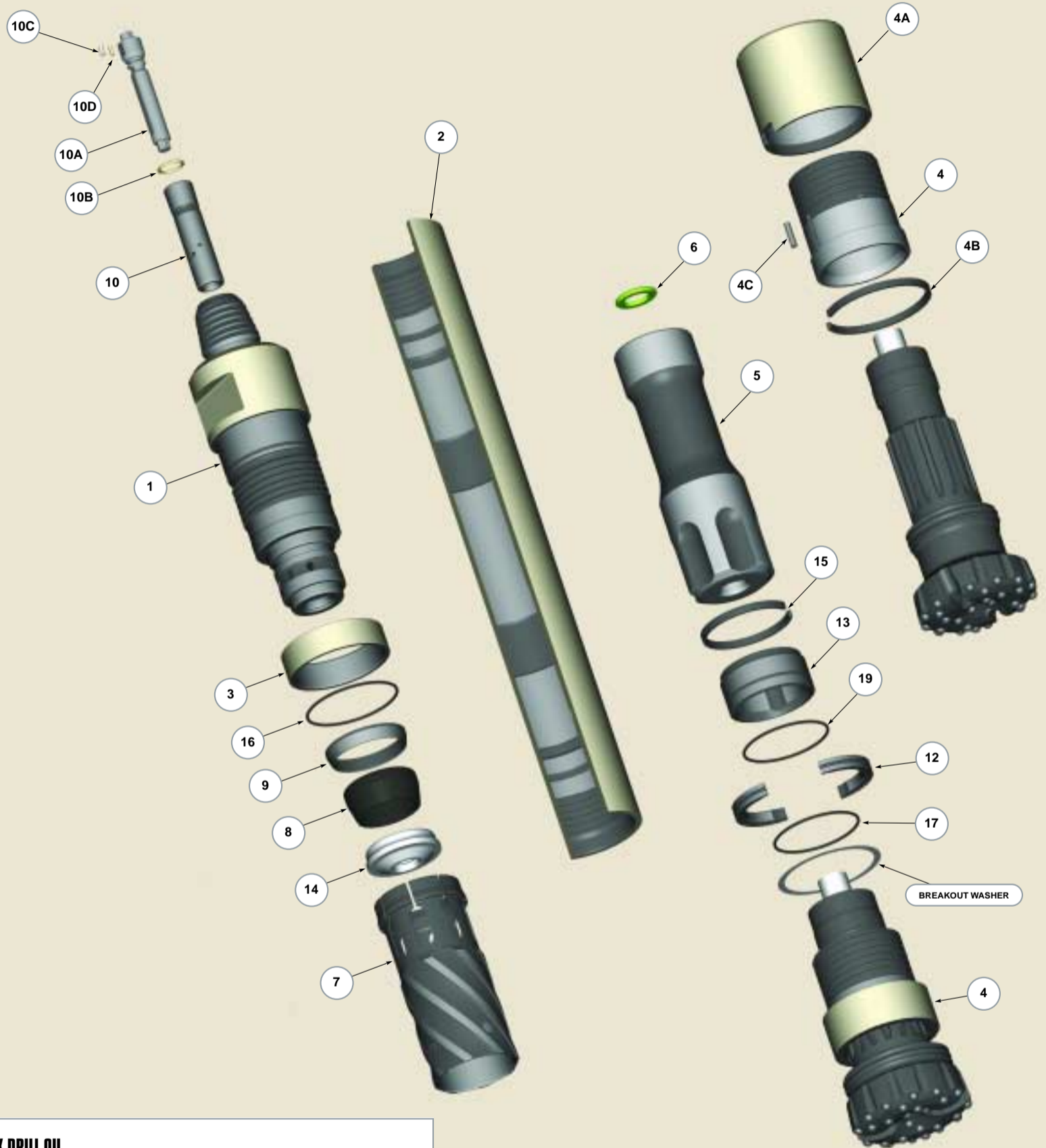


# TOTAL DEPTH

1	BACKHEAD
2	CASING
3	BACKHEAD RING
4	CHUCK
4A	RETRIEVAL SLEEVE
4B	RETRIEVAL RETAINER
4C	DOWEL PIN
5	PISTON
6	TAIL BORE SEAL
7	CYLINDER
8	CHECK SEAL
9	COMPRESSION CONE
10	GUIDE
10A	GUIDE PLUG
10B	GUIDE PLUG ORING
10C	DETENT PIN
10D	DETENT SPRING
12	BIT BEARING ORING ASSEMBLY
13	BIT BEARING
14	VALVE ASSEMBLY
15	BIT BEARING RETAINER
16	BACKHEAD ORING
17	BIT RETAINING RING ORING
19	BIT BEARING ORING



## PREMIUM ROCK DRILL OIL

### Ambient or Hammer Inlet Air Temperature (1)

Hammer Pressure PSI	DEG F -16 TO 20	DEG C -26 TO 7	DEG F 20 TO 60	DEG C 7 TO 16	DEG F 60 TO 90	DEG C 16 TO 32	DEG F ABOVE 90	DEG C ABOVE 32
0 to 150	LIGHT	MEDIUM	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY
150 to 250	LIGHT	MEDIUM	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY
250 to 400	MEDIUM	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY

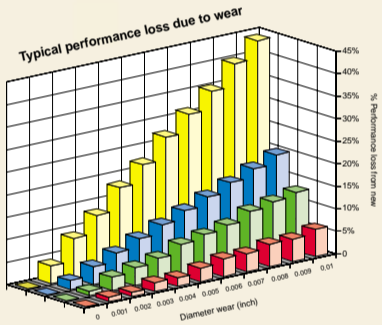
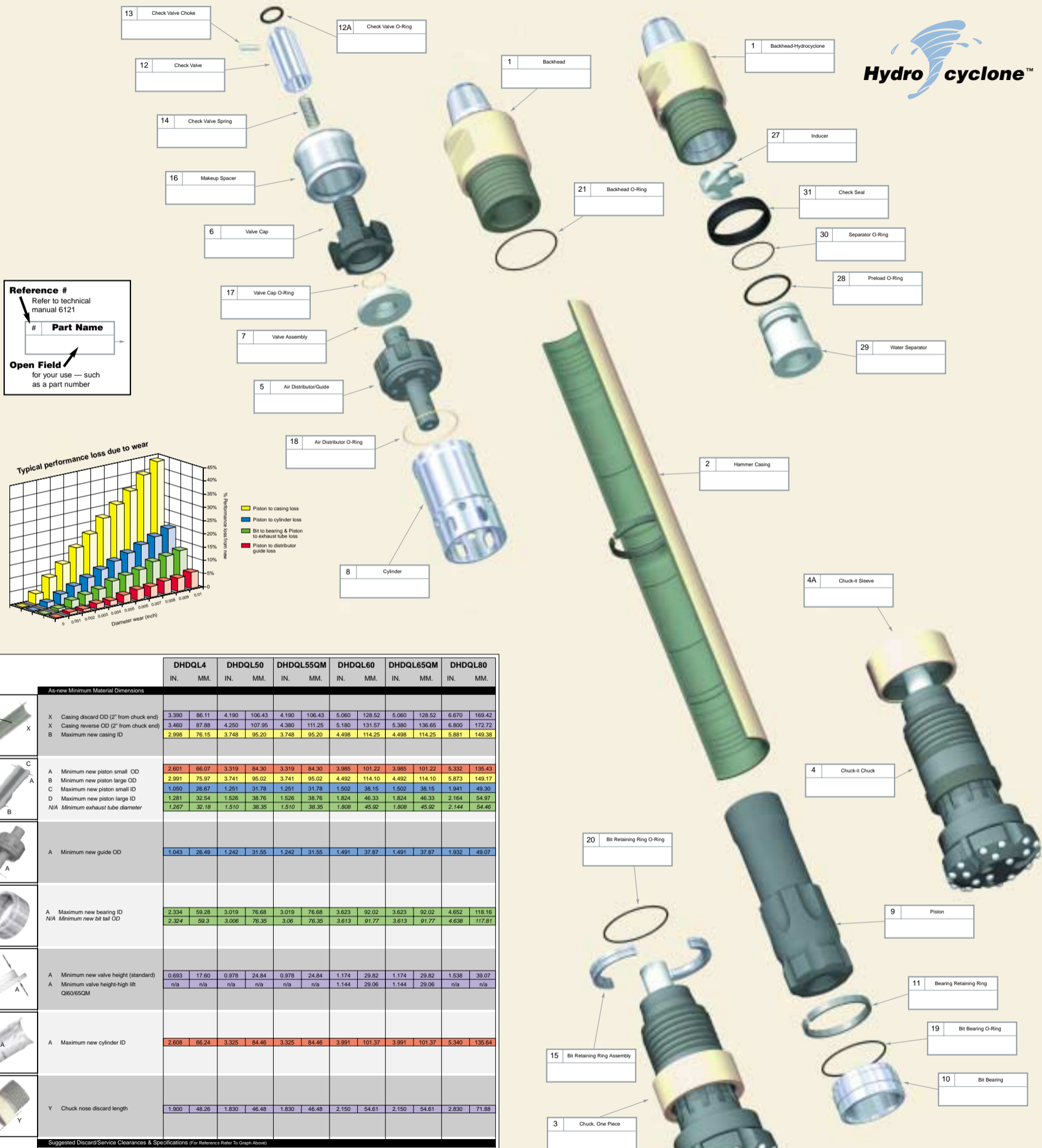
Grade	1 Gallon 3.8 Liter	5 Gallon 18.9 Liter	55 Gallon 207 Liter	ISO Grade Approx.	Viscosity (Cst@40C)	Viscosity Index (typ)	Pour Point Max F (C)	Flash Point Min F (C)	Emulsion Min to 35ml
Test Reference - ASTM						D2270	D97	D92	D1401
Test Reference - ISO						2909	3104	2592	3488
LIGHT	52334174	52333192	52333200	100	90-110	124	-16F/-26C	460F/237C	>60
MEDIUM	52334182	52333218	52333226	220	198-242	121	0F/-17C	457F/236C	>60
HEAVY	52334190	52333234	52333242	460	380-430	94	10F/-12C	455F/235C	>60
EXTRA HEAVY	52334208	52333259	52333267	680	560-610	94	10F/-12C	455F/235C	>60

Notes: 1) The temperature basis for selecting oil is based upon the ability for venturi or plunger lubricators to reliably dispense oil at temperature. If this is not a limitation, select heavier oils based on hammer air pressure. Note that the lubricated regions of most DHD's and drifters are operating in excess of 150F.  
2) Atlas Copco recommends injecting 1/3 pint per hour for every 100 acfm of air delivered. Or, 1/4 liter per hour for each 5m<sup>3</sup>/min. These amounts should be doubled when injecting more than 2 gpm of water.

## REBUILD KITS

	TD	TD	TD	TD	TD
ECONOMY					
STANDARD	52336880 - 2 3/8 API PIN	52338530 - 3 1/2 API PIN	52338555 - 3 1/2 API PIN	52329463 - 3 1/2 API PIN	52329489 - 3 1/2 API PIN
BREAKOUT WASHERS		52338506	52338506	52332855	52332855
WEAR GAUGES		52339348	52339348	52332996	52332996

# Quantum Leap™



	DHDQL4		DHDQL50		DHDQL55QM		DHDQL60		DHDQL65QM		DHDQL80		
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	
<b>As-new Minimum Material Dimensions</b>													
X	Casing discard OD (2" from chuck end)	3.390	86.11	4.190	106.43	4.190	106.43	5.060	128.52	5.060	128.52	6.670	169.42
X	Casing reverse OD (2" from chuck end)	3.460	87.88	4.250	107.95	4.380	111.25	5.180	131.57	5.380	136.65	6.800	172.72
B	Maximum new casing ID	2.998	76.15	3.748	95.20	3.748	95.20	4.498	114.25	4.498	114.25	5.881	149.38
A	Minimum new piston OD	2.601	66.07	3.319	84.30	3.319	84.30	3.985	101.22	3.985	101.22	5.332	136.43
B	Minimum new piston large OD	2.991	75.97	3.741	95.02	3.741	95.02	4.492	114.10	4.492	114.10	5.873	149.17
C	Maximum new piston small ID	1.050	26.67	1.251	31.78	1.251	31.78	1.502	38.15	1.502	38.15	1.941	49.30
D	Maximum new piston large ID	1.281	32.54	1.526	38.76	1.526	38.76	1.824	46.33	1.824	46.33	2.164	54.97
N/A	Minimum exhaust tube diameter	1.267	32.18	1.510	38.35	1.510	38.35	1.808	45.92	1.808	45.92	2.144	54.46
A	Minimum new guide OD	1.043	26.49	1.242	31.55	1.242	31.55	1.491	37.87	1.491	37.87	1.932	49.07
A	Maximum new bearing ID	2.334	59.28	3.019	76.68	3.019	76.68	3.623	92.02	3.623	92.02	4.652	118.16
N/A	Minimum new bit tail OD	2.324	59.3	3.006	76.35	3.06	76.35	3.613	91.77	3.613	91.77	4.638	117.81
A	Minimum new valve height (standard)	0.693	17.60	0.978	24.84	0.978	24.84	1.174	29.82	1.174	29.82	1.538	39.07
A	Minimum valve height-high lift Q60/65QM	N/A	N/A	N/A	N/A	N/A	N/A	1.144	29.06	1.144	29.06	N/A	N/A
A	Maximum new cylinder ID	2.608	66.24	3.325	84.46	3.325	84.46	3.991	101.37	3.991	101.37	5.340	136.64
Y	Chuck nose discard length	1.900	48.26	1.830	46.48	1.830	46.48	2.150	54.61	2.150	54.61	2.830	71.88
<b>Suggested Discard/Service Clearances &amp; Specifications (For Reference Refer To Graph Above)</b>													
X	Casing discard OD (2" from chuck end)	3.390	86.11	4.190	106.43	4.190	106.43	5.060	128.52	5.060	128.52	6.670	169.42
X	Casing reverse OD (2" from chuck end)	3.460	87.88	4.250	107.95	4.380	111.25	5.180	131.57	5.380	136.65	6.800	172.72
Y	Chuck nose discard length	1.900	48.26	1.830	46.48	1.830	46.48	2.150	54.61	2.150	54.61	2.830	71.88
	Max exhaust tube to piston clearance	0.021	0.53	0.024	0.61	0.024	0.61	0.024	0.61	0.024	0.61	0.030	0.76
	Max bit to bearing clearance	0.015	0.38	0.020	0.51	0.020	0.51	0.015	0.38	0.015	0.38	0.021	0.53
	Max piston to guide clearance	0.011	0.28	0.013	0.33	0.013	0.33	0.016	0.41	0.016	0.41	0.014	0.36
	Max piston to cylinder clearance	0.011	0.28	0.009	0.23	0.009	0.23	0.009	0.23	0.009	0.23	0.012	0.30
	Max piston to casing clearance	0.011	0.28	0.011	0.28	0.011	0.28	0.009	0.23	0.009	0.23	0.012	0.30