READ ALL INSTRUCTIONS BEFORE PROCEEDING WITH INSTALLATION.

REV	ECN	DATE	APPROVED
F	21662	07/13/98	DALE
G	22879	08/18/99	
A	20536	10/03/96	GMK
B	20569	10/16/96	GMK
C	20613	11/06/96	GMK
D	20714	01/16/97	GMK
E	20783	02/17/97	

A. Requirements

1. Shaft Diameter

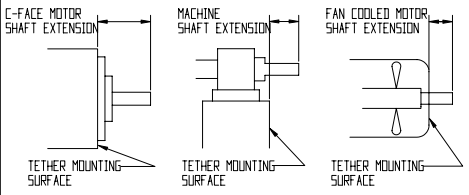
The tolerance of the H535 hollowshaft is nominal plus 0.0003" (0.008mm) to 0.0005" (0.013mm) (0.013mm). The customer shaft should be nominal to -0.0005"(0.013mm).

Nominal	H535 I.D. (in.)	Shaft Dia. (in.)
6mm	0.2365-0.2370	0.2357-0.2362
1/4"	0.2503-0.2508	0.2495-0.2500
5/16"	0.3128-0.3133	0.3120-0.3125
3/8"	0.3753-0.3758	0.3745-0.3750
10mm	0.3940-0.3945	0.3932-0.3937
12mm	0.4727-0.4732	0.4719-0.4724
1/2"	0.5003-0.5008	0.4995-0.5000
5/8"	0.6253-0.6258	0.6245-0.6250

2. Shaft Extension

Solid shaft preferred; keyway allowed; flatted shaft should not be used. The recommended shaft extension length is 1.25" (32mm) minimum. The longest shaft length that will still allow installation of the shaft cover is 2.0" (51mm) maximum. Installations that employ a press-fit, or screwed-on stub shaft adapter should align the stub shaft to 0.002" TIR or less with a dial indicator.

A.2 SHAFT LENGTH



3. Tether Point

For general industrial machinery and C-face motor installations, locate the tether hole at the nominal bolt circle location. The tether holes are slightly elongated, to allow for hole location tolerance and arcing of the tether, if the hole location is not flush with the tether surface.

Hole Location	Bolt Size
2.94" (75mm)	3/8" (9.5mm)
3.63" (92mm)	1/2" (12mm)
2.5"-3.25" (63-82mm)	1/4" (6mm)

Bolt Size	Recommended Torque
1/4" (6mm)	50-60 in-lbs
5/16" (8mm)	70-80 in-lbs
3/8" (9.5mm)	100-125 in-lbs
1/2" (12mm)	125-150 in-lbs

A

B. Procedure

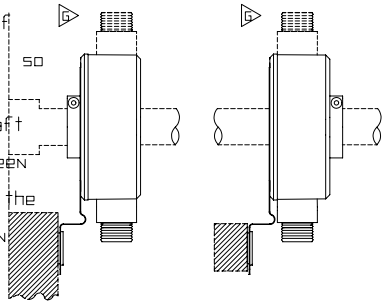
1. Select Tether Position

The H535 tethers can be installed on either side of the encoder. Select a location for fixing that allows the tether to rest in its natural position - so that it is not bent, stretched or twisted.

2. Select Shaft Clamp Position

The H535 can be installed with the split collar shaft clamp two ways. For shaft extensions less than 2" (stub shafts), the clamp is "inside" - between the machine/motor and the encoder. For shaft extensions greater than 2" (through shafts), the encoder is between the machine/motor and the clamp is on the "outside". Select an orientation that allows the customer shaft to couple the hollowshaft a minimum of halfway into the H535 encoder.

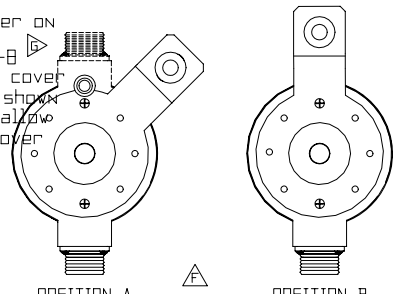
B.1-2 TETHER AND CLAMP POSITIONS



3. Install the Tether

Use a #2 Phillips screwdriver to mount the tether on the front or rear of the encoder using the (2) #6-32 screws provided. Tighten each screw to 6-8 in/lbs. For installations requiring an accessory cover the tether must be in one of the two positions shown in pictorial. Position A is preferred as it will allow cover mounting with 3 bolts. Position B allows cover to be secured with only 2 bolts.

B.3 TETHER AND TERMINATION LOCATIONS



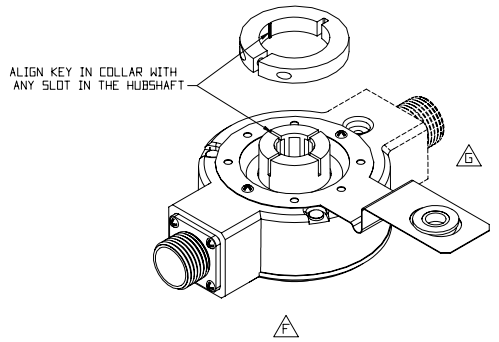
4. Select Termination Location

The H535 encoder can be rotated in 45 degree increments so that the connector or cable exit can be conveniently located. Select a rotation that positions the connector or cable for easy access, in a downward direction for runoff of water and oil, and protects the wiring from hazards such as heat, moving parts and sources of electrical noise.

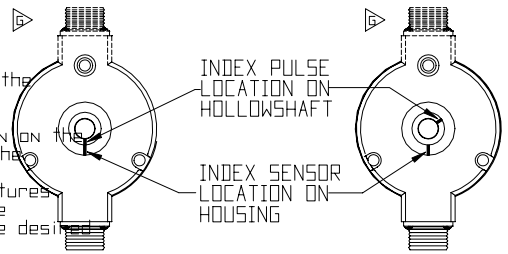
B.6A RIB LOCATION

6. Mount the Encoder to the Shaft

The split collar shaft clamp can be taken off a rotated in 90 degree increments to make the clamp screw easier to access. Ensure the key in the clamp is aligned with one of the hubshaft slots per pictorial B.6A. Use a 7/64" hex wrech or driver to loosen the clamp, if necessary. If the shaft has a flat or a keyway, align the H535 hollowshaft so that its internal ribs are o the solid part of the shaft and not over the fl keyway. Hold the H535 encoder perpendicular and slide it onto the shaft, until the tether co rest at the fixing location. Tighten the clamp screw to 8-10 in/lbs.



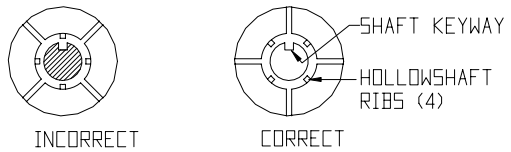
B.5 INDEX PULSE ALIGNMENT FEATURES



5. (Optional) Align the Index Pulse Output

The H535 encoder includes features to align the Index Channel to the machine/motor shaft. A molded line on the shaft clamp side of the hollowshaft indicates the Index pulse location on the code disk. A cast line of the clamp side of the encoder housing indicates the Index detector location in the electronics. When the two features are lined up, the Index Channel output will be active. If the machine/motor is already in the desired Index position, align the two features and go to the next step. If the machine/motor is not in the desired Index position, rotate the hollowshaft to compensate for rotation that will take place before the Index should occur.

B.6B RIB LOCATION

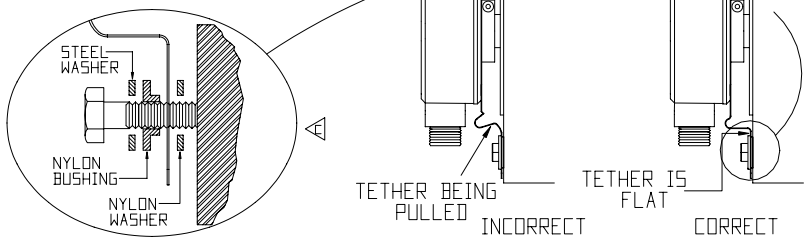


TOLERANCES UNLESS INDICATED: .XXX ± / .XX ± / ANGLES ± /	DIMENSIONS IN INCHES UNLESS SPECIFIED MAT'L / FINISH /	TITLE: H535 SEALED HOLLOWSHAFT ENCODER INSTALLATI	
© 1996 D.T.C. "C" size		FILE NAME: 20055801	SCALE: NONE
Danaher Controls		DRAWN DJH	DATE 08/21/96
		CHECKED GMK	DATE 9/06/96
		RELEASED	DATE
		COMPLIANCE REQUIRED: CUL CCSA CCE CTUV CFCC CVCCI	
		APPLICATION: H535	
		DWG. NO. 200558-0000	REV G
			1 OF 2

REV	ECN	DATE	APPROVED

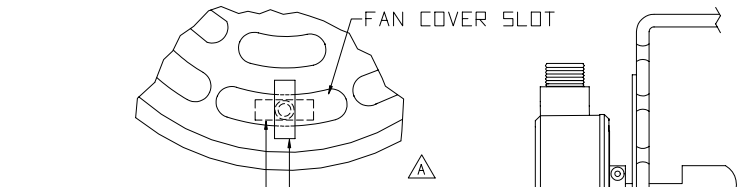
7A. Secure the Tether (Motor Mount)
Insert the tether fixing bolt through the metal washer and plastic insulating shoulder/washer. Hand thread it into the machine/motor hole. Tighten the bolt so that the shoulder washer compresses and the slotted part of the tether cannot move. Check the tether for bending, stretching or twisting and reinstall, if necessary.

B.7A TETHER FIXING

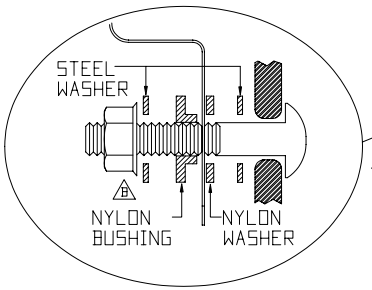


7-B Secure the Tether (Fan Cover Mounting)
Assemble the T-bolt, nylon washer, metal washers, tether,nylon bushing and nut as shown. Slide H535 encdoer onto shaft. Hold and turn T-bolt to slip into fan slots. Rotate T-bolt (as shown) to bridge a fan slot. Tighten T-bolt to spec. shown in chart.

B.7B FAN COVERED TETHER MOUNTING



VIEW FROM INSIDE FAN COVER

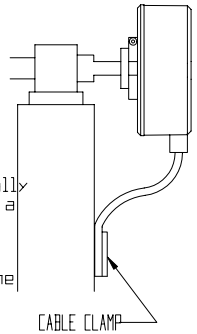


NOTE:
To achieve noise immunity for heavy industrial (CE) remove nylon washers.

8. (Optional) Install Shaft Cover
The H535 includes a protective shaft cover for use in non-through shaft installations. Place the cover over the hollowshaft and use a #2 Phillips screwdriver to install it with the (2) #6-32 screws provided. Tighten each screw to 6-8 in/lbs.

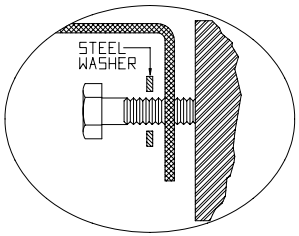
C. Notes
1. Customer Supplied Tether
If a standard H535 tether is not used, it must allow the encoder to move axially and radially ±.025 while preventing rotation. If axial and radial movement is restricted, excessive loading of the encoder bearings will shorten life and could cause failure.

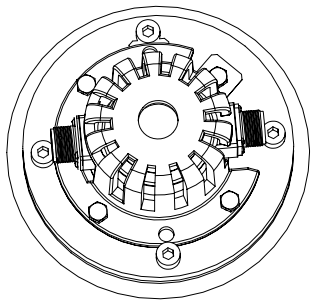
2. Cable Clamping Tether
For low resolution unidirectional applications, it is possible to mount the H535 encoder onto a machine/motor shaft and secure it from rotating by securing (tying) the cable exit or connector cable assembly to a fixed point nearby. The cable should have enough slack to allow the encoder to move axially and radially with the shaft. The encoder will rotate a small amount with the shaft, so it is important the amount of rotation is less than the resolution. For example, this method can be used for resolutions of 30 pulses per revolution, when the amount of encoder rotation is limited to less than 12 degrees (or 1/30th of a revolution).



C.2 CABLE CLAMPING

3. For installation of accessory cover tether must be installed in one of the positions shown in view B.3. (Position A is preferred as it allows the cover to be secured with 3 bolts instead of 2.
After encoder installation place the accessory cover over the encoder with the large opening over the connector or cable and the shorter opening positioned over the tether. Ensure the cover is fully seated on the motor face and secure with bolts and washers provided. When mounting to a fan cover instead of a 56C face, center the cover and drill 3 mounting holes (Ø.17") in diameter. Then use the 3 #10-24 self-tapping screws and washers provided. Install the warning label in the most conspicuous position.





C.3 ACCESSORY COVER

TOLERANCES UNLESS INDICATED: .XXX ± / .XX ± / ANGLES ± /	DIMENSIONS IN INCHES UNLESS SPECIFIED MAT'L / FINISH /	TITLE: H535 SEALED HOLLOWSHAFT ENCODER INSTALLATION	
		FILE NAME: 20055802	SCALE: NONE
		DRAWN DJH	DATE 08/21/96
		CHECKED	DATE
		RELEASED	DATE

Danaher Controls

COMPLIANCE REQUIRED: UL CSA CE TUV CECC CVCCI

APPLICATION: H535

DWG. NO. 200558-0000 2OF2 REV G