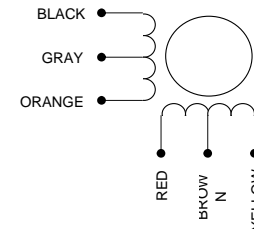
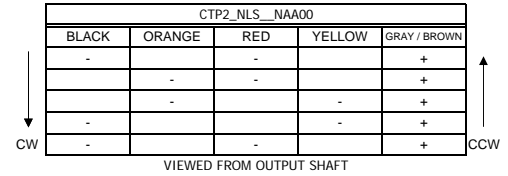
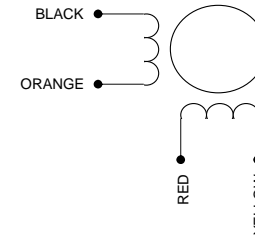
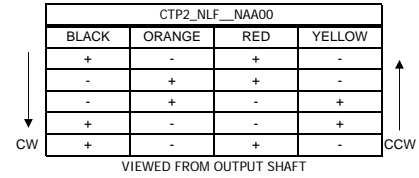
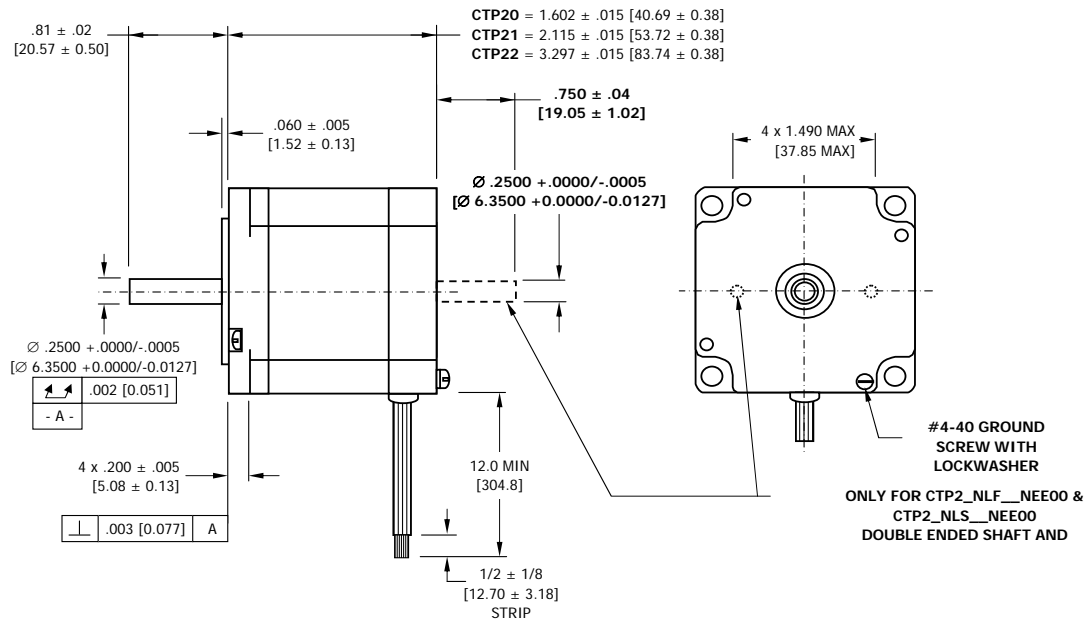
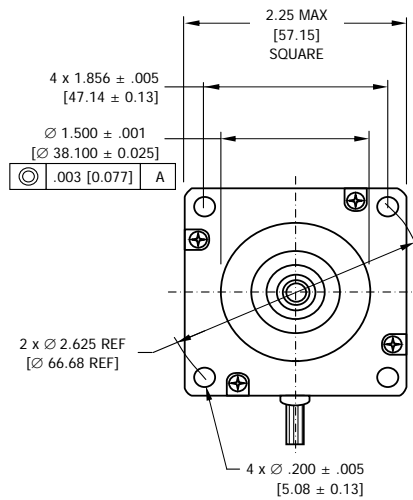


MOTOR PART NUMBER		GENERIC P/N : CTP2_NLF__NAA00					GENERIC P/N : CTP2_NLS__NAA00			
		GENERIC P/N : CTP2_NLF__NEE00					GENERIC P/N : CTP2_NLS__NEE00			
CTP20		...0..27....	...0..17....	...0..11....	...0..07....	...0..04....	...0..34....	...0..21....	...0..13....	...0..09....
CTP21		...1..39....	...1..25....	...1..15....	...1..10....	...1..04....	...1..48....	...1..31....	...1..19....	...1..12....
CTP22		...2..50....	...2..31....	...2..19....	...2..12....	...2..06....	...2..49....	...2..31....	...2..19....	...2..12....
RESISTANCE PER PHASE ± 10%										
CTP20	ohms ± 10%	1.11	2.87	6.98	17.10	40.60	0.73	1.83	4.39	10.50
CTP21		0.60	1.48	3.86	9.40	44.00	0.41	0.97	2.44	5.89
CTP22		0.52	1.31	3.25	8.40	32.20	0.53	1.30	3.39	8.26
INDUCTANCE PER PHASE ± 20%										
CTP20	mH ± 20%	2.5	7.1	17	41	89	0.8	2.2	5.2	12
CTP21		2.2	5.8	16	38	170	0.7	1.9	5.0	12
CTP22		2.2	6.1	16	41	150	1.2	3.0	8.3	20
RATED CURRENT PER PHASE *										
CTP20	amps	2.7	1.7	1.1	0.68	0.45	3.4	2.1	1.3	0.87
CTP21		3.9	2.5	1.5	1.0	0.45	4.8	3.1	1.9	1.2
CTP22		5.0	3.1	1.9	1.2	0.6	4.9	3.1	1.9	1.2
HOLDING TORQUE, MIN *										
CTP20	oz-in / N-m TYP	90 / 0.64					68 / 0.48			
CTP21		185 / 1.31					145 / 1.02			
CTP22		340 / 2.40					265 / 1.87			
DETENT TORQUE, MAX										
CTP20	oz-in / N-m TYP	6.0 / 0.042								
CTP21		9.0 / 0.064								
CTP22		14.0 / 0.010								
ROTOR MOMENT OF INERTIA										
CTP20	oz-in-s <sup>2</sup> / kg-cm <sup>2</sup>	.0026 / 0.19								
CTP21		.0035 / 0.24								
CTP22		.0068 / 0.48								
STEP ANGLE *	deg ± 3%	1.8								
STEPS PER REVOLUTION *	-	200								
AMBIENT TEMPERATURE RANGE										
OPERATING	deg C	-20 - +40								
STORAGE		-40 - +85								
BEARING TYPE	-	BALL BEARING								
INSULATION RESISTANCE AT 500VDC	Mohms	100 MEGOHMS								
DIELECTRIC WITHSTANDING VOLTAGE	vac	500 FOR 1 SECOND								
WEIGHT										
CTP20	lb / kg	1.0 / 0.45								
CTP21		1.4 / 0.65								
CTP22		2.4 / 1.10								
LEADWIRES	-	AWG 22								
TEMPERATURE CLASS	-	B (130°C MAX)								
RoHS	-	COMPLIANT								

\* ENERGIZE AT RATED CURRENT PER PHASE, 2 PHASE



FINAL	CTP2	MATERIAL : ----	DESIGN GROUP	
NEXT ASSY	USED ON	FINISH : ----		
ORIGINAL APPLICATION		TOLERANCES UNLESS OTHERWISE SPECIFIED		
INTERPRET DRAWING PER ANSI Y14.5 UNLESS OTHERWISE SPECIFIED . ALL DIM RFS.		FRAC DIM ± ----	X.XXX DIM ± ----	
DO NOT SCALE DWG		APPROVALS	DATE	APPROVALS
 THIRD ANGLE PROJECTION		DWN BY		DSG ENG
		CHK BY		INDL ENG
		DSGN		Q.A.
TITLE: 6/29/2007				<b>PRODUCT SPECIFICATION</b> <b>(NEMA 23 HYBRID STEPPER MOTOR)</b>
DWG NO				
CTP2				SHEET 1 OF 2



FINAL	CTP2	MATERIAL : ----	DESIGN GROUP
NEXT ASSY	USED ON	FINISH : ----	
ORIGINAL APPLICATION		TOLERANCES	
INTERPRET DRAWING PER		UNLESS OTHERWISE SPECIFIED	
ANSI Y14.5 UNLESS OTHERWISE		FRAC DIM ± ----	X.XXX DIM ± ----
SPECIFIED . ALL DIM RFS.		X.XX DIM ± ----	ANGLES ± ----
DO NOT SCALE DWG		DIMENSIONS : INCHES	
 THIRD ANGLE PROJECTION		APPROVALS	DATE
DWN BY		APPROVALS	DATE
CHK BY		DSG ENG	
DSGN		INDL ENG	
		Q.A.	

TITLE: 6/29/2007  
PRODUCT SPECIFICATION  
(NEMA 23 HYBRID STEPPER MOTOR)

DWG NO CTP2

SHEET 2 OF 2