

**Hydromat Department - Unit Position Setup Sheet**  
(New CNC Hydromat Machines)

**Part No.** 3HB01  
**Rev.** G  
**Dwg. No.** 21304  
**Material** 12L14 Steel  
**Cycle Time** 29.0 Secs.

**Code No.** 4301-8800  
**Part:** Socket Body  
**Series:** 3HK  
**Op. No.** 10  
**Mach. No.** 116

Reference Dimensions:

Sta. No.	Axis	Operation Description	Unit Number	Detailed Operation Description	Special Setup Notes	Unit Pulleys	Unit RPM	Setup Dim	
								Unit Ref	De St
1	--	Load & Cutoff	6.13.013-2	Cutoff Bar to 2.580"	Saw to Collet = 20	5 4	46	3.797"	
3	2	Insert Step Drill	6.44.002-4	Insert Step Drill I.D.		5 4	1200	5.540"	65mm
5	4	Fin. I.D. & Turn	6.44.002-4	Fin. C'Bore I.D. & Turn 1.060 O.D.	Use Carb. Fin. C'Bore	8 1	925	5.250"	80mm
7	7,8	Finish Profile	6.42.005-8	Face, Finish Turn, & Groove O.D.		126-1	1400		
9	11,12	Pickoff & Index	5.40.013	Advance, Pickoff, Index, & Retract	Arbor Spacer = 1/32"	6 3	---		
9V	14	Cross Drill	5.49.010-2	Cross Drill (4) Taper Holes	Use 9/32" Dia. Drill	5 4	*1950*	1.050"	32mm
9L	13	Cross Drill	5.49.010-2	Cross Drill (4) Taper Holes	Use 9/32" Dia. Drill	5 4	*1950*	2.600"	33mm
11	16	Finish C'Bore	6.44.002-4	Brush / Deburr I.D.	Use Wire Brush	5 4	787	5.800"	85mm
13	19,20	Groove I.D.	6.42.005-8	Recess Groove I.D. & De-Chip I.D.	Watch Chips on I.D.	126-1	1350		
15	--	Transfer Out	6.15.026-2	Transfer					
16	--	Transfer In	6.15.026-2	Transfer					
2	1	Pipe Drill	6.44.002-4	Pipe Drill 3/8"-18 NPTF		8 1	550	5.250"	40mm
4	3	Drill & Rgh. Turn	6.44.002-4	Rgh. Drill & Rgh. Turn 1.030 O.D.	Use Carbide Drill	8 1	725	4.750"	65mm
6	5,6	Finish Profile	6.42.005-8	Face, Turn Undercut, & Break O.D.'s		126-8	2100		
8	21	Finish C'Bore	6.44.002-4	Finish .549 I.D. and Seat	Use Carbide Seat Tool	7 2	1150	5.800"	88mm
10	17,18	Groove I.D.	6.42.005-8	Groove .608 I.D.		126-1	950		
12	9,10	Open	6.42.005-8	Open					
14	23,24	Tap	6.44.002-2	Tap 3/8"-18 NPTF	Use Greenfield Taps	8 1	165	3.280"	120mm
14V	22	Mill Flats	5.44.049-8	Mill .870 Wrench Flats		7 2	305	5.250"	120mm

Special Notes:

- Set saw to collet scale for cutoff saw (Sta. 1) to 20 counts
- Set ratio on cutoff saw speed control to 1:10
- Use 1/32" (.03125) spacer for drilling arbor in index unit (Sta. 9H)
- Set collet clamp pressure on index unit (Sta. 9H) to 30 bars
- Set cutoff saw proximity switch position to 3 turns

\* Use 3400 RPM for solid carbide cross drills LL3HK \*

Collet Information:

- Odd stations use 1-1/4" Round collets (front side)
- Even stations use 1.046" Round collets (back side)

Ejector Information:

- Odd stations use 801-1 heads (1.181" diameter) and 801-1 stems
- Even stations use 801-2 heads (1.181" diameter) and 801-2 stems

**Hydromat Department - Presetter**  
(New CNC Hydromat Machine)

Part No. 3HB01  
 Rev. G  
 Dwg. No. 21304  
 Material 12L14 Steel  
 Cycle Time 29.0 Secs.  
 Updated: 05-08-07 DM

Code No. 4301-8800  
 Part: Socket Body  
 Series: 3HK  
 Op. No. 10  
 Mach. No. 116

**Presetter Dimensions:**

Sta. No.	Axis	Operation Description	Tool Number	Tool Description	Tool Holder	Collet Size	Tool OAL	Preset Lgth	Preset DIA
1	--	Cutoff Slug	250x2.5x40	Ott-Heugel (60 Teeth)	Saw Blade Holder				
3	2	Insert Step Drill	UV1206150	Komet Insert Step Drill	Special ABS QC Holder		3.250	5.011	
			W2910130.04 BK79	Komet Inserts (4)	Holder B-6494				
5	4	Finish C'Bore	LL3HB01-P14	Carbide Finish C'Bore	PCM-83224 (ER-32)	15-16MM	3.000	3.952	
		Rough Turn	P01-8904R BK	Komet Inserts (2)	35mm PCM Tool Blocks			3.720	1.065
			SWGCR 8-01 (0-deg.)	Komet Holders (2)					
7	7.8	Finish Profile	NG-3062R KC730	Kennametal Insert	O.060.1032 (3NG)			2.425	0.375
				Kennametal Top Clamp	CM-72				
9	11.12	Pickoff	O.047.0058	3HK Drilling Arbor	Index Unit Assembly			0.000	
9V	22	Cross Drill (Ctr.)	177-8-.281-2.500	3HK Taper Cross Drill	DH QC-83/32 (2)	7-8MM	2.500	3.072	
9L	23	Cross Drill (Lft.)	177-8-.281-2.500	3HK Taper Cross Drill	Rego Extension (ER-16)	7-8MM	2.500	5.500	
11	16	Brush I.D.	36736 (13/16" OD)	Osborn Wire Brush	DH QC-84/40	5-6MM	5.000	4.000	
				Rego-Fix Extension	516.403 (ER-16)				
13	19,20	Groove I.D.	RU114.0078.00 TN35	PH Horn Carbide Insert	O.060.1181 (1/2" Boring)			2.500	0.184
			BU114.0.500.01	PH Horn 1/2" Boring Bar					
15	--	Transfer Out							
16	--	Transfer In							
2	1	Step Drill	3/8"-18 NPTF	HSS Pipe Form Drill	DH QC-84/40	18-19MM	3.125	5.250	
4	3	Rough Drill	LL3HB01-SD11	Carb. Double-Angle Drill	PCM-84225 (ER-32)	13-14MM	4.000	4.367	
		Rough Turn	PD01-8308 BK	Komet Inserts (2)	50mm PCM Tool Blocks			4.428	1.031
			SWGCR 8-01 (0-deg.)	Komet Holders (2)					
6	5.6	Finish Profile	VBMT-221LF KC9025	Kennametal Insert	O.060.1356 (35-deg.)				
8	21	Finish C'Bore	LL3HB01-P11	Carbide Finish C'Bore	DH QC-84/40	15-16MM	4.000	1.981	0.500
10	17,18	Groove I.D.	3H01-R2	HSS Recess Tool	O.060.1181 (1/2" Boring)		2.500	4.738	
12	9,10	Open						2.324	0.000
14	23,24	Tap	3/8"-18 NPTF (4 Flute)	HSS Pipe Tap (TiCN)	WFLK 225BM/1"	3/8" Pipe			
14V	22	Mill Flats	3001-MC10	HSS Milling Cutters	6.19.004-2 Mill Head			6.295	
				3HK Milling Spacers				3.000	

**Notes:**

- Set presetter to DIA mode to set diameter on holders for 2-axis CNC units
- All preset values for drills are set to the corner of the point of the drill
- Cross drills are set to point of drill
- Double-angle drill in station 4 is set to corner of 60-degree angle and the shank diameter
- Finish c'bore in station 5 is set to the flat cutting edge (not the pilot)
- Use Rego-Fix coolant discs for carbide I.D. tools where required
- MUST use .015 R. insert in station 6 for proper breaks and surface finish on part O.D.
- Set station 8 seating tool to corner of .548 diameter and 30-degree angle
- Set station 10 recess tool to the face of the tool (not to the cutting edge)
- Alternate insert for station 7 is Sandvik TLGP-3062R 1015 with top clamp C3R
- 3HK milling spacers: .225 (near housing), .870 (middle), .500 (end)

\* Torx screw for Komet insert drill in station 3 = N00-56040 TX S/M 2x3.5 (TX6)

3.952  
 3.720  
 -----  
 232

.229 distance from  
 End of 5th C/Bore  
 To 5th dia Reg. Turn