45T45-0600-23
	T38	525	-	5.5	4HL600-45T38-0525-23
	T45	525	-	5.8	4HL600-45T45-0525-23
<b>HL 600-52</b>					
	T45	650	-	7.6	4HL600-52T45-0650-23
	T51	650	-	8.1	4HL600-52T51-0650-23
<b>HL 645</b>					
	T38	600	-	6.6	4HL645-45T38-0600-23
	T45	600	-	6.9	4HL645-45T45-0600-23
<b>HL 650-45 / 700-45 / 700T-45 / 710-45 / 800T-45</b>					
	T38	600	-	1.0	4HL650-45T45-0600-23
	T45	600	-	1.1	4HL650-45T45-0600-23
<b>HL 650-52, 700-52 / PE-52 / S-52, 710-52 / S-52 / PE-52 / SPE-52, 800T-52 / PE-52</b>					
	T38	600	-	8.4	4HL650-52T38-0600-23
	T45	600	-	8.5	4HL650-52T45-0600-23
	T51	600	-	8.6	4HL650-52T51-0600-23
<b>HL 850S</b>					
	T45	670	-	9.1	4HL850-52T45-0670-23
	T51	670	-	9.6	4HL850-52T51-0670-23
<b>HL 1000-52 / 1000 S-52</b>					
	T45	670	-	9.7	4HL1000-52T45-0670-23
	T51	670	-	10.1	4HL1000-52T51-0670-23
	T45	590	-	8.9	4HL1000-52T45-0590-23
	T51	590	-	9.3	4HL1000-52T51-0590-23

# Shank adapters

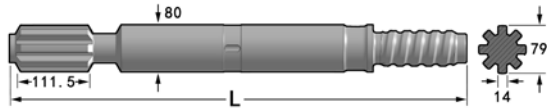
## Sandvik

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>HL 1000-60</b>					
	T51	670	-	11.9	4HL1000-60T51-0670-23
	GT60	670	-	12.9	4HL1000-60GT60-0670-23
<b>HL 1000-80, Shoulder drive</b>					
	GT60	670	-	20.8	4HL1000-80GT60-0670-23
<b>HL 1000 S-80 Tube drilling</b>					
	ST58	635	-	17.4	4HL1000-80ST58-0635-23
	ST68	640	-	16.9	4HL1000-80ST68-0640-23
<b>HL 1000 PE-52</b>					
	T51	840	-	13.9	4HL1000-52T51-0840-23
<b>HL 1000 PE-65 / HL 1500 PE-65 / HL 1560 T-65</b>					
	T51	760	-	15.9	4HL1000-65T51-0760-23
	GT60	760	-	16.7	4HL1000-65GT60-0760-23
<b>HL 1500-52 / 1500 T-52</b>					
	T51	710	-	11.2	4HL1500-52T51-0710-23
<b>HL 1500-60 / 1500 T-60</b>					
	T51	760	-	13.3	4HL1500-60T51-0760-23
	GT60	760	-	14.6	4HL1500-60GT60-0760-23

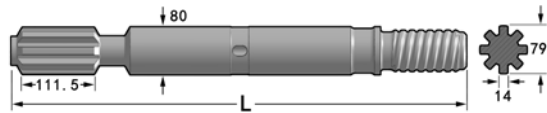
# Shank adapters

## Sandvik

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>HL 1500 T-80, Shoulder drive</b>					
	GT60	760	-	20.5	4HL1500-80GT60-0760-23



<b>HL 1500 S-80 Tube drilling</b>					
	ST58	635	-	17.0	4HL1500-80ST58-0635-23
	ST68	635	-	17.0	4HL1500-80ST58-0635-23



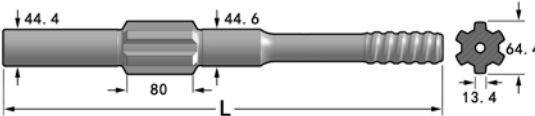
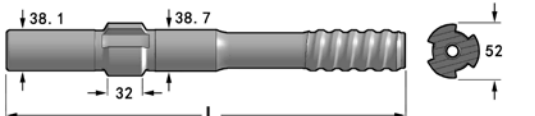


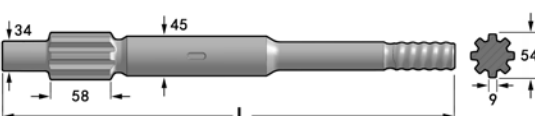




<b>HL 1500 SPE-90 Tube drilling</b>					
	ST58	635	-	22.0	4HL1500-90ST58-0635-23
	ST68	635	-	22.4	4HL1500-90ST68-0635-23
	GT60	760	-	23.5	4HL1500-90GT60-0635-23



# Shank adapters

## Atlas Copco

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Atlas Copco BBC 43, 44, 45 and 100</b>					
	R32	380	10	2.0	4BBC43-32R32-0380-23
<b>Atlas Copco BBC 51, 52, 54 and 120</b>					
	R32	380	10	2.6	4BBC51-38R32-0380-23
	T38	390	10	3.0	4BBC51-38T38-0390-23
<b>Atlas Copco BBE 57</b>					
	T38	537	14	5.4	4BBE57-44T38-0537-23
<b>Atlas Copco COP 125, 130 and 131</b>					
	T38	380	14	13.9	4125-38T38-0380-23
<b>Atlas Copco COP 1032 HD</b>					
	R32	340	-	3.3	41032HD-45R32-0340-23
	R38	340	-	4.1	41032HD-55R38-0340-23
<b>Atlas Copco COP 1032</b>					
	R32	550	-	5.1	41032-45R32-0550-23
	T35	550	-	5.1	41032-45T35-0550-23
	R38	550	-	5.3	41032-45R38-0550-23
	T38	550	-	5.3	41032-45T38-0550-23
<b>Atlas Copco COP 1036/1038 HB</b>					
	R32	500	-	4.1	41036-38R32-0500-23
	T38	500	-	4.5	41036-38T38-0500-23
	T45	500	-	5.1	41036-45T45-0500-23



# Shank adapters

## Atlas Copco

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Atlas Copco COP 1038 HD/1238</b>					
	R32	485	-	4.0	41238-38R32-0485-23
	R38	485	-	4.2	41238-38R38-0485-23
	T38	485	-	4.2	41238-38T38-0485-23
<b>Atlas Copco COP 1038 HL</b>					
	R32	575	-	4.7	41038HL-38R32-0575-23
	T38	575	-	4.9	41038HL-38T38-0575-23
	T45	575	-	5.9	41038HL-45T45-0575-23
<b>Atlas Copco COP 3038</b>					
	T38	435	-	4.0	43038-38T38-0435-23
	T45	435	-	4.6	43038-45T45-0435-23
	T35	440	-	4.5	43038-45T35-0440-23
	T35	525	-	5.0	43038-45T35-0525-23
<b>Atlas Copco COP 1238</b>					
	R32	500	-	4.2	41238-38R32-0500-23
	T38	500	-	4.8	41238-38T38-0500-23
	R38	485	-	4.3	41238-38R38-0485-23
	T38	485	-	4.2	41238-38T38-0485-23
	T45	500	-	5.2	41238-45T45-0500-23
	R32	575	-	4.7	41238-38R32-0575-23
	T35	575	-	4.6	41238-38T35-0575-23
	T38	575	-	4.8	41238-38T38-0575-23
	T38	575	-	5.5	41238-45T38-0575-23
	T45	575	-	5.9	41238-45T45-0575-23

# Shank adapters

## Atlas Copco

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
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Atlas Copco COP 1432, COP 1532, COP1440, COP1838 HD/ME					
	R32	435	-	3.8	41432-38R32-0435-23
	R38	435	-	3.9	41432-38R38-0435-23
	T35	435	-	3.8	41432-38T35-0435-23
	T38	435	-	3.8	41432-38T38-0435-23

	R32	525	-	4.1	41432-38R32-0525-23
	T35	525	-	4.2	41432-38T35-0525-23
	T38	525	-	4.4	41432-38T38-0525-23

Atlas Copco COP 1432 Female					
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	R32	341	-	4.3	41432-55R32-0341-23
	R38	341	-	4.7	41432-55R38-0341-23

Atlas Copco COP 1132					
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	R32	500	-	3.1	41132-35R32-0500-23
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Atlas Copco COP 1550, COP 1838 ME/ HE Atlas Copco COP 1550 EX, COP 1838 EX					
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	T38	525	-	6.1	41550-52T38-0525-23
	T45	525	-	6.4	41550-52T45-0525-23
	T51	525	-	6.8	41550-52T51-0525-23

Atlas Copco COP 1550 EX, COP 1838 EX					
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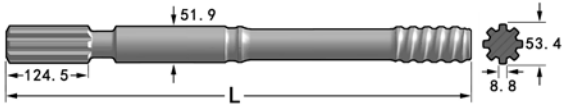
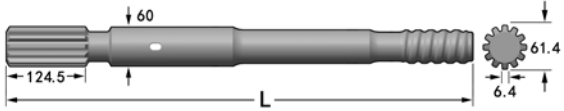

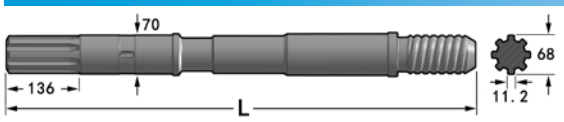
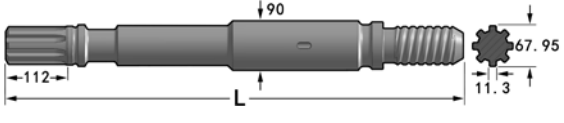

	T38	730	-	9.9	41550EX-60T38-0730-23
	T45	730	-	10.3	41550EX-60T45-0730-23

Atlas Copco COP 1840 HE, COP 1850					
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	T35	565	-	6.6	41850-52T35-0565-23
	T38	565	-	6.7	41850-52T38-0565-23
	T45	565	-	6.9	41850-52T45-0565-23
	T51	565	-	7.2	41850-52T51-0565-23

# Shank adapters

## Atlas Copco and Boart

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Atlas Copco COP 2150, COP 2550</b>					
	T51	770	-	9.9	42150-52T51-0770-23
<b>Atlas Copco COP 2160, COP 2560</b>					
	T51	770	-	11.0	42160-60T51-0770-23
<b>Atlas Copco COP 2160 EX</b>					
	T45	770	-	13.2	42160EX-63T45-0770-23
	T51	770	-	13.3	42160EX-63T51-0770-23
<b>Atlas Copco COP 4050 EX</b>					
	ST68	805	-	21.7	44050EX-70ST68-0805-23
<b>Atlas Copco COP 4050 MUX</b>					
	ST68	835	-	26.9	44050MUX-90ST68-0835-23
<b>Boart HD 125, HD 150, HD 160</b>					
	R38	495	-	5.5	4HD125-45R38-0495-23
	T38	495	-	5.5	4HD125-45T38-0495-23

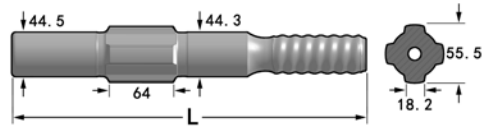
Atlas/Boart

# Shank adapters

## Furukawa

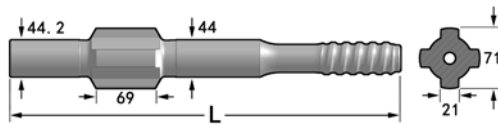
	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
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### Furukawa M 120 and PD 200



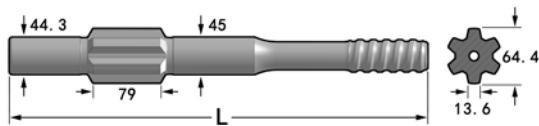
R32	330	14	3.0	4M120-44R32-0330-23
T38	380	14	3.6	4M120-44T38-0380-23
T38	446	14	4.0	4M120-44T38-0446-23

### Furukawa PD 200R



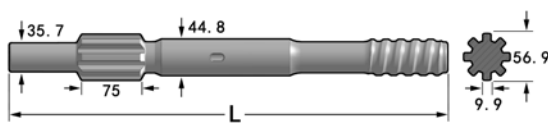
T38	484	14	5.2	4PD200R-44T38-0484-23
T45	484	14	5.4	4PD200R-44T45-0484-23

### Furukawa HD 260, HD 300



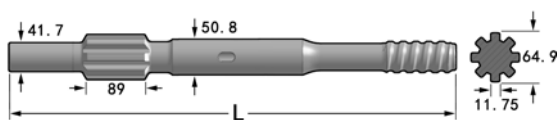
T38	655	16	6.3	4HD260-45T38-0655-23
T45	655	16	6.6	4HD260-45T45-0655-23

### Furukawa HD 609



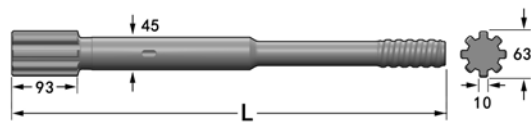
T38	620	-	6.1	4HD609-45T38-0620-23
T38	690	-	6.4	4HD609-45T38-0690-23
T45	620	-	6.4	4HD609-45T45-0620-23

### Furukawa HD 612



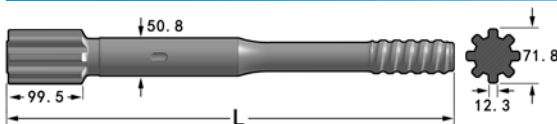
T45	710	-	8.9	4HD612-51T45-0710-23
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### Furukawa HD 709



T38	620	-	6.4	4HD709-45T38-0620-23
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### Furukawa HD 712



T45	788	-	9.6	4HD712-51T45-0788-23
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# Shank adapters

## Gardner-Denver, Ingersoll-Rand and Montabert

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Gardner-Denver PR 123</b>					
	R32	330	14	3.0	4PR123-44R32-0330-23
	R32	380	14	4.1	4PR123-44R32-0380-23
	R38	350	14	3.5	4PR123-44R38-0350-23
	T38	446	14	4.0	4PR123-44T38-0446-23
	T38	380	14	3.6	4PR123-44T38-0380-23

<b>Ingersoll-Rand URD 475, URD 550, VL120, EVL 130, VL140 and F16</b>					
	R32	330	14	3.0	4VL120-44R32-0330-23
	R32	380	14	4.1	4VL120-44R32-0380-23
	T38	380	14	3.6	4VL120-44T38-0380-23
	T38	446	14	4.0	4VL120-44T38-0446-23

<b>Ingersoll-Rand YH 65, YH 80</b>					
	T38	495	19	5.4	4YH65-45T38-0495-23
	T45	500	19	5.6	4YH65-45T45-0500-23

<b>Ingersoll-Rand YH 80 A</b>					
	T45	495	19	6.1	4YH80A-51T45-0495-23

<b>Ingersoll-Rand YH 65 RP, YH 70 RP, YH 75 RP, YH 80 RP</b>					
	T45	700	19	7.9	4YH65RP-45T45-0700-23

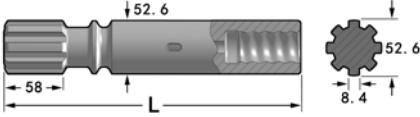
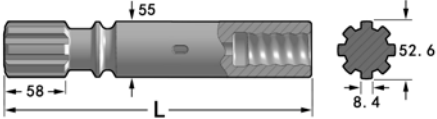
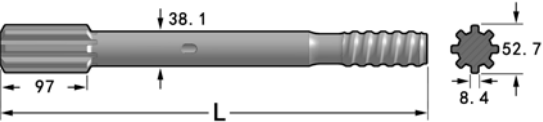
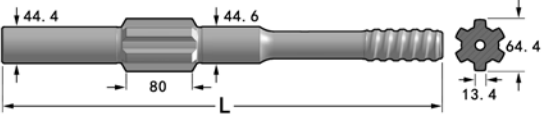
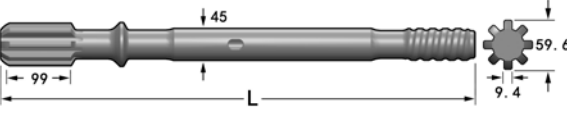
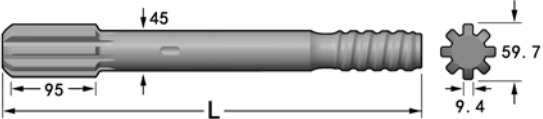
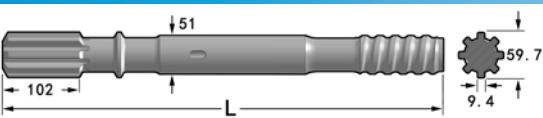

<b>Montabert HC40</b>					
	R32	447	-	3.4	4HC40-38R32-0447-23
	R38	447	-	3.9	4HC40-38R38-0447-23

<b>Montabert HC20 (female)</b>					
	R32	201	-		4HC20-45R32-0201-23

G / I / M

# Shank adapters

## Montabert

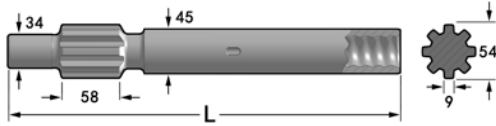
	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Montabert HC40 (female)</b>					
	R32	270	-	2.9	4HC40-52R32-0270-23
	R38	320	-	4.1	4HC40-55R38-0320-23
<b>Montabert HC 80, HC 90, HC 105</b>					
	R38	440	-	3.9	4HC80-38R38-0440-23
	T38	440	-	3.9	4HC80-38T38-0440-23
	T38	500	-	4.1	4HC80-38T38-0500-23
<b>Montabert H 100</b>					
	T38	537	14	6.1	4H100-45T38-0537-23
<b>Montabert HC 80R, HC 105R, HC 107R, HC 108R, HC 109R</b>					
	T38	670	-	7.3	4HC80R-45T38-0670-23
	T45	770	-	8.0	4HC80R-45T45-0770-23
<b>Montabert HC 120, HC 150</b>					
	T45	490	-	5.6	4HC120-45T45-0490-23
<b>Montabert HC 120R, HC 150R, HC 155R, HC 158R</b>					
	T51	670	-	8.6	4HC120R-51T51-0670-23
<b>Montabert HC 200A</b>					
	T51	840	-	16.1	4HC200A-60T51-0840-23
	GT60	840	-	16.9	4HC200A-60GT60-0840-23



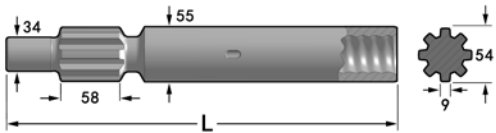
# Shank adapters

## SIG

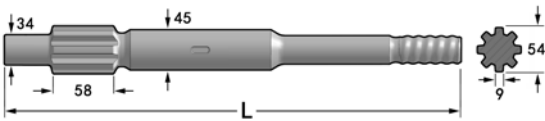
	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>SIG HBM 50, 100 and 120</b>					
	R32	340	-	3.3	4HBM50-45R32-0340-23



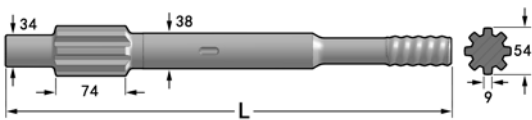
<b>SIG HBM 100 and 120</b>					
	R38	340	-	4.1	4HBM100-55R38-0340-23



<b>SIG HBM 50, 100 and 120</b>					
	R32	550	14	4.8	4HBM50-45R32-0550-23



<b>SIG 101</b>					
	R32	500	-	4.1	4SIG101-38R32-0500-23



SIG

# Shank adapters

## Others

	Thread	Length (mm)	Flushing Hole(mm)	Weight approx kg	Part No.
<b>Others</b>					
	HL54	1180	-	35.1	4OTHER-70HL54-1180-23
	HL64	1180	-	35.6	4OTHER-70HL64-1180-23

<b>Others</b>					
	HL64	1280	-	35.3	4OTHER-67HL64-1280-23

<b>Others</b>					
	R32	410	-	3.1	4OTHER-35R32-410-23

<b>Others</b>					
	T51	913	-	13.8	4OTHER-51T51-0913-23

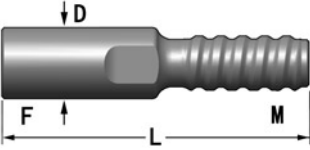
<b>Others</b>					
	T45	807	-	14.5	4OTHER-60T45-0807-23

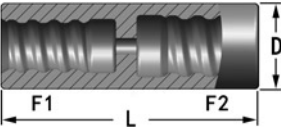



## Auxiliary tools


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Bit adapters	54
Reduction couplings	54
Wrenches	54
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# Auxiliary tools

Bit adapters	Threads		Length		Diameter		Wrench flat mm	Weight approx kg	Part No.
	F female	M male	mm	inch	mm	inch			
	R25	R32	185	7 1/4"	45	1 3/4"	38	1.3	34-R25/R32-45-185-23
	R28	R32	230	9 1/16"	40	1 37/64"	38	1.4	34-R28/R32-40-230-23
	R32	T38	225	8 55/64"	45	1 3/4"	38	1.9	34-R32/T38-45-225-23
	R32	R38	225	8 55/64"	45	1 3/4"	38	1.8	34-R32/R38-45-225-23
	T35	T38	250	9 27/32"	48	1 7/8"	38	1.9	34-T35/T38-48-250-23
	R38	R32	245	9 21/32"	55	2 5/32"	44.5	2.3	34-R38/R32-55-245-23
	R38	T38	245	9 21/32"	55	2 5/32"	44.5	2.4	34-R38/T38-55-245-23
	T38	R32	270	10 41/64"	57	2 1/4"	44.5	2.6	34-T38/R32-57-270-23
	T38	R38	280	11 1/32"	57	2 1/4"	44.5	3.2	34-T38/R38-57-280-23
	T38	T45	285	11 7/32"	57	2 1/4"	44.5	3.3	34-T38/T45-57-285-23
	T45	T38	265	10 7/16"	63	2 31/64"	44.5	2.9	34-T45/T38-63-265-23
	T45	T51	285	11 7/32"	63	2 31/64"	44.5	3.7	34-T45/T51-63-285-23
	T51	T45	285	11 7/32"	71	2 51/64"	44.5	4.0	34-T51/T45-71-285-23

Reduction couplings	Threads		Length		Diameter		Weight approx kg	Part No.
	F1	F2	mm	inch	mm	inch		
	R32	R25	160	6 1/4"	43	1 3/4"	1.2	33-R32/R25-43-160-23
	R32	R28	165	6 1/2"	44	1 3/4"	1.3	33-R32/R28-44-165-23
	R38	R32	170	6 3/4"	55	2 5/32"	2.0	33-R38/R32-55-170-23
	T38	R32	170	6 3/4"	55	2 5/32"	2.0	33-T38/R32-55-170-23
	T38	R38	185	7 9/32"	55	2 5/32"	2.1	33-T38/R38-55-185-23
	T38	T45	200	7 7/8"	58	2 9/32"	2.6	33-T38/T45-58-200-23
	T45	T51	225	8 7/8"	72	2 27/32"	4.0	33-T45/T51-72-200-23

Wrenches	Application	Length		Diameter		Weight approx kg	Part No.
		mm	ft/in	mm	inch		
For integral drill steels and shank rods							
	Hex22	600	1' 11 5/8"	22	7/8"	3.1	7-H22/15-600-42

For extension rods							
	Hex22	300	11 13/16"	22	7/8"	3.0	7-H22/20-600-42
	Hex25, Round32	300	11 13/16"	25	1"	3.0	7-H25/20-600-42
	Hex32, Round39	370	1' 2 9/16"	32	1 1/4"	3.5	7-H32/20-370-42
	Round46	370	1' 2 9/16"	38	1 1/2"	3.5	7-H38/20-370-42
	Round52	370	1' 2 9/16"	45	1 49/64"	3.7	7-H45/20-370-42
	DTH	380	1' 2 31/32"	57	2 1/4"	5.0	7-H57/20-380-42
	DTH	380	1' 2 31/32"	65	2 7/12"	5.2	7-H65/20-380-42

# Auxiliary tools

Knock-off tools	Application	Length		Diameter		Weight approx kg	Part No.
		mm	ft/in	mm	inch		
Knock-off-tools for Hex 22 and Hex 25							
	Hex22	-	-	-	-	3.1	7-H22/44-160-42



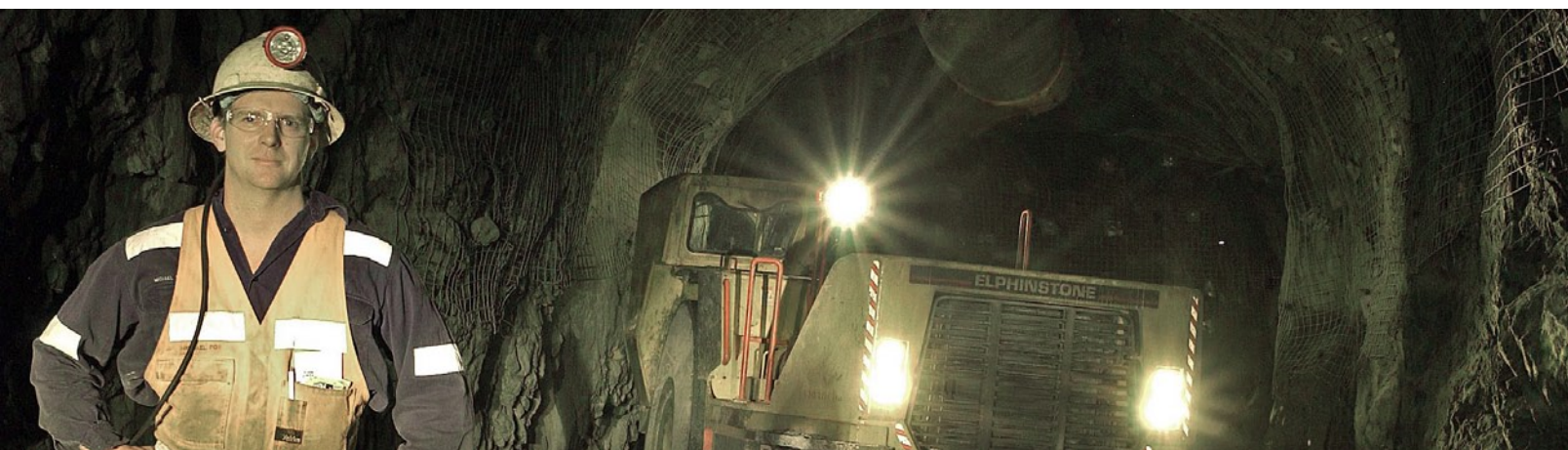
Knock-off-tools for tapered bits							
	Hex22	-	-	-	-	3.1	7-H22/44-160-42
	Hex25	-	-	-	-	3.1	7-H22/44-160-42

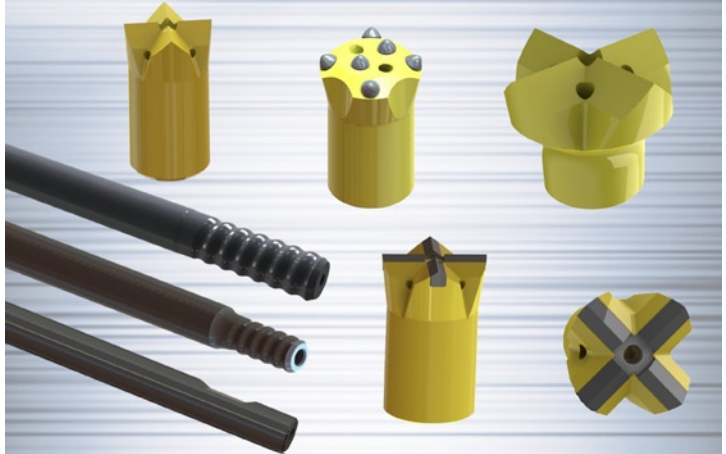


Fishing tools	Application	Diameter		Length L	Thread	Weight approx kg	Part No.
		D	D1				
Fishing sleeve							
	R32round/Hex.rods/coupling	49	47.2	300	R32	1.9	7-49/R32-300-42
	R38 round rods/coupling	60	58	353	R38	3.9	7-60/R38-353-42
	T35 round rods/coupling	52	50	284	T35	1.7	7-52/T35-284-42
	T38 round rods/coupling/MF-rods	61	58.2	353	T38	3.9	7-61/T38-353-42
	T45 round rods/coupling/MF-rods	71	68	393	T45	6.0	7-71/T45-393-42
	T51 round rods/coupling/MF-rods	82	78.2	440	T51	8.4	7-82/T51-440-42
	GT60 rods	92	87.5	450	GT60	10.2	7-92/T60-450-42
	GT60 rods	89	84.5	450	GT60	9.9	7-89/T60-450-42
	ST68 tubes Ø87	102	92	410	ST68	10.9	7-92/T60-450-42

Fishing sleeve							
	R32 rods	19.4	4	280	R32	2.0	7-4/R32-280-42
	T38 rods	19.4	8	237	T38	2.5	7-8/T38-237-42
	T45 rods	25	8	275	T45	4.0	7-8/T45-275-42
	T51 rods	27	15	285	T51	5.0	7-15/T51-285-42
	ST58 tubes Ø76	57	24	500	ST58	10.0	7-24/ST58-500-42
	ST68 tubes Ø87	71	32	541	ST68	12.0	7-32/ST68-547-42

Auxiliary tools





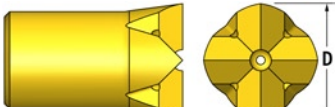
## Furnace tapping tools

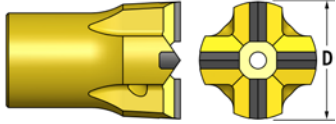
	Page
R32(1 1/4") bit thread	58
R38 (1 1/2") bit thread	59
R51 (2") bit thread	59
T38 (1 1/2") bit thread	60

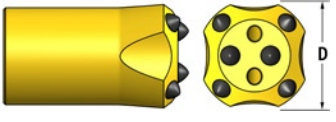







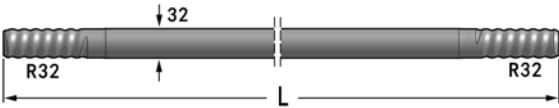
# Furnace tapping tools

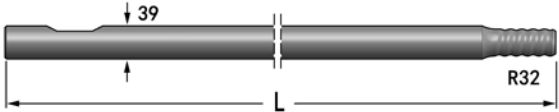
## R32 (1 1/4") bit thread

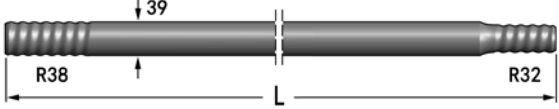
Drill bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	Front No Size	Front No Size	Gauge No Size	Type		Front	Gauge		
Full-steel cross bit										
	55	2 1/8"	-	-	-	-	1	4	0.6	1223-55R32-42
	60	2 3/8"	-	-	-	-	1	4	0.7	1223-60R32-42
	65	2 1/2"	-	-	-	-	1	4	0.9	1223-65R32-42
	70	2 3/4"	-	-	-	-	1	4	1.3	1223-70R32-42

Cross bit										
	55	2 1/8"	-	-	-	-	1	2	0.6	1222-55R32-10/8-42-23
	60	2 3/8"	-	-	-	-	1	2	0.7	1222-60R32-10/8-42-23
	65	2 1/2"	-	-	-	-	1	2	0.9	1222-65R32-10/8-42-23
	70	2 3/4"	-	-	-	-	1	2	1.3	1222-70R32-10/8-42-23
	80	3 1/7"	-	-	-	-	1	2	1.7	1222-80R32-10/8-42-23

Button bit										
	50	2"	2x10	4x10		35°	2	-	0.6	1431-50R32-210/410-42-53
	55	2"	2x10	4x10		35°	2	-	0.7	1431-55R32-210/410-42-53
	60	2 1/4"	2x10	4x10		35°	2	-	0.8	1431-60R32-210/410-42-53
	65	2 1/2"	2x10	4x10		35°	2	-	1.0	1431-65R32-210/410-42-53
	70	2 3/4"	2x10	4x10		35°	2	-	1.4	1431-70R32-210/410-42-53

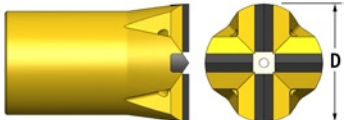
Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Drill rod, R32 – Round32 – R32						
	3000	9' 10"	32	1 1/4"	17.7	25R32-R32-3000-42
	3500	11' 6"	32	1 1/4"	20.7	25R32-R32-3500-42
	4000	13' 2"	32	1 1/4"	23.6	25R32-R32-4000-42
	4500	14' 9"	32	1 1/4"	26.6	25R32-R32-4500-42

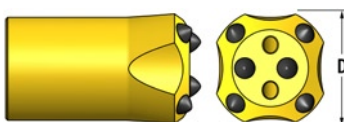




Drill rod, Round39 – R32						
	4000	13' 2"	39	1 1/2"	32.4	25R39-R32/39-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-R32/39-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-R32/39-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-R32/39-6000-42

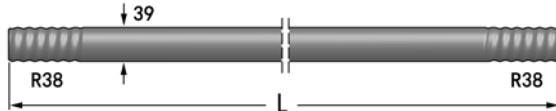
Drill rod, R38 – Round39 – R32						
	4000	13' 2"	39	1 1/2"	32.4	25R39-R32/R38-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-R32/R38-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-R32/R38-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-R32/R38-6000-42


# Furnace tapping tools

## R38 (1 1/2") bit thread

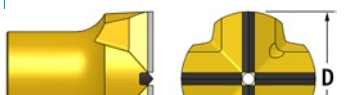
Drill bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	Front No Size	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Cross bit</b>										
	60	2 3/8"	-	-	-	-	1	2	1.2	1222-60R38-10/8-42-23
	65	2 1/2"	-	-	-	-	1	2	1.4	1222-65R38-10/8-42-23
	70	2 3/4"	-	-	-	-	1	2	1.5	1222-70R38-10/8-42-23
	80	3 1/7"	-	-	-	-	1	2	1.7	1222-80R38-10/9-42-23

<b>Button bit</b>										
	55	2"	2×10	4×10		35°	2	-	1.0	1431-55R38-210/410-42-53
	60	2 1/4"	2×10	4×10		35°	2	-	1.2	1431-60R38-210/410-42-53
	65	2 1/2"	2×10	4×10		35°	2	-	1.4	1431-65R38-210/410-42-53
	70	2 3/4"	2×10	4×10		35°	2	-	1.5	1431-70R38-210/410-42-53

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
<b>Drill rod, R38—Round39—R38</b>						
	4000	13' 2"	39	1 1/2"	32.4	25R39-R38-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-R38-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-R38-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-R38-6000-42

<b>Drill rod, Round39—R38</b>						
	4000	13' 2"	39	1 1/2"	32.4	25R39-R38/39-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-R38/39-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-R38/39-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-R38/39-6000-42

## R51(2") bit thread

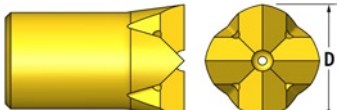
Drill bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	Front No Size	Front No Size	Gauge No Size	Type		Front	Gauge		
<b>Cross bit, R51</b>										
	80	3 1/7"	-	-	-	-	1	2	1.7	1222-80R51-10/9-42-23
	90	3 1/2"	-	-	-	-	1	2	1.7	1222-90R51-10/9-42-23
	100	3 3/4"	-	-	-	-	1	2	1.9	1222-100R51-10/9-42-23

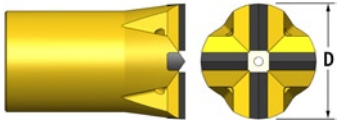
<b>Drill rod, R51—Round52—R51</b>						
	4000	13' 2"	52	2"	44.0	25R52-R51-4000-42
	4500	14' 9"	52	2"	49.0	25R52-R51-4500-42
	5000	16' 5"	52	2"	55.0	25R52-R51-5000-42
	6000	19' 8"	52	2"	66.0	25R52-R51-6000-42

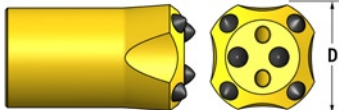




R38 (1 1/2")


# Furnace tapping tools

## T38 (1 1/2") bit thread

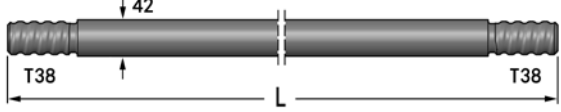
Drill bits	Diameter		Buttons, mm			Angle	Flushing hole		Weight approx kg	Part No.
	mm	Front No Size	Front No Size	Gauge No Size	Type		Front	Gauge		
Full-steel cross bit										
	55	2 1/8"	-	-	-	-	1	4	0.6	1223-55T38-42
	60	2 3/8"	-	-	-	-	1	4	0.7	1223-60T38-42
	65	2 1/2"	-	-	-	-	1	4	0.9	1223-65T38-42
	70	2 3/4"	-	-	-	-	1	4	1.3	1223-70T38-42

Cross bit, R38										
	60	2 3/8"	-	-	-	-	1	2	1.2	1222-60T38-10/8-42-23
	65	2 1/2"	-	-	-	-	1	2	1.4	1222-65T38-10/8-42-23
	70	2 3/4"	-	-	-	-	1	2	1.5	1222-70T38-10/8-42-23
	80	3 1/7"	-	-	-	-	1	2	1.7	1222-80T38-10/9-42-23
	90	3 1/2"	-	-	-	-	1	2	1.9	1222-90T38-10/9-42-23

Button bit										
	60	2 1/4"	2×10	4×10		35°	2	-	1.2	1431-60T38-210/410-42-53
	65	2 1/2"	2×10	4×10		35°	2	-	1.6	1431-65T38-210/410-42-53
	70	2 3/4"	2×10	4×10		35°	2	-	1.6	1431-70T38-210/410-42-53
	80	3 1/7"	2×10	4×10		35°	2	-	1.6	1431-80T38-210/410-42-53

Rods	Length		Diameter		Weight approx kg	Part No.
	mm	ft/in	mm	inch		
Drill rod, T38—Round39—T38						
	4000	13' 2"	39	1 1/2"	32.4	25R39-T38-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-T38-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-T38-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-T38-6000-42

Drill rod, Round39—T38						
	4000	13' 2"	39	1 1/2"	32.4	25R39-T38/39-4000-42
	4500	14' 9"	39	1 1/2"	36.5	25R39-T38/39-4500-42
	5000	16' 5"	39	1 1/2"	40.5	25R39-T38/39-5000-42
	6000	19' 8"	39	1 1/2"	48.6	25R39-T38/39-6000-42

Drill rod, T38—Round42—T38						
	4000	13' 2"	42	1 21/32"	32.4	25R39-T38-4000-42
	4255	14' 1"	42	1 21/32"	34.5	25R39-T38-4255-42
	6000	19' 8"	42	1 21/32"	48.6	25R39-T38-6000-42
	5040	16' 7"	42	1 21/32"	40.8	25R39-T38-5040-42

T38 (1")

# Information

## Concerning bit diameters

Note that all bits are bigger on diameter than the given measurements in the catalogue.

Cross bits: Can be max 1 mm larger due to manufacturing tolerances.

Button bits: Are max 3,0 mm larger for some designs in order to make up for fast initial wear on the diameter. The minimum diameter is 1,5 mm above given measurement.

Keep in mind that a bit always gives a bigger hole than the stated bit diameter.

## Bit classification code

**H:** Very hard to hard rock.....> 2500 bar (250 MPa)

**M:** Medium hard rock.....1500-2500 bar (150-250 MPa)

**S:** Soft rock.....< 1500 bar (150 MPa)

---

**C:** Homogeneous (competent) rock

**F:** Fissured rock

---

**V:** Very abrasive rock.....> 40% silica

**A:** Abrasive rock.....20-40% silica

**N:** Non-abrasive rock.....0-20% silica

## Grinding of Cemented Carbide

Grinding or heating a cemented carbide product will produce dust or fumes of hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes.

The limiting ingredient in cemented carbide is, from a health and safety point of view, Cobalt. Another hazardous ingredient is Tungsten Carbide.

Cobalt is classified as harmful - may cause sensitization by inhalation or skin contact. Inhalation or skin

contact may also cause irritation.

Sensitive persons may experience an allergic reaction. Repeated inhalation of aerosols containing Cobalt may cause obstruction in the respiratory organs. Long term inhalation of increased

concentrations may cause permanent disease.

## Precautions

- Avoid formation and inhalation of dust.
- Wet grinding is recommended instead of dry grinding.
- Always use Exhaust Ventilation which is adequate to limit personal exposure well below the Occupational Exposure Limits.
- Use Respiratory Protection if ventilation is not available or adequate.
- Use Safety Goggles when necessary.
- Wear suitable Gloves and Protective Clothing.

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