PRELIMINARY PRODUCT INFORMATION
SUBJECT TO REVISION - Ver.2 (Apr 2013)

Penny+Giles
A Curtiss-Wright Company

The ICT800 Contactless In-Cylinder Linear Transducer combines the best features associated with LVDTs and potentiometers into one rugged, contactless and highly reliable displacement transducer.

Signal conditioning is integrated into the transducer flange. Operating from 8 - 30Vdc or 5Vdc supply, the electronics provide an analogue voltage output signal of either 0.5-4.5Vdc or 0.2-4.8Vdc over the selected measurement range.

With a tranducer body diameter of only 8mm the **ICT800** is ideal for installation into hydraulic and pnematic cylinder applications where space is at a premium. The **ICT800** is ideal for use on small-bore actuators and offers a choice of internal or threaded external flange mounting configurations to suit tie-rod, welded and rear clevis-mounted cylinder types in stroke ranges **from 25 to 1000mm**.

Two core configurations also provide the designer the following options:
SLEEVED CORE - cylinder rods can be simply machined to accommodate the sleeve. This also gives the option of retro-fitting existing servo-cylinders with an upgrade to ICT technology.
THREADED CORE - provides the designer with the minimum transducer body size and simplified installation requiring minimal machining.

With no electrical sliding contacts, the **ICT800** has a working life which is almost limitless.

Key Features

- **Measurement range 25-1000mm**
- **Small transducer body length to stroke ratio**
- **12bit resolution**
- **Absolute measurement**
- **Working pressure to 670 Bar (10,000 psi)**
- **Temperature range -40 to +125°C**
- **Operates from 5Vdc or 8-30Vdc**
- **Analog output – 0.5-4.5Vdc or 0.2-4.8Vdc**
- **Flexible mounting styles**
- **Rugged stainless steel construction**

ICT800 ANALOG OUTPUT
IN-CYLINDER LINEAR TRANSDUCER

Innovation In Motion

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1	2	3	4	5	6

METRIC
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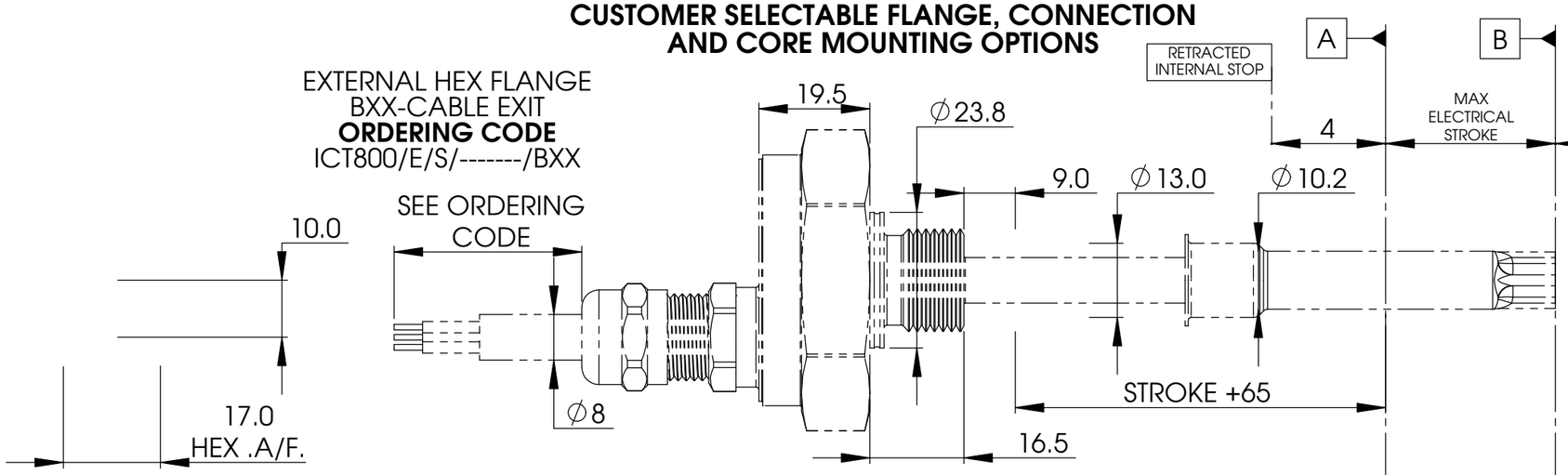
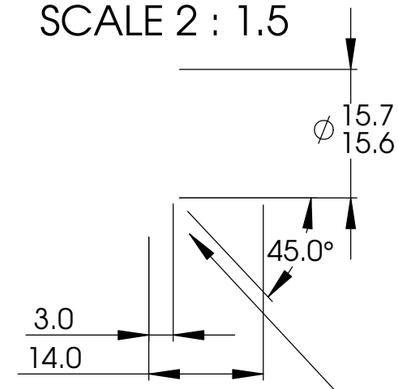
ISS	DATE	DRAWN	ECR No.	CHK	APP
5	28/02/13	S.H.	10835/7	M.B.	M.B.

CUSTOMER SELECTABLE FLANGE, CONNECTION AND CORE MOUNTING OPTIONS

EXTERNAL HEX FLANGE
BXX-CABLE EXIT
ORDERING CODE
ICT800/E/S/-------/BXX

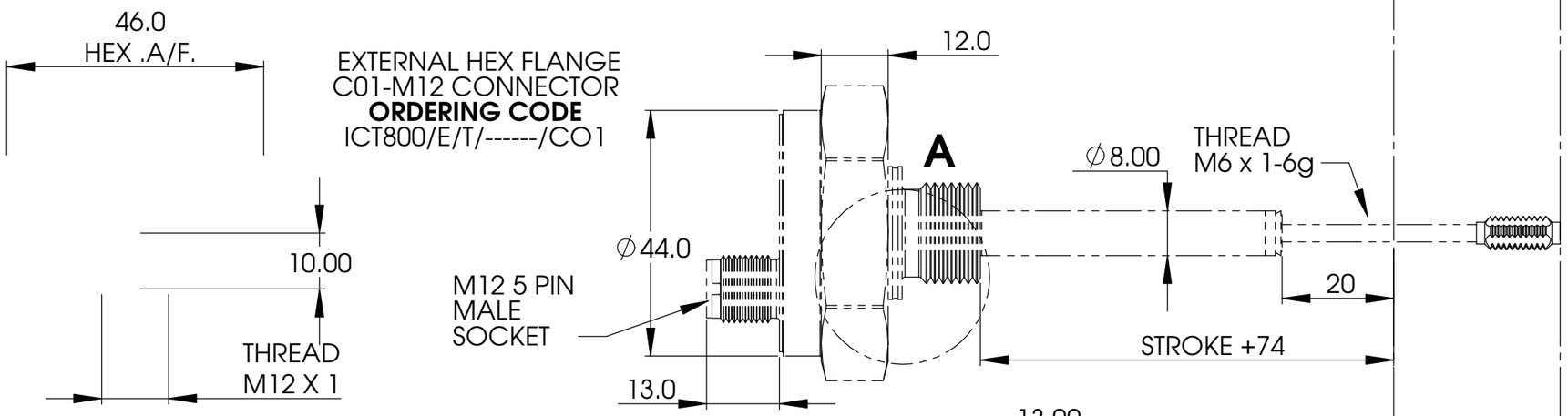


DETAIL A
SCALE 2 : 1.5

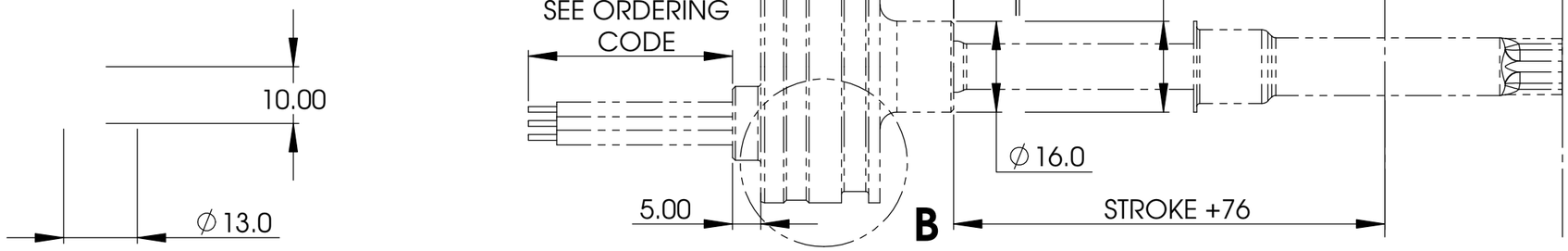


(THE DETAILS IN THIS REGION CONFORM TO ISO6149/2 M18 X 1.5 FOR WHICH PORT CUTTERS ARE AVAILABLE)

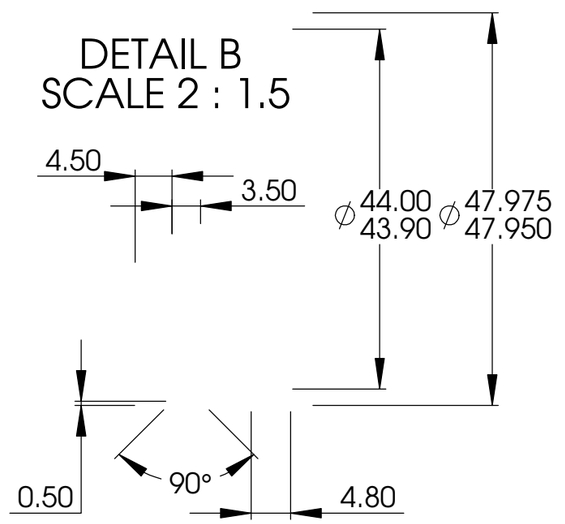
EXTERNAL HEX FLANGE
C01-M12 CONNECTOR
ORDERING CODE
ICT800/E/T/------/C01



INTERNAL FLANGE
FXX CABLE EXIT
ORDERING CODE
ICT800/I/S/-----/FXX



DETAIL B
SCALE 2 : 1.5



FOR SUGGESTED INSTALLATION DIMENSIONS, REFER TO AI209399

SCALE 1:1 UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.	D No ICT800 FIRST USED ON	MATERIAL STAINLESS STEEL	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (mm) 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	A3
THIRD ANGLE PROJECTION TO BS 8888	MASS (g) - / VOL. (mm^3) -	REF.	FINISH CLEAN			PART NUMBER: ICT800 / SHT 1 OF 3 SHTS

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PERFORMANCE

OUTPUT OPTIONS	(A1) 0.5 Vdc TO 4.5Vdc (A5) 0.2 Vdc TO 4.8Vdc
LOAD RESISTANCE	1K ΩMINIMUM (RESISTIVE TO GROUND)
OUTPUT NOISE	<1 mVrms
INPUT/OUTPUT DELAY	<10mS
FREQUENCY RESPONSE	100Hz @ -3dB
NON-LINEARITY	<± 0.1%
TEMPERATURE COEFFICIENT	<±300ppm/°C
SUPPLY VOLTAGE (Vdc)	8 TO 30Vdc UNREGULATED 5Vdc ±0.1Vdc REGULATED* *(OUTPUT WILL FOLLOW INPUT VARIATIONS)
OVER VOLTAGE PROTECTION	40Vdc MAX
MAXIMUM SUPPLY CURRENT	<80mA
REVERSE POLARITY PROTECTION	YES
SHORT CIRCUIT PROTECTION	YES ALL CONNECTIONS (EXCEPT VS SUPPLY TO OUTPUT 10V MAX)
POWER ON SETTLEMENT TIME	<1S
RESOLUTION	12 BITS
ACTUAL ELECTRICAL STROKE	= HIGH VOLTAGE POSITION – LOW VOLTAGE POSITION (SEE FIG 1)

ANALOGUE VOLTAGE OUTPUT OPTION A1 (0.5V – 4.5V)

VOLTAGE OUTPUT RANGE	ABSOLUTE VOLTAGE 0.5 TO 4.5Vdc OVER MEASUREMENT RANGE (±0.2%)

ANALOGUE VOLTAGE OUTPUT OPTION A5 (0.2V – 4.8V)

VOLTAGE OUTPUT RANGE	ABSOLUTE VOLTAGE 0.2 TO 4.8Vdc OVER MEASUREMENT RANGE (±0.2%)

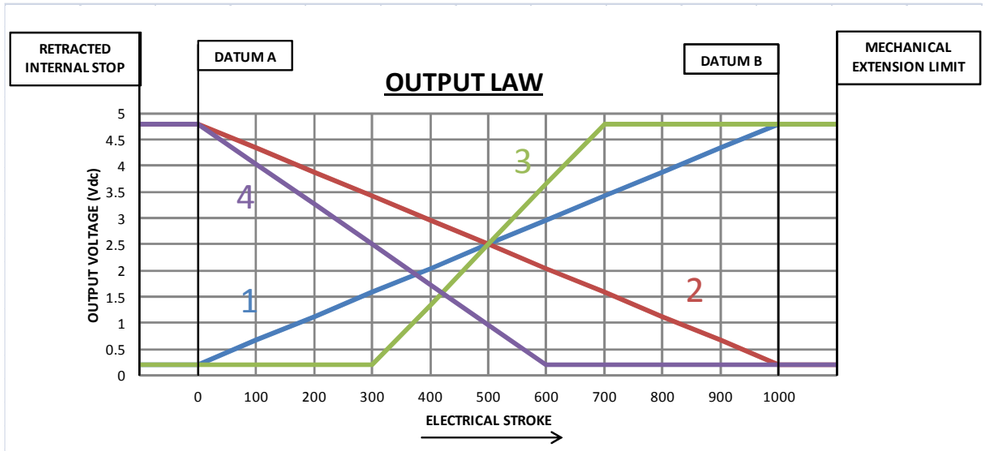
EMC	DIRECTIVE 2004/108/EC
OPERATIONAL TEMPERATURE RANGE	-40°C TO +125°C
STORAGE TEMPERATURE RANGE	-40°C TO +85°C
LIFE	CONTACTLESS
VELOCITY MAX	2m/s IN HYDRAULIC APPLICATIONS (ISO VG32 MINERAL OIL)
VIBRATION	BS EN 60068-2-64 (9 gn RMS)
SHOCK	2500g SURVIVAL
PRESSURE – WORKING	670 BAR
BURST	1000 BAR
PULSED	0 TO 470 BAR IN 1 SECOND (TESTED TO 100,000 CYCLES)
WORKING FLUIDS	COMPATIBLE WITH A WIDE RANGE OF HYDRAULIC FLUIDS – INCLUDING MINERAL, SYNTHETIC, FIRE RETARDANT AND ECO BASED FUILDS.
SEALING	FOR SEALING INFORMATION SEE SHEET 3.
MTTFd	203 YEARS

SEE ORDERING CODE
OUTPUT LAW EXAMPLE
FOR MAX ELECTRICAL STROKE
1000 mm SENSOR - A5 OUTPUT

	LOW VOLTAGE POSITION	HIGH VOLTAGE POSITION	ACTUAL ELECTRICAL STROKE
1	0000	1000	1000
2	1000	0000	1000
3	0300	0700	0400
4	0600	0000	0600

NOTE:
NON STANDARD
OUTPUT LAWS
AVAILABLE
I.E. SWITCH OUTPUTS

FIGURE 1



ORDERING CODE - ICT800/ -/ -/ ----/ ----/ ----/ --/ ---

FLANGE.....
I - INTERNAL
E - EXTERNAL

CORE OPTION.....
S - SLEEVE
T - THREADED

MAX ELECTRICAL STROKE..
25 mm TO 1000 mm
(25 TO 200 IN 5 mm INCREMENTS
210 TO 1000 IN 10 mm INCREMENTS)

LOW VOLTAGE OUTPUT POSITION FROM DATUM A.....
DEFAULT - 0000 mm (SEE FIG 1)

HIGH VOLTAGE OUTPUT POSITION FROM DATUM A.....
DEFAULT - MAX ELECTRICAL STROKE (SEE FIG 1)

OUTPUT.....
A1 - 0.5V TO 4.5V
A5 - 0.2V TO 4.8V

CONNECTIONS.....
SEE CONNECTOR + CABLE CONNECTIONS
C01 - M12 CONNECTOR
BXX - CABLE GLAND + CABLE LENGTH
FXX - FLYLEADS + LENGTH

NOTE: FOR OPTIMUM PERFORMANCE SUPPLY GROUND NEEDS TO BE CONNECTED TO SENSOR CASE OR SENSOR CASE CONNECTED TO SYSTEM GROUND

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SCALE / UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.		D No ICT800 FIRST USED ON	MATERIAL /	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (mm) 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 +/- 0,5 mm; 0,0 mm +/- 0,2 mm; 0,00mm +/- 0,1mm; 0,000mm +/- 0,01mm (MACHINING) BREAK EDGE 0.05 - 0.15mm FILLET RADS 0.1 - 0.3mm UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION TO BS 8888	MASS (g) /	VOL. (mm^3) /	REF. /	FINISH /	

TITLE
IN CYLINDER
TRANSDUCER

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PART NUMBER:
ICT800

SHT 2 OF 3 SHTS

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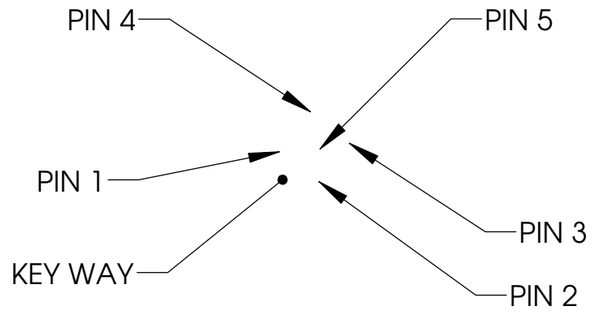
CONNECTOR AND CABLE CONNECTIONS

C01 - M12 CONNECTOR - IP67

DETAIL D
SCALE 2 : 1

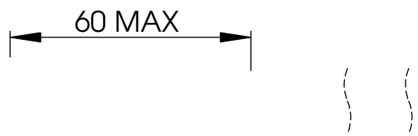
D



PIN 1	VOUT
PIN 2	VSUPPLY
PIN 3	GROUND
PIN 4	N/C
PIN 5	N/C

MATING CONNECTOR AVAILABLE

SA210517/MK1 = 1 m LONG
SA210517/MK5 = 5 m LONG
SA210517/MK10 = 10 m LONG

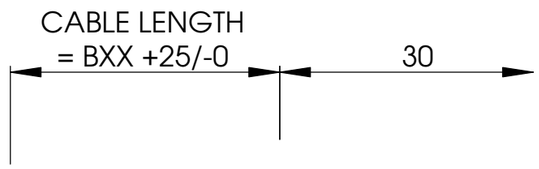


E

BXX - CABLE - IP69K

WIRE CONNECTIONS

BLUE WIRE: N/C
BROWN WIRE: VSUPPLY
BLACK WIRE: VOUT
WHITE WIRE: N/C
GREY: GROUND



ORDERING CODES
B01 = 01 m CABLE MIN
B06 = 06 m CABLE MAX
IN 1 m INCREMENTS

DETAIL E
SCALE 2 : 1.5

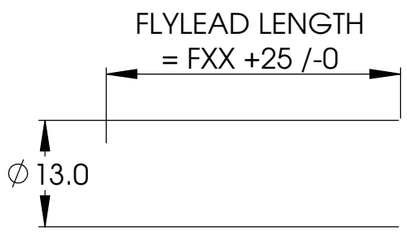
C

FXX - FLYLEADS - IP66

ORDERING CODES
FP2 = 200 mm FLYLEADS
FP5 = 500 mm FLYLEADS
F01 = 1 m FLYLEADS

WIRE CONNECTIONS

BLUE WIRE: N/C
BROWN WIRE: VSUPPLY
BLACK WIRE: VOUT
RED WIRE: N/C
GREEN WIRE: GROUND



DETAIL C
SCALE 2 : 1

ICT800 MATERIALS USED

ALL VARIANTS:

STAINLESS STEEL 316 -
BODY (CASE)
SLEEVE
GUIDE TUBE

STAINLESS STEEL 303 -
FLANGE

ALLOY 52 -
CORE

HNBR-
'O'-RINGS

BXX OPTION:

NICKLE PLATED BRASS -
CABLE GLAND

FPM -
CABLE GLAND SEAL

PUR/PVC -
CABLE

C01 OPTION:

PA66
CONNECTOR INSERT

NBR
'O' RING

FXX OPTION:

SILICONE RUBBER -
CABLE
SEAL

SCALE 1:1.5 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 ICT800 FIRST USED ON	MATERIAL /	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (mm) TO BS1134:PT2. ALL MACHINED SURFACES TO BE 1.6 ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H	TITLE IN CYLINDER TRANSDUCER
	MASS (g) /	VOL. (mm^3) /	REF. /	FINISH /	ANGULAR ± 1° · LINEAR 0, mm +/- 0,5 mm; 0,0 mm +/- 0,2 mm; 0,00mm +/- 0,1mm; 0,000mm +/- 0,01mm · (MACHINING) · BREAK EDGE 0.05 - 0.15mm · FILLET RADS 0.1 - 0.3mm UNLESS OTHERWISE STATED	PART NUMBER: ICT800

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A3

SHT 3 OF 3 SHTS

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