## 1.1 SHAFT REQUIREMENTS

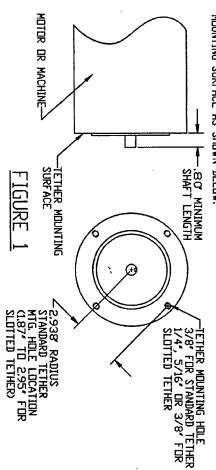
THE HS20 HUB SHAFT BORE WILL BE .0002" TO .0008" IN DIAMETER OVER THE NOMINAL SHAFT SIZE AS SHOWN IN THE TABLE BELOW. THE TABLE ALSO SPECIFIES THE ACCEPTABLE SHAFT SIZE RANGE. DIAMETER

mm .39393948 .3932 - mm .47264735 .4719 mm .59085917 .5901	15 15 10
mm .39393948 .3932 - mm .47264735 .4719 -	15 15
mm .39393948 .3932 -	15 0
10101 10101	
m 2150 - 2161 - 2145 - 3150	æ
6 mm   .23642373   .23572362	9
5/16*   .31273136   .31203125	5/:
5/8"   .62526261   .62456250	5/
72*   .50025011   .49955000	1/2
/8' .37523761 .37453750	3/8
'4' .25022511 .24952500	1/4"
NOMINAL HS20 I.D. (IN.) SHAFT D.D. (IN.)	MON
HS20 SHAFT DIAMETER SPECIFICATIONS	

1.2 SHAFT RUNDUT. TO MAINTAIN LONG BEARING AND TETHER LIFE THE SHAFT RUNDUT SHOULD BE LESS THAN .003° TIR. SPECIAL ATTENTION SHOULD BE GIVEN TO INSTALLATIONS THAT EMPLOY A PRESS-FIT OR SCREWED-ON STUB SHAFT ADAPTER. THE SHAFT ADAPTER SHOULD BE ALIGNED TO WITHIN .003° TIR USING A DIAL INDICATOR.

1.3 SHAFT LENGTH.

THE SHAFT SHOULD EXTEND A MINIMUM OF .70° INTO THE HS20 HUB. WHEN USING THE STANDARD TETHER, THE MINIMUM SHAFT LENGTH IS .80° FROM THE TETHER MOUNTING SURFACE AS SHOWN BELOW.



1.4 TETHER CONSIDERATIONS.

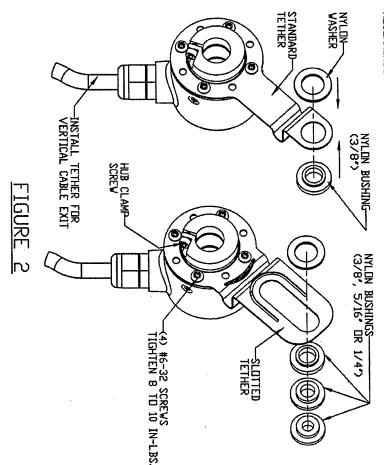
THE HOUSING OF THE HS20 MUST BE PREVENTED FROM ROTATION WHILE ALLOWING MAINTAIN ACCURACY. A GOOD TETHER WILL PREVENT ROTATION WHILE ALLOWING MOVEMENT IN THE RADIAL AND AXIAL DIRECTIONS. USE OF THE STANDARD OR SLOTTED TETHER IS RECOMMENDED. THESE TETHERS HAVE BEEN OPTIMIZED TO PREVENT ROTATION WHILE MINIMIZING THE LOAD PLACED ON THE BEARINGS DUE TO RADIAL AND AXIAL SHAFT MOVEMENTS. THEY CAN TOLERATE MOVEMENTS OF UP TO ±,005" RADIALLY AND ±,050" AXIALLY. REFER TO FIGURE 1 FOR TETHER MOUNTING HOLE LOCATION.

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THE TETHER CAN BE ATTACHED TO THE HS20 ENCODER IN ANY ONE OF 8 POSITIONS. SELECT THE POSITION THAT WILL ALLOW THE CABLE TO HANG VERTICALLY TOWARD THE GROUND IN THE FINAL INSTALLED POSITION. REFER TO FIGURE 2. SECURE THE TETHER TO THE HS20 USING (4) #6-32 x 1/4" LONG SCREWS PROVIDED. RECOMMENDED TORQUE: 8 to 10 IN-LBS. L TETHER ATTACHMENT



2.2 ISOLATION BUSHING ATTACHMENT THE HS20 INCLUDES PROVISIONS FOR ELECTRICAL ISOLATION FROM STRAY MOTOR CURRENTS THAT MAY CAUSE MIS-COUNTING AND/OR DAMAGE TO THE BEARINGS. THE HS20 HUB SHAFT IS ISOLATED FROM THE MOTOR SHAFT DUE TO A HARDCOAT ANDDIZED FINISH. THE TETHER CAN BE ISOLATED FROM THE MOTOR HOUSING BY INSTALLING THE SUPPLIED NYLON BUSHING AS SHOWN IN FIGURE 2. PLACE THE SHOULDER OF THE NYLON BUSHING IN THE TETHER AND THEN SNAP THE NYLON WASHER OVER THE SHOULDER ON THE NYLON BUSHING TO HOLD IT IN PLACE.

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2.3 INSTALLATION

SLIDE THE HS20 WITH THE TETHER ON TO THE MOTOR SHAFT UNTIL THE TETHER SLIDE THE HS20 WITH THE MOUNTING SURFACE. SLIDE THE METAL WASHER OVER THE TETHER BOLT AND INSTALL THE BOLT THRO THE TETHER INTO A THREADED HOLE IN THE MOUNTING SURFACE. TIGHTEN THE BOLT, TAKING CARE NOT TO TWIST THE TETHER. REFER TO THE TABLE BELOW FOR TORQUE VALUES.

2.4 COVER INSTALLATION (OPTIONAL)
THE TETHER MUST BE ORIENTED ON THE ENCODER AS SHOWN IN FIGURE 2 FOR PROPER CABLE EXIT THROUGH THE COVER. PLACE THE COVER OVER THE ENCODER ON TO THE MOTOR OR MACHINE MOUNTING SURFACE AS SHOWN IN FIGURE 4.
SECURE THE COVER WITH BOLTS AND LOCKWASHERS.

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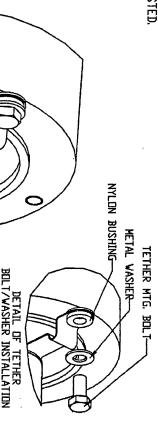
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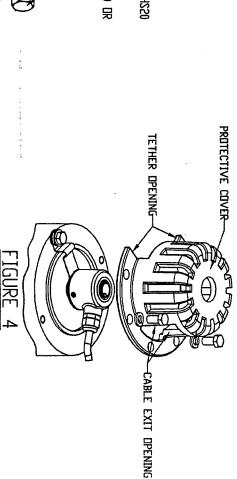
USE A 7/64" HEX KEY WRENCH TO TIGHTEN THE HUB CLAMP SCREW TO SECURE THE HS20 TO THE MOTOR SHAFT.

RECOMMENDED TORQUE: 16 IN-LBS.

THE TETHER SHOULD BE RESTING IN ITS NATURAL POSITION - NOT BENT,STRETCHED OR

TWISTED.





REFER TO THE TABLE BELOW FOR CABLE AND CONNECTOR TERMINATION ASSIGNMENTS. A SHIELDED CABLE IS RECOMMENDED. TERMINATE THE SHIELD AT THE INPUT DEVICE ONLY (BUILDING OR SIGNAL GROUND AS RECOMMENDED BY THE INPUT DEVICE MANUFACTURER). 2.5 TELECTRICAL CONNECTIONS

MOTOR SHAFT

HS20 DN

SHIELD	SIGNAL /Z	SIGNAL /B	SIGNAL /A	CASE	COMMON	N/C	+Vin	SIGNAL Z	SIGNAL B	SIGNAL A	ENCODER FUNCTION
BARE	YEL/WHT	DRN/VHT	BRN/WHT	GRN	ᄣ	.1	æ	ΥET	RR	BRN	CABLE
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1	ı	1	1	០	7	m	Ū	C	В	Þ	7 PIN SINGLE ENDED
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TETHER MOUNTING— SURFACE ON MOTOR OR MACHINE

IGURE 3

-CABLE DRIENTED VERTICALLY TOWARD GROUND