Penny+Giles
A Curtiss-Wright Company

The **Penny+Giles ICT050 Contactless In-Cylinder Linear Transducer** has been specifically designed for small bore mobile and static hydro-pneumatic actuators.

Designed primarily for the off-highway markets, the ICT050 linear transducer provides reliable, fit-and-forget position sensing of the cylinder rod in actuators with strokes up to 500mm.

It is a robust, non-contact transducer suitable for the harsh conditions of lifting and steering position applications and hydro-pneumatic active suspension systems. It works on an inductive coil principle, with virtually infinite resolution and is capable of withstanding temperatures up to 200°C and working pressures up to 500Bar.

ICT050

IN-CYLINDER LINEAR TRANSDUCER

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Innovation In Motion

Doc Ref: ICT050 02/09

METRIC
IF IN DOUBT ASK

SPECIFICATION

ELECTRICAL STROKE LENGTH 'E'_____25mm TO 200mm (IN 5mm INCREMENTS)
210mm TO 500mm (IN 10mm INCREMENTS)

TEMPERATURE RANGE (OPERATING)__-20°C TO +200°C
TEMPERATURE RANGE (STORAGE)____-50°C TO +200°C
TEMPERATURE PERFORMANCE_____< ± 100ppm OF ELECTRICAL STROKE/°C (+20°C TO +60°C)
< ± 200ppm OF ELECTRICAL STROKE/°C (-20°C TO +100°C)
< ± 300ppm OF ELECTRICAL STROKE/°C (-20°C TO +200°C)
LEAST SQUARES LINEARITY_____< ± 0.75% STROKE MAX
RESOLUTION_____INFINITE
MAX. WORKING PRESSURE_____500 BAR
INSULATION RESISTANCE_____YELLOW/ BLUE TO CASE >50MΩ @50Vdc
SCREEN TO CASE >50MΩ @50Vdc
GREEN WIRE BONDING RESISTANCE - > IΩ

NOTES
1. STROKE LENGTH 'E' SPECIFIED BY CUSTOMER WITHIN RANGE 25mm TO 500mm.
2. THESE SPECIFICATIONS APPLY ONLY WHEN THE ICT IS OPERATED IN CONJUNCTION WITH A Penny & Giles 'EICT' ELECTRONIC MODULE.
3. ELECTRONIC MODULES ARE ORDERED SEPARATELY, SEE APPROPRIATE Penny & Giles DATA SHEET(S)

PROGRAMMING MODULE
EACH TRANSDUCER IS SUPPLIED WITH A PROGRAMMING MODULE CALIBRATED TO MATCH THE ELECTRICAL STROKE LENGTH 'E'. THE MODULE IS PLUGGED INTO THE REQUIRED 'EICT' ELECTRONIC MODULE VIA MATING CONNECTORS.
IT IS IMPORTANT THE TRANSDUCER STROKE LENGTH AND THE PROGRAMMING MODULE STROKE LENGTH ARE MATCHED.
E.G. PROGRAMMING MODULE SA204323/200
TRANSDUCER ICT050/EM/T/200

ORDERING CODE THREADED FLANGE

ICT 050/__/__/____/__

FLANGE OPTION
EM =EXTERNAL METRIC FLANGE
EU =EXTERNAL UNIFIED FLANGE
RM =REVERSED THREADED METRIC FLANGE
RU =REVERSED THREADED UNIFIED FLANGE

CORE OPTION
S = SLEEVED CORE
T = THREADED CORE
FF = FORCE FIT

STROKE LENGTH 'E' IN mm

CABLE OPTION
00 = 0.5m CABLE
01 = 1.0m CABLE
06 = 6.0m CABLE

ORDERING CODE INTERNAL FLANGE

ICT 050/__/__/____/__

FLANGE OPTION
IN =INTERNAL FLANGE

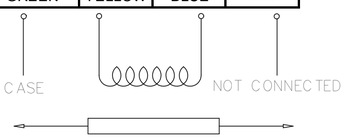
CORE OPTION
S = SLEEVED CORE
TM = THREADED CORE METRIC
TU = THREADED CORE UNIFIED
FF = FORCE FIT

STROKE LENGTH 'E' IN mm

CABLE OPTION
00 = 0.5m CABLE
01 = 1.0m CABLE
06 = 6.0m CABLE

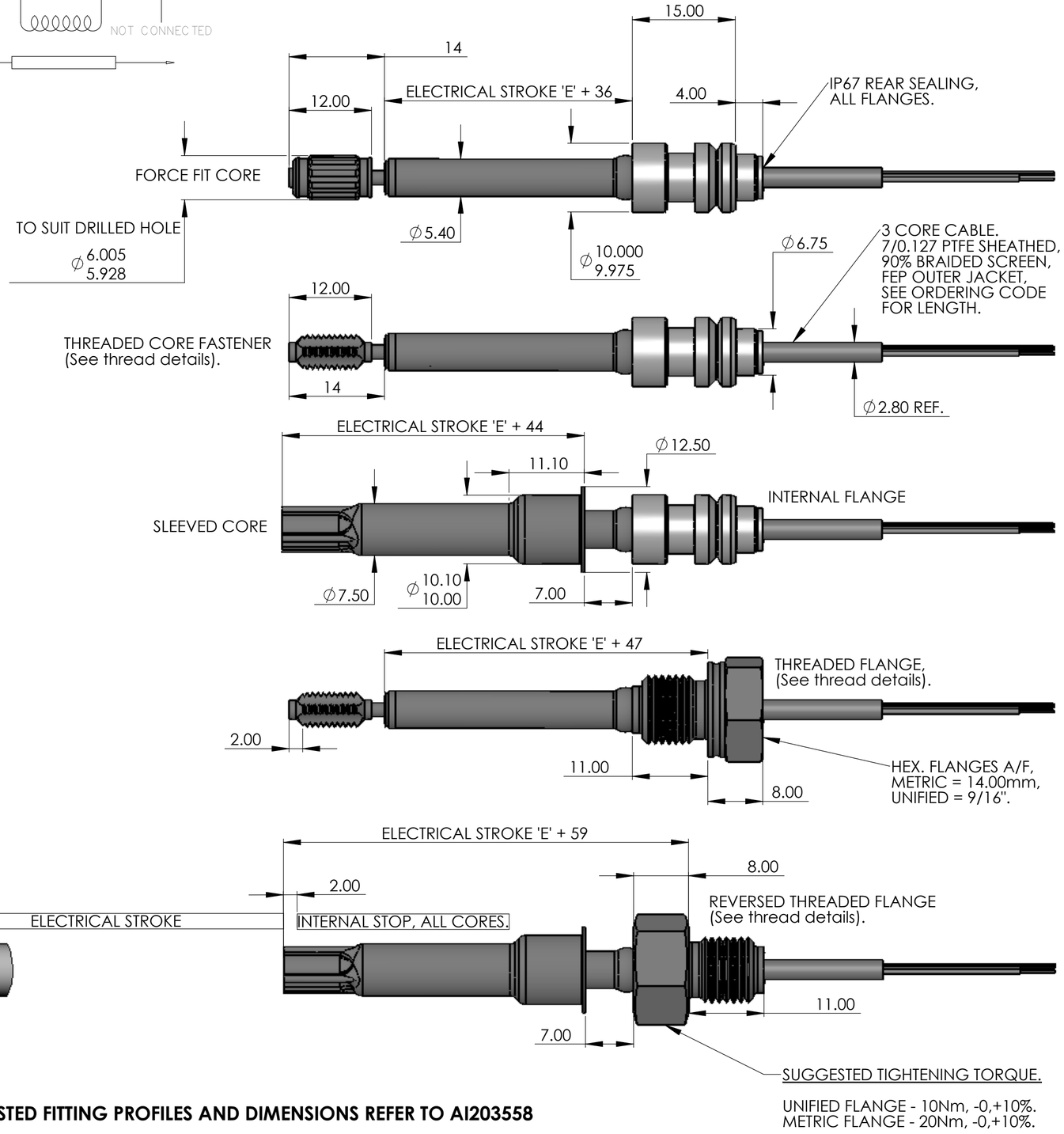
SCHEMATIC AND CONNECTION DETAILS

IDENTIFICATION	CASE	COIL	COIL	SCREEN
COLOUR	GREEN	YELLOW	BLUE	------



THREAD DETAILS		
THREADED & REVERSE	METRIC THREAD	UNIFIED THREAD
THREADED FLANGE	M10x1.0	3/8"-24 UNF
CORE ASSEMBLY	M5x0.8	.190-32 UNF

ISS	DATE	DRAWN	ECR No.	CHK	APP
7	06/10/08	R.S.	10426/14	I.HURST	I.HURST



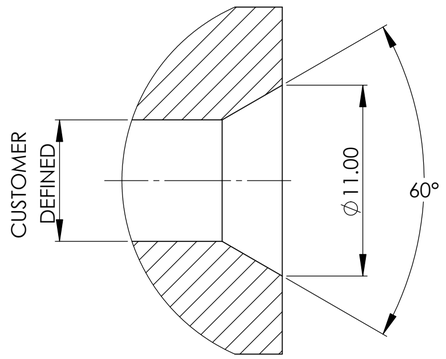
FOR SUGGESTED FITTING PROFILES AND DIMENSIONS REFER TO AI203558

SCALE UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.		D No.	MATERIAL	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (.-m) TO BS1134:PT2. ALL MACHINED SURFACES TO BE 1.6 ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H ANGULAR ± 1° - LINEAR 0, mm 0,0 mm 0,00mm 0,000mm (MACHINING) +/- 0,5 mm +/- 0,2 mm +/- 0,1mm +/- 0,01mm BREAK EDGE 0.05 - 0.15mm FILLET RADS 0.1 - 0.3mm UNLESS OTHERWISE STATED	TITLE IN CYLINDER TRANSDUCER	PENNY + GILES	A2
THIRD ANGLE PROJECTION TO BS 8888	MASS (g)	VOL. (mm³)	REF.	FINISH CLEAN			PART NUMBER: ICT050	SHT 1 OF 1 SHTS

METRIC
IF IN DOUBT ASK

ISS	DATE	DRAWN	ECR No.	CHK	APP
2A	29/01/09	DJT	10426/15	I.HURST	I.HURST

PISTON ROD END DETAIL TO ASSIST
BLIND LOADING OF LONGER STROKE
INTERNAL FLANGE OPTIONS



ITEM NO.	DESCRIPTION	P&G PART No.	QTY.
1	THIN NUT M5x0.8	X63-072-050	1
2	FULL NUT 0.190-32 UNF	X63-111-003	1
3	WAVEY WASHER - ELP2	X63-112-002	2
4	SHIM WASHER	P55044/3	1
5	CIRCLIP D1300-0130	X69-005-109	1
6	O'RING BROWN(7.65x1.63)	X64-194-114	1
7	O'RING (8.1x1.6)	X64-194-015	1
8	O'RING (7x2)	X64-194-016	1
9	ANTI EXTRUSION RING	X64-081-001	1
10	M3x0.5 CONICAL SET SCREW	X63-096-305	1
11	COPY OF AI203558	AI203558	1
12	LABEL (SUPPLIED LOOSE)	P200919	1
13	INSTALATION KIT LABEL	P204986	1
14	ALTERNATE CABLE GLAND SEAL	X61-213-202	1

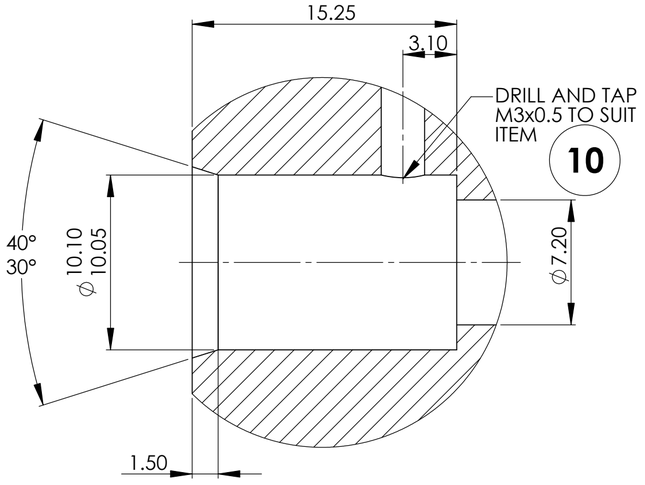
ITEM 12, LABEL, IS SUPPLIED FOR THE CUSTOMER TO RECORD ICT ORDERING CODE
AND TO BE FITTED IN VISIBLE LOCATION ADJACENT TO SENSOR FOR RE-ORDERING REFERENCE.

ITEM 14, ALTERNATE CABLE GLAND SEAL, IS SUPPLIED FOR CONNECTING ICT050 DIRECT TO EICTM.

BECAUSE OF THE MULTIPLICITY OF POTENTIAL APPLICATION, THE
INSTALLATION DETAILS SHOWN ARE SUGGESTIONS ONLY.
THE USER SHOULD ENSURE THAT THE DESIGN, METHOD OF ASSEMBLY
AND MATERIALS USED ARE SATISFACTORY FOR THE INSTALLATION.

INTERNAL FLANGE
MACHINING DETAILS

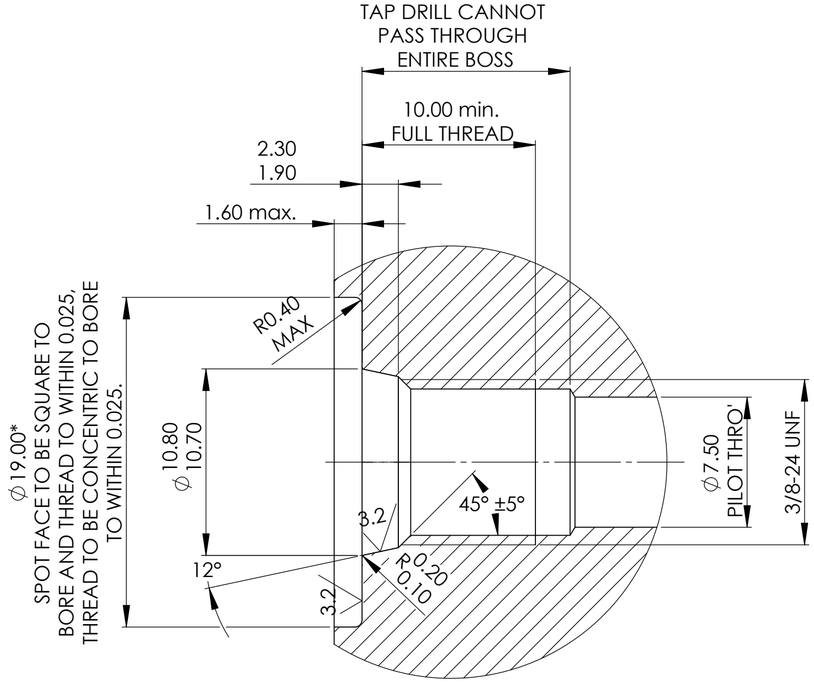
TO SEAL USE ITEMS (8) & (9)



MACHINING DETAILS FOR UNIFIED FLANGE.
PORT CONFORMS TO SAE J1926/1, CONNECTIONS FOR FLUID POWER AND GENERAL USE - PORTS AND STUD ENDS WITH ISO 725 THREADS AND O'RING SEALING - PART 1: THREADED PORTS WITH O'RING SEAL IN TRUNCATED HOUSING

SUITABLE PORT CUTTERS ARE AVAILABLE FOR THESE DETAILS.....

TO SEAL USE ITEM (6)

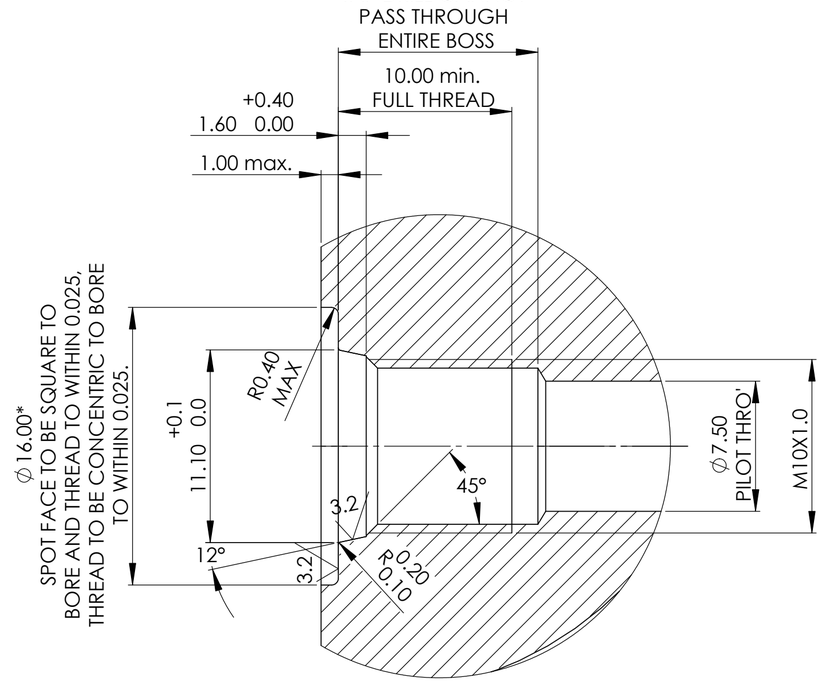


* IF FACE OF PORT IS MACHINED DIMENSIONS ø19.00 x 1.6 max NEED NOT APPLY AS LONG AS R0.2/0.1 IS MAINTAINED TO AVOID DAMAGE TO O-RING DURING INSTALATION.

MACHINING DETAILS FOR METRIC FLANGE.
PORTS CONFORM TO ISO 6149-1:1993, CONNECTIONS FOR FLUID POWER AND GENERAL USE - PORTS AND STUD ENDS WITH ISO 261 THREADS AND O'RING SEALING - PART 1: PORTS WITH O'RING SEAL IN TRUNCATED HOUSING

SUITABLE PORT CUTTERS ARE AVAILABLE FOR THESE DETAILS.....

TO SEAL USE ITEM (7)



* IF FACE OF PORT IS MACHINED DIMENSIONS ø16.00 x 1.00 max NEED NOT APPLY AS LONG AS R0.2/0.1 IS MAINTAINED TO AVOID DAMAGE TO O-RING DURING INSTALATION.

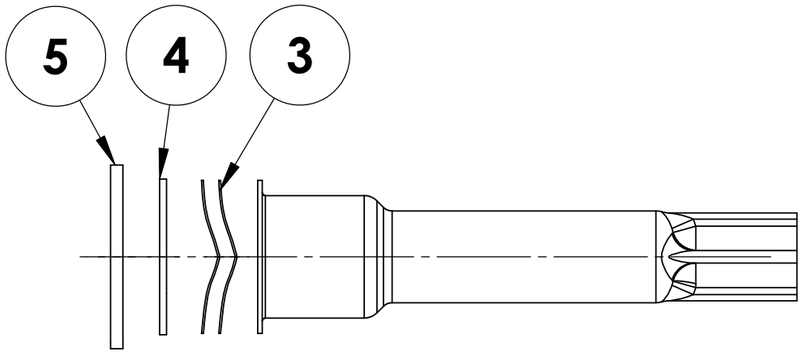
SCALE UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.	D No. ICT050	MATERIAL	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (.m) TO BS1134:PT2. ALL MACHINED SURFACES TO BE 1.6 ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H ANGULAR ± 1° / LINEAR 0. mm, 0.0 mm, 0.00mm, 0.000mm / (MACHINING) +/- 0.5 mm, +/- 0.2 mm, +/- 0.1mm, +/- 0.01mm / BREAK EDGE 0.05 - 0.15mm / FILLET RADS 0.1 - 0.3mm UNLESS OTHERWISE STATED	TITLE SUGGESTED ICT050 INSTALLATION DETAILS	PENNY + GILES	A2
THIRD ANGLE PROJECTION TO BS 8888	MASS (g) / VOL. (mm³)	REF. AI56140	FINISH		PART NUMBER: AI203558	SHT 1 OF 2 SHTS

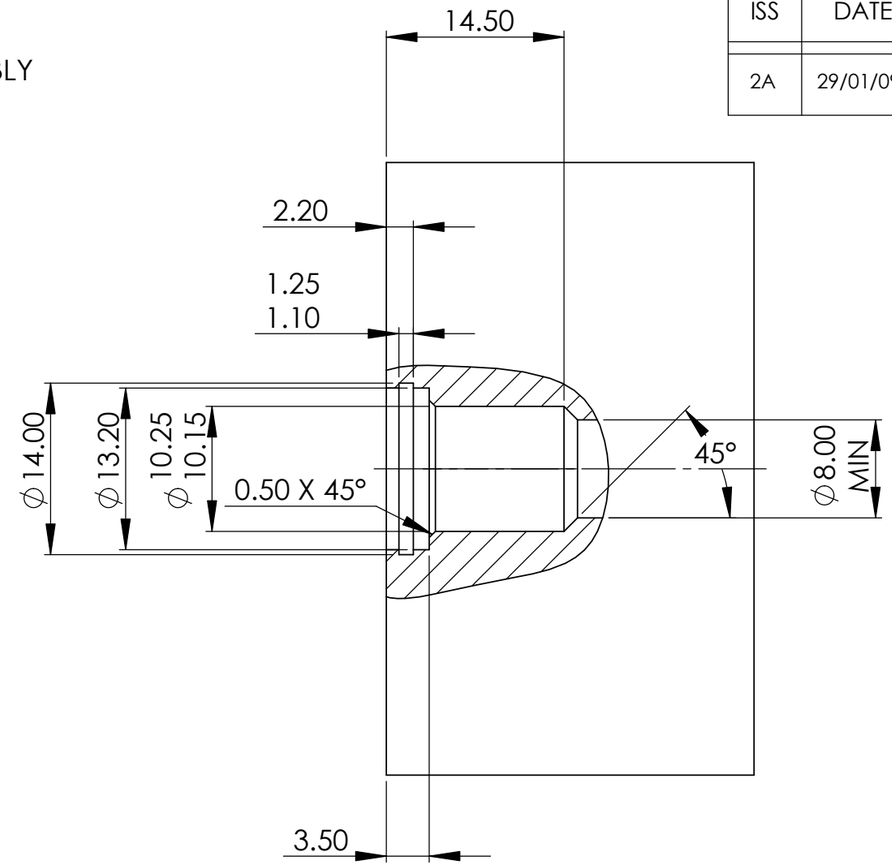
SolidWorks

METRIC
IF IN DOUBT ASK

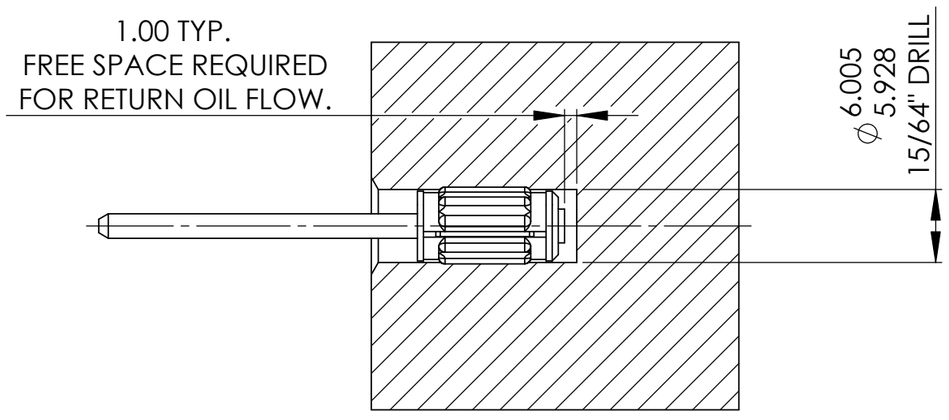
ISS	DATE	DRAWN	ECR No.	CHK	APP
2A	29/01/09	DJT	10426/15	I.HURST	I.HURST

SLEEVED CORE ASSEMBLY MACHINING DETAILS





FORCE FIT CORE MACHINING DETAILS



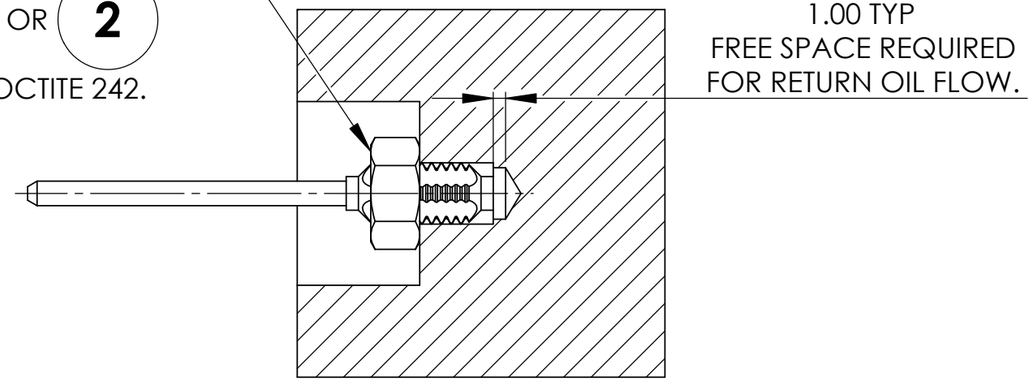
NOTE- INSTALATION TOOL
REQUIRED SEE P&G DRAWING T56726

THREADED CORE ASSEMBLY M5 x 0.8 OR 0.190-32 UNF

LOCK CORE ASSEMBLY WITH NUT

1 OR **2**

AND LOCTITE 242.



SCALE UNLESS STATED THIRD ANGLE PROJECTION TO BS 8888	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.	D No ICT050 FIRST USED ON	MATERIAL	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (μm) TO BS1134:PT2. ALL MACHINED SURFACES TO BE 1.6 ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H ANGULAR ± 1° LINEAR 0, mm 0,0 mm 0,00mm 0,000mm (MACHINING) +/- 0,5 mm +/- 0,2 mm +/- 0,1mm +/- 0,01mm BREAK EDGE 0.05 - 0.15mm FILLET RADS 0.1 - 0.3mm UNLESS OTHERWISE STATED	TITLE SUGGESTED ICT050 INSTALLATION DETAILS	**PENNY + GILES**	A3
	MASS (g) / VOL. (mm^3)	REF. AI56140	FINISH			PART NUMBER: AI203558	SHT 2 OF 2 SHTS