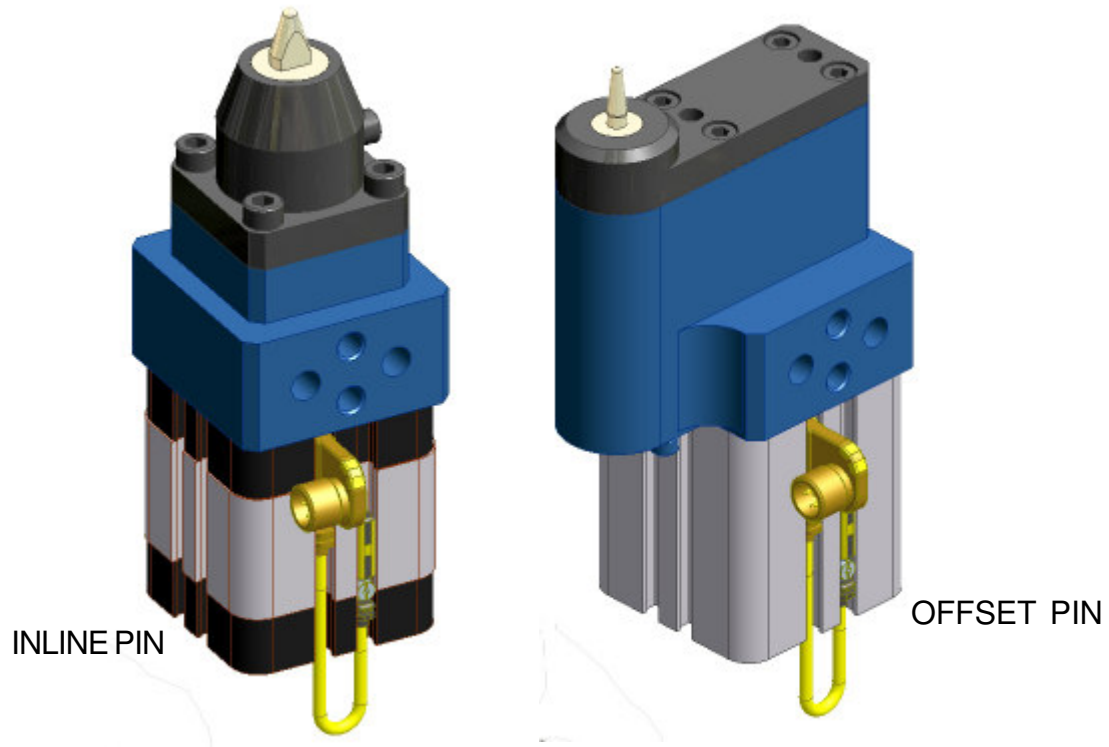


## WELKER MINI-PIN



### **MAXIMIZES ACCESS TO PRIMARY LOCATING POINTS ON STAMPED PARTS**

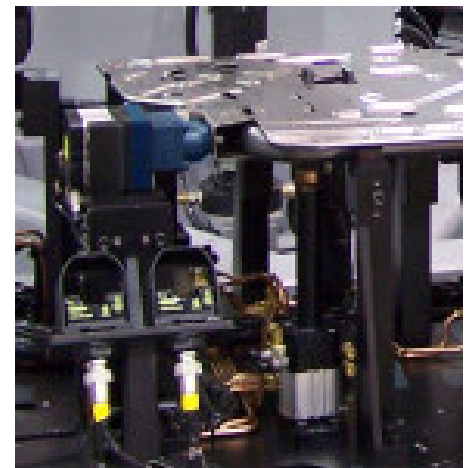
Inline or offset locating pin mounting  
Reduces weld spot obstructions

### **IMPROVES TOOL EFFICIENCY AND THRU-PUT**

Reduces cycle time  
Provides repeatable, precision part location  
Aids in mistake proofing process

### **REDUCES TOOL COMPLEXITY AND COST**

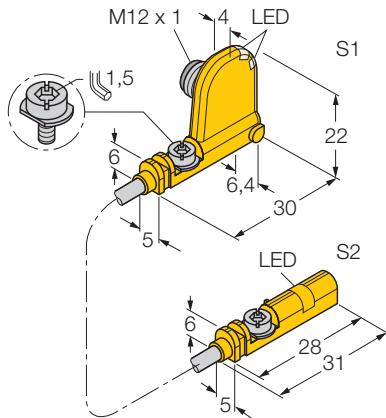
Fixed net surface & primary locators are combined into one component  
Provides versatile standard mounting options  
Reduces robot payload requirements



**CAD data available at [www.welkerproducts.com](http://www.welkerproducts.com)**

# magnetic field sensor for pneumatic cylinders

## BIM-UNT-0,1-UNT-2AP6X3-H1141



- for T-groove cylinders without mounting accessories
- Optional accessories for mounting on other cylindrical housings.
- One-hand mounting possible
- Direct mounting of fine adjustment and stopper on the sensor
- stable mounting
- Optimum for monitoring two switching points on a cylinder
- No Y-junction required
- magneto-resistive sensor
- 2 x normally open, pnp output
- 4-wire DC, 10...30 VDC

<b>Type</b>	BIM-UNT-0,1-UNT-2AP6X3-H1141
Ident-No.	4685734

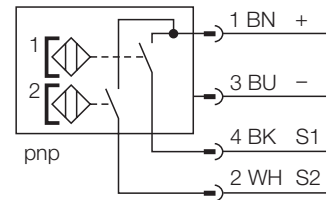
<b>Ambient temperature</b>	-25...+ 70 °C
----------------------------	---------------

<b>Operating voltage</b>	10... 30 VDC
Residual ripple	≤ 10 % $U_{ss}$
DC rated operational current	≤ 150 mA
No-load current $I_0$	≤ 30 mA
Residual current	≤ 0.1 mA
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes / cyclic
Voltage dip at $I_e$	≤ 1.8 V
Wire breakage / Reverse polarity protection	yes / complete
Output function	4-wire, normally open, pnp
Switching frequency	≤ 1 kHz

<b>Housing</b>	rectangular, UNT
Dimensions	30 x 5 x 22 mm
Housing material	plastic, PP
Material active area	plastic, PP
Connection	Connector, M12 x 1
Cable quality	Ø 3, grey, Lif9Y-11Y, PUR, 0.1 m
Cable cross section:	3 x 0.14 mm <sup>2</sup>
Vibration resistance	55 Hz (1 mm)
Shock resistance	30g (11 ms)
Degree of protection	IP67

<b>Operating voltage display</b>	LED green
Display switch state	2 x LED yellow / yellow
Included in scope of supply	2x cable clip

### Wiring diagram

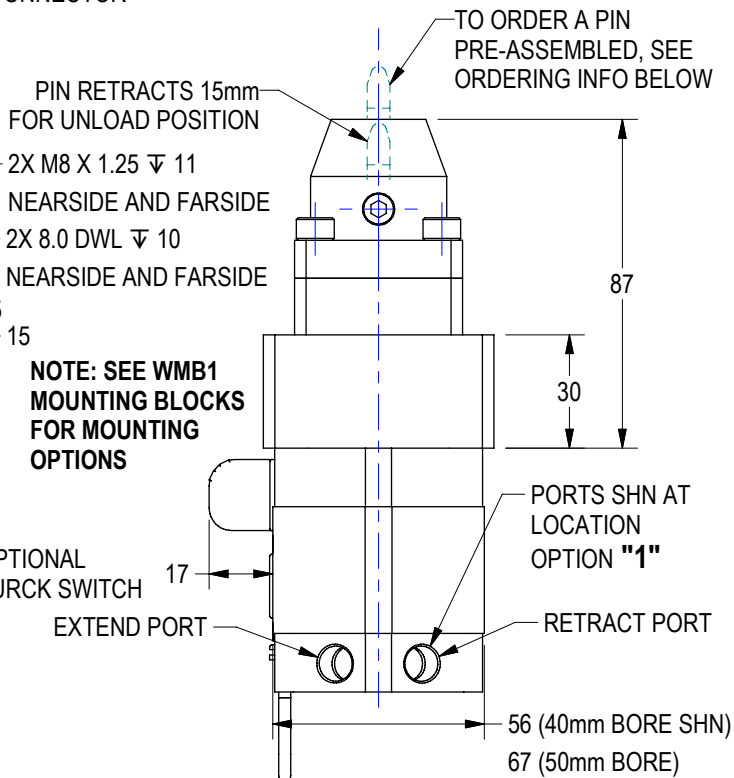
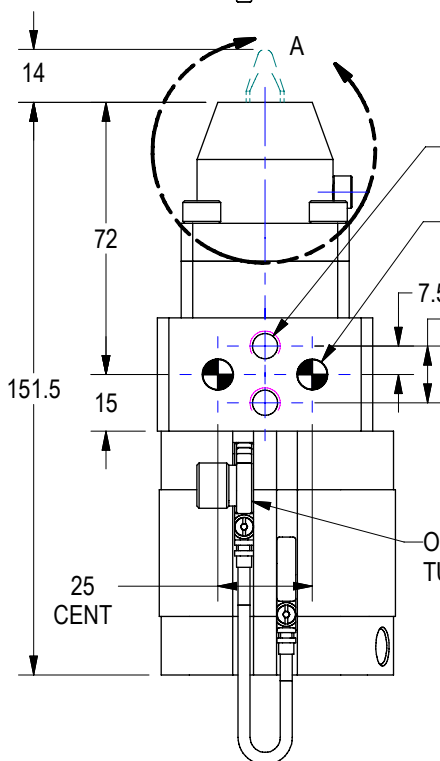
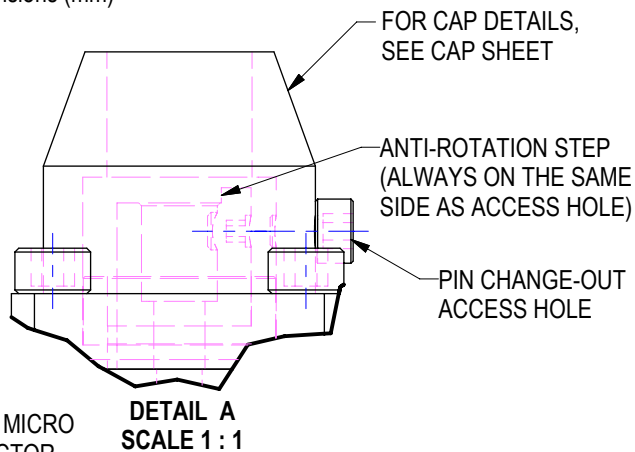
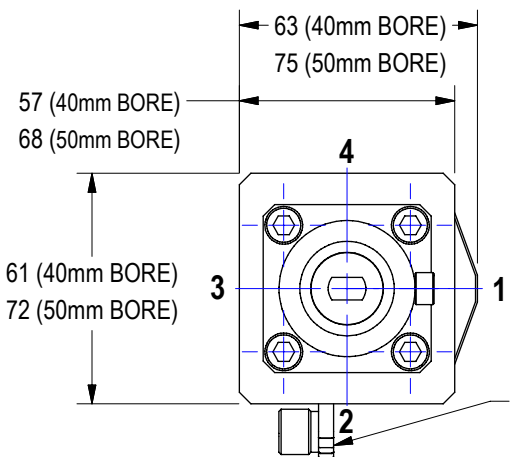


### Functional principle

Magnetic field sensors are activated by magnetic fields and are especially suited for piston position detection in pneumatic cylinders. Based on the fact that magnetic fields can permeate non-magnetizable metals, it is possible to detect a permanent magnet attached to the piston through the aluminium wall of the cylinder.

# IN LINE MINI PIN ORDERING SHEET

All Dimensions (mm)



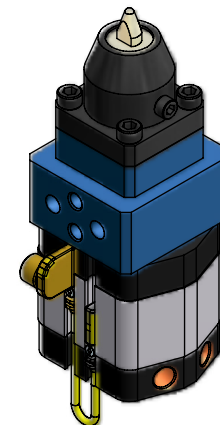
**WRP1 40 P 1 1 C2 A R 4 A 09.00 B 06.00**

- Model** \_\_\_\_\_
- Bore Size**  
40 40mm or 50mm
- Cylinder Type**  
P Pneumatic
- Port Type**  
1 1=1/8 NPT, 2=1/8G
- Port Location**  
1 1, 2, 3, 4
- Cap Type (See Cap sheet for Cap Info)**  
C2 Pin Dia's 6.0mm-12.7mm  
C3 Pin Dia's 12.8mm-18.9mm  
C3 Pin Dia's 12.8mm-18.9mm  
C4 Pin Dia's 19.0mm-25.3mm
- Switch Type**  
A A=Turck Cylinder Switch, X=None

ADD PIN NUMBER AS SHOWN TO ORDER PIN PRE-ASSEMBLED. SEE PIN ORDER SHEET FOR COMPLETE PIN INFORMATION. (LEAVE BLANK FOR NO PIN)

ORDER EXAMPLE WITH NO PIN:  
WRP140P11C2A

ORDER EXAMPLE WITH PRE-ASSEMBLED PIN:  
WRP140P11C2AR4A09.00B06.00

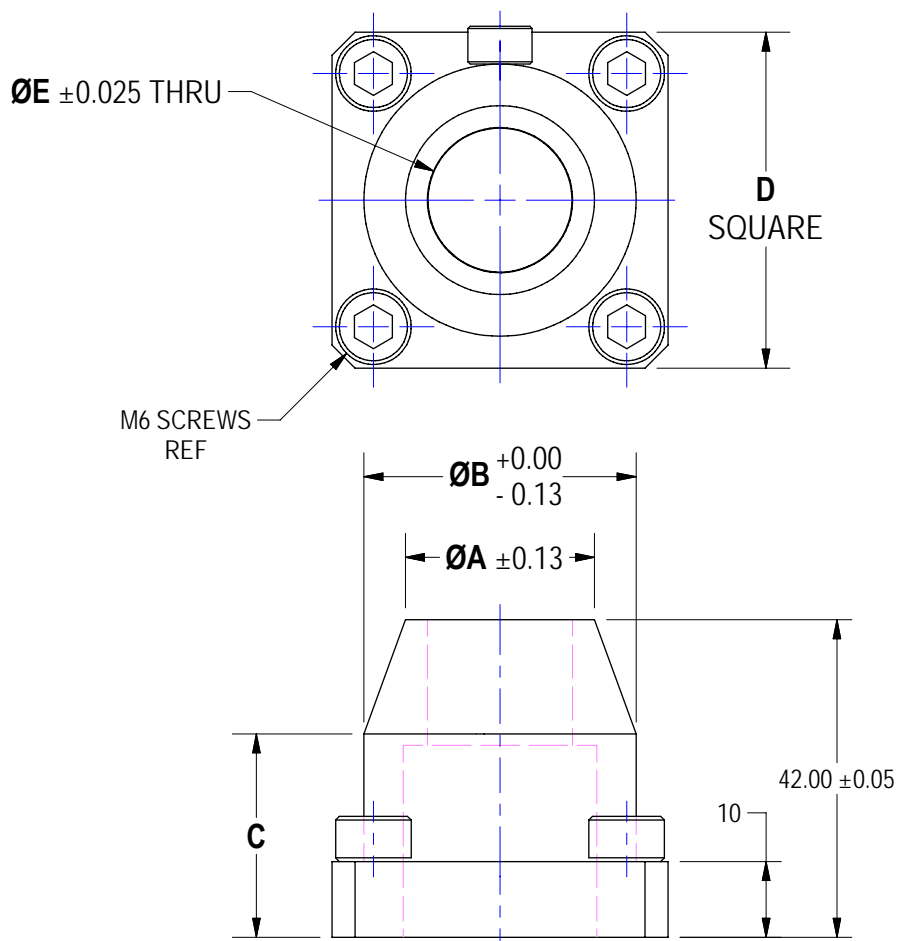


(DO NOT SCALE DRAWING)

SEE PIN SHEETS TO ORDER PINS SEPARATELY

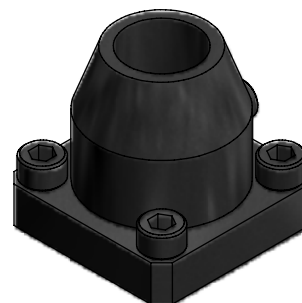
# IN LINE RETRACT MINI PIN CAP SHEET

All Dimensions (mm)



BORE (mm)	CAP SIZE	A	B	C	D	E	SPARE CAP ORDER NUMBER
40	C2	17.53	36.00	26.0	44.5	12.852	RP140004
40	C3	24.99	36.00	26.9	44.5	19.202	RP140005
50	C3	26.19	57.20	23.5	63.0	19.202	RP150004
50	C4	33.15	57.20	24.9	63.0	25.552	RP150005

MATERIAL: A2 TOOL STL  
 HARDNESS: 52-56 R/C  
 WELD SPATTER RESISTANT FINISH



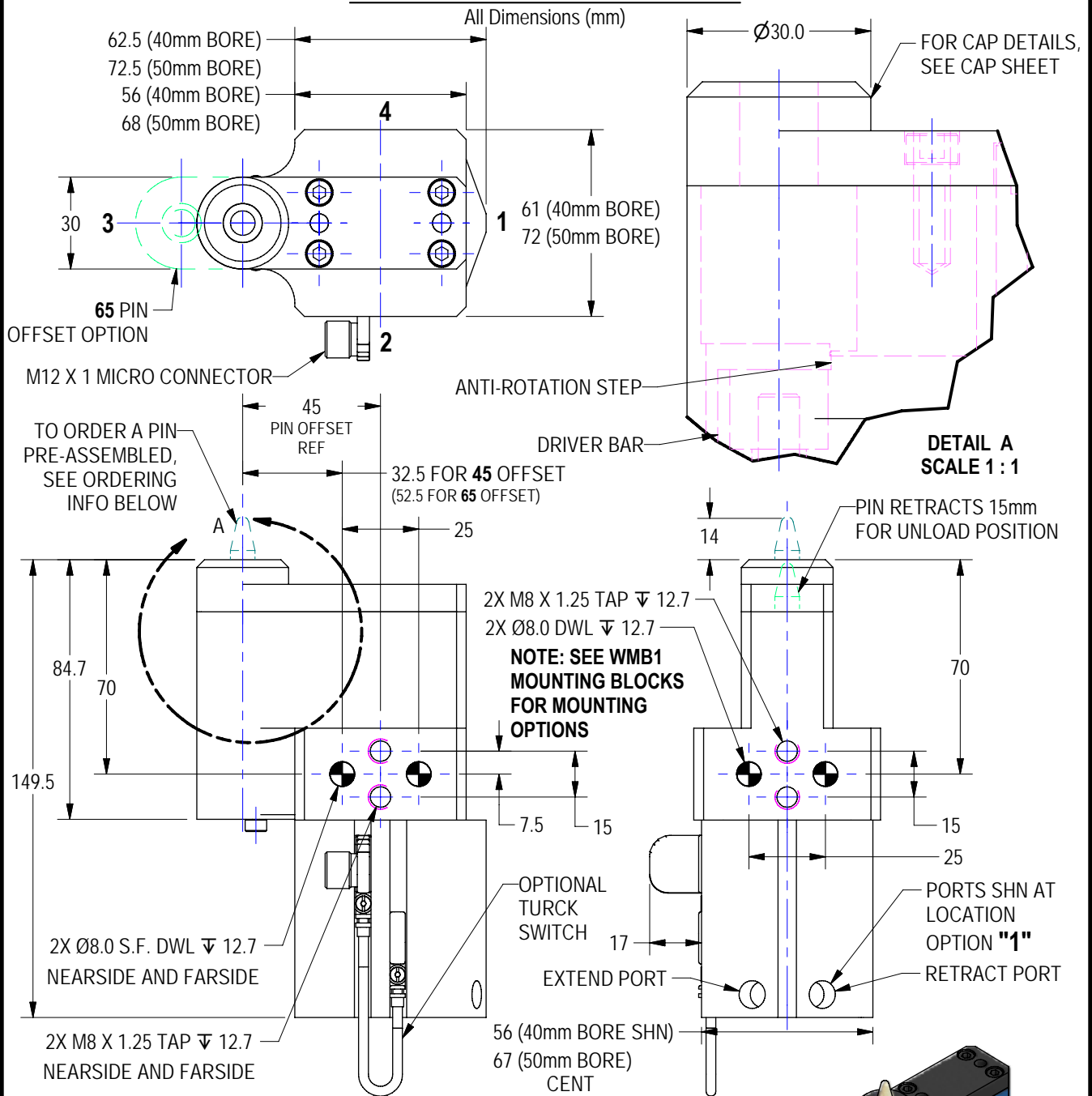
(DO NOT SCALE DRAWING)



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# OFFSET MINI PIN ORDERING SHEET



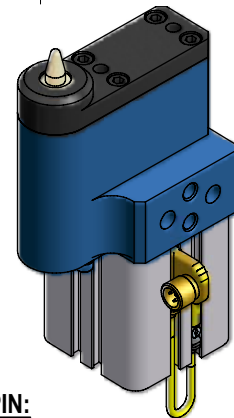
**WOP1 40 P 1 1 45 C2 A F 4 A 09.00 B 06.00**

- Model** \_\_\_\_\_
- Bore Size**  
40 40mm or 50mm
- Cylinder Type**  
P Pneumatic
- Port Type**  
1 1=1/8 NPT, 2=1/8G
- Port Location**  
1 1, 2, 3, 4
- Pin Offset**  
45 Pin Offset: 45mm or 65mm (40mm Bore)  
(65mm for 50mm Bore Only)
- Cap Type**  
C1 Pin Dia's 6.0mm-9.5mm  
C2 Pin Dia's 6.0mm-12.7mm  
C3 Pin Dia's 12.8mm-18.9mm
- Switch Type**  
A A=Turck Cylinder Switch, X=None

ADD PIN NUMBER AS SHOWN TO ORDER PIN PRE-ASSEMBLED. SEE PIN ORDER SHEET FOR COMPLETE PIN INFORMATION. (LEAVE BLANK FOR NO PIN)

**ORDER EXAMPLE WITH NO PIN:**  
**WOP140P1145C2A**

**ORDER EXAMPLE WITH PRE-ASSEMBLED PIN:**  
**WOP140P1145C2AF4A09.00B06.00**



(DO NOT SCALE DRAWING)

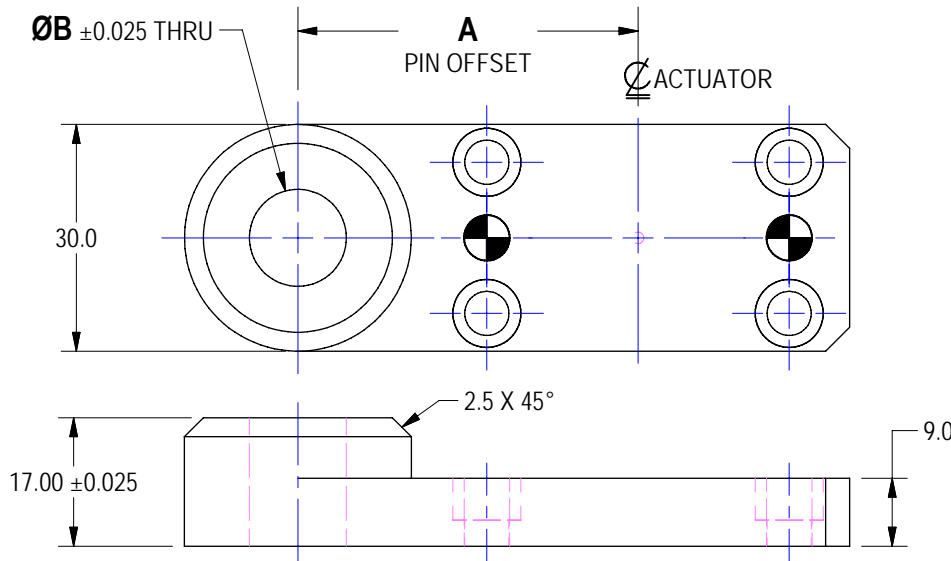
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SEE PIN SHEETS TO ORDER PINS SEPARATELY

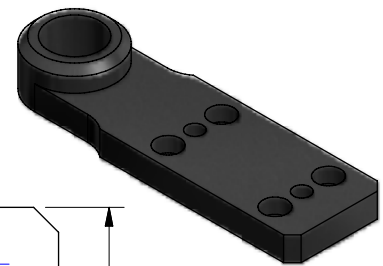
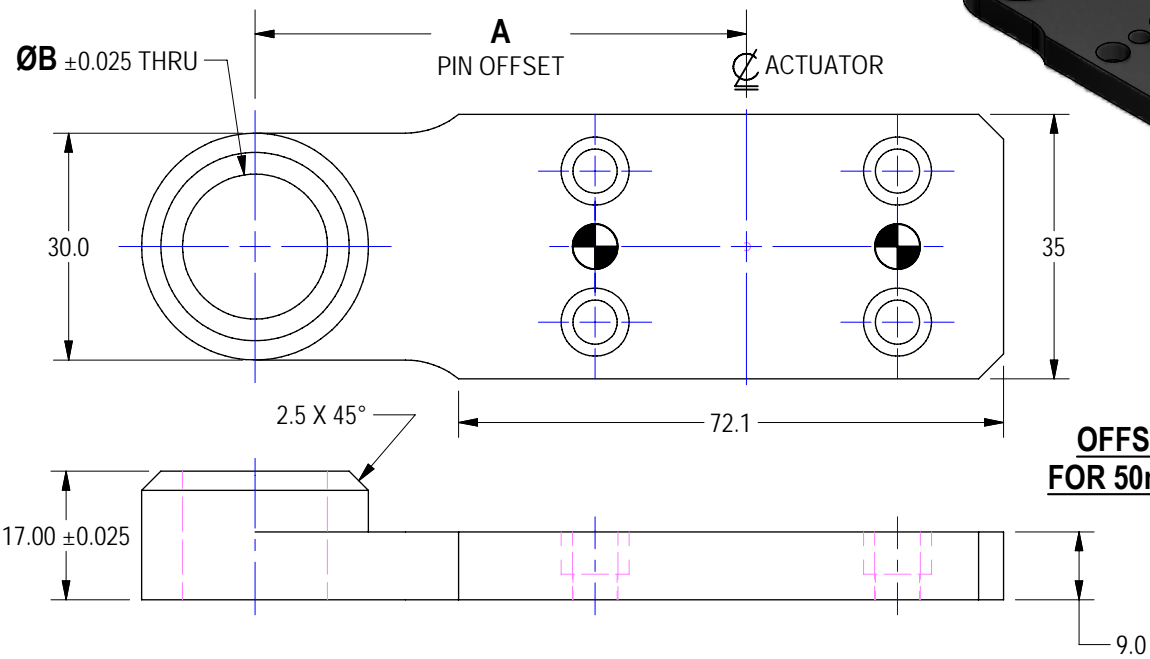
SHEET 3

# OFFSET RETRACT MINI PIN CAP SHEET

All Dimensions (mm)



**OFFSET CAP  
FOR 40mm BORE**



**OFFSET CAP  
FOR 50mm BORE**

BORE (mm)	CAP SIZE	A	B	SPARE CAP ORDER NUMBER
40	C1	45	9.652	OP1404505
40	C2	45	12.827	OP1400506
40	C3	45	19.177	OP1400507
40	C1	65	9.652	OP1406505
40	C2	65	12.827	OP1406506
40	C3	65	19.177	OP1406507
50	C1	65	9.652	OP1506505
50	C2	65	12.827	OP1506506
50	C3	65	19.177	OP1506507

MATERIAL: A2 TOOL STL  
HARDNESS: 52-56 R/C  
WELD SPATTER RESISTANT FINISH

NOTE: 45 OFFSET NOT AVAILABLE FOR 50mm BORE

(DO NOT SCALE DRAWING)

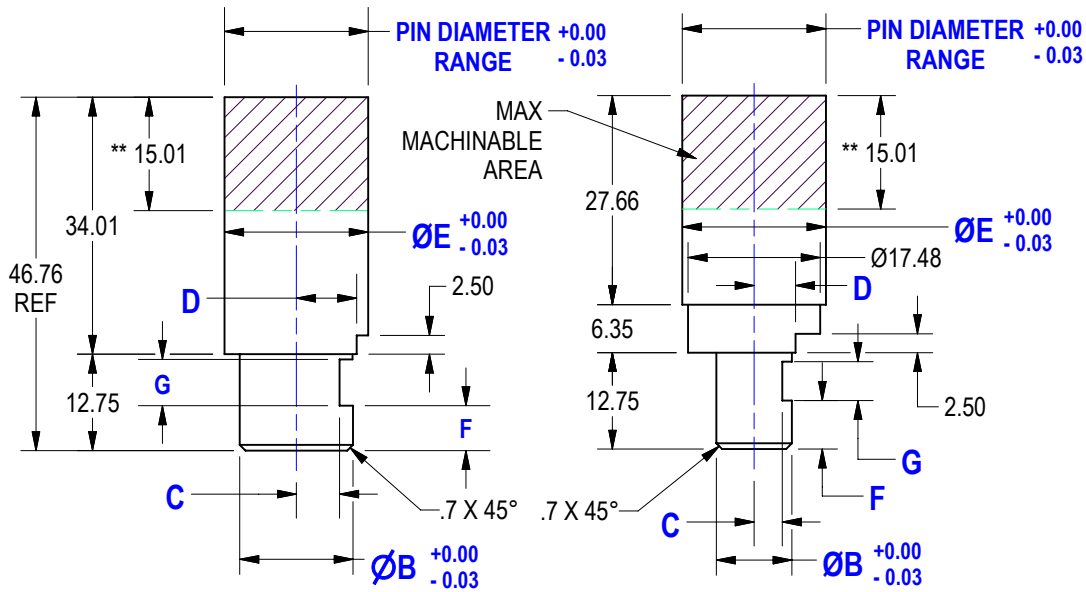
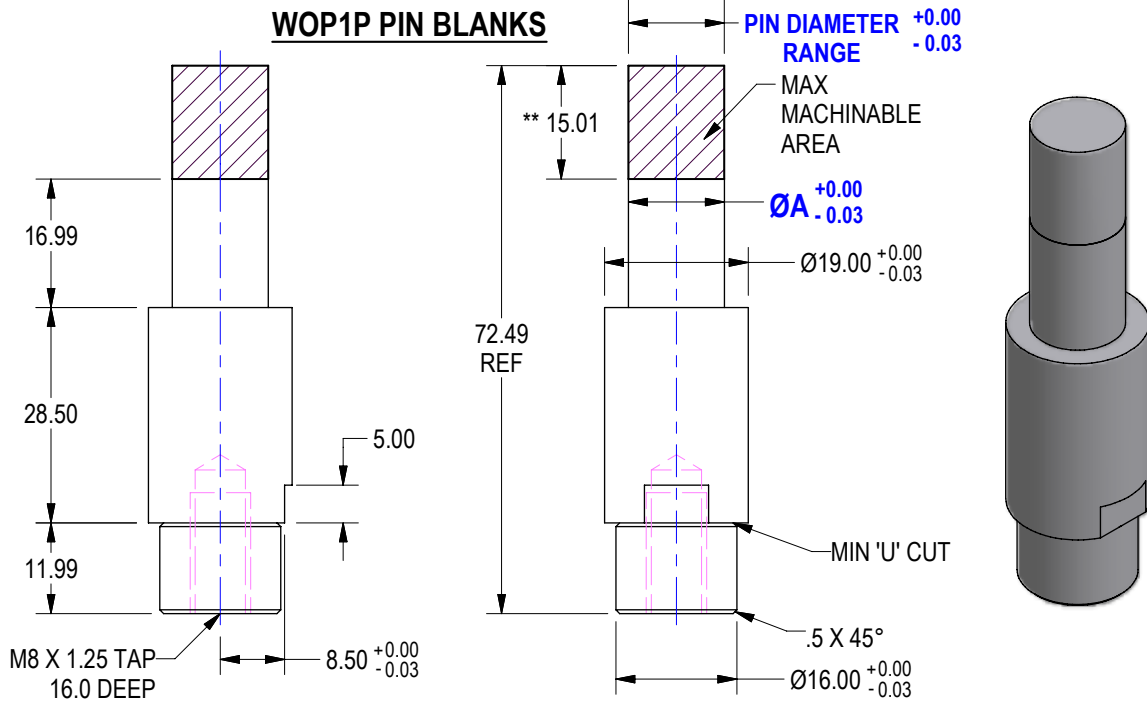


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# PIN BLANK ORDERING SHEET

All Dimensions (mm)



## WRP1P PIN BLANKS EXCEPT WRP1P-40C3-BLANK

## WRP1P-40C3-BLANK ONLY

\*\*GAGE DIAMETER LENGTHS  
NOT TO EXCEED THIS DIM

Ref Cap	Pin Blank Number	A	B	C	D	E	F	G	Pin Dia Range	Notes
	WOP1PC1BLANK	9.53	--	--	--	--	--	--	6mm-12.7mm	For 40mm or 50mm Bore
	WOP1PC2BLANK	12.70	--	--	--	--	--	--	9.5mm-12.7mm	For 40mm or 50mm Bore
	WOP1PC3BLANK	19.00	--	--	--	--	--	--	12.8mm-18.9mm	For 40mm or 50mm Bore
RP140004	WRP1P40C2BLANK	--	10.01	3.73	5.47	12.70	6.43	5.13	6mm-12.7mm	40mm Bore
RP140005	WRP1P40C3BLANK	--	10.01	3.73	5.47	19.00	6.43	5.13	12.8mm-18.9mm	SEE ABOVE DWG
RP150004	WRP1P50C3BLANK	--	14.99	5.72	7.98	19.00	5.94	6.13	12.8mm-18.9mm	50mm Bore
RP150005	WRP1P50C4BLANK	--	14.99	5.72	7.98	25.35	5.94	6.13	19mm-25.3mm	50mm Bore

**NOTE:** PIN BLANKS ORDERED THROUGH WELKER ARE A2 TOOL STEEL WITH HEAT TREAT: 52-56 R/C THROUGH HARDEN AND BLACK OXIDED

(DO NOT SCALE DRAWING)

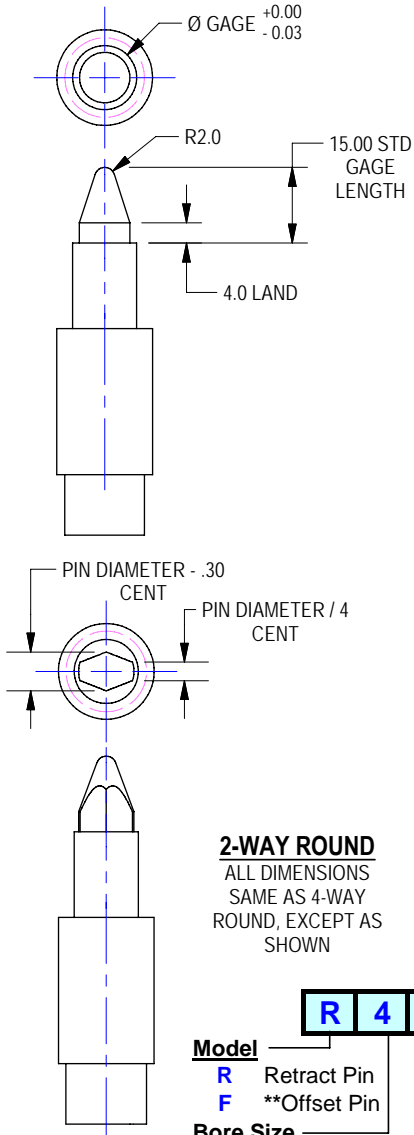
TOLERANCES (mm)	
3 PLACE	± 0.030 (.0010")
2 PLACE	± 0.12 (.005")
1 PLACE	± 0.50 (.020")
ANGLE	± .5°

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# FINISHED PIN ORDERING SHEET

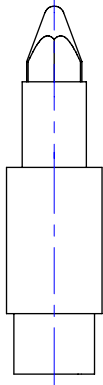
All Dimensions (mm)

## 4-WAY ROUND

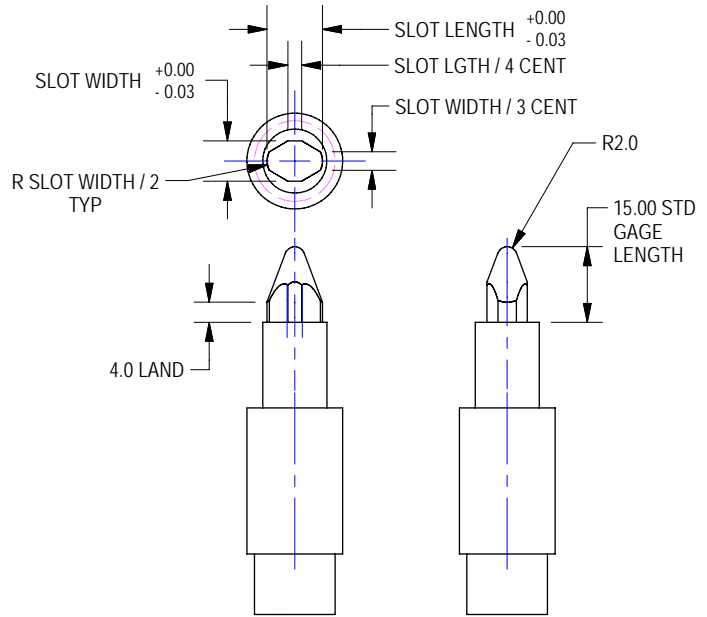


## 2-WAY ROUND

ALL DIMENSIONS SAME AS 4-WAY ROUND, EXCEPT AS SHOWN

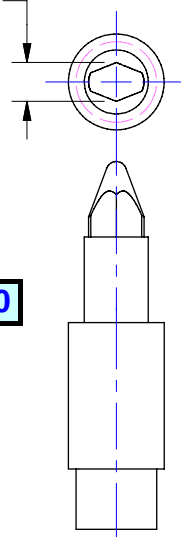


## 4-WAY SLOT



## 2-WAY SLOT

ALL DIMENSIONS SAME AS 4-WAY SLOT, EXCEPT AS SHOWN



**R 4 A 09.00 B 06.00**

### Model

- R** Retract Pin
- F** \*\*Offset Pin

### Bore Size

- 4** 40mm Bore
- 5** 50mm Bore

### Pin Type

- A** 4-Way Round
- B** 4-Way Slot
- C** 2-Way Round
- D** 2-Way Slot

### \*\*Pin Diameter (or Slot Length)

- 09.00** 6mm - 25mm  
(4) Places with Decimal

### Slot Pin Orientation

- A** 0° (Slot Width Parallel to Mnt'g Surface)
- B** 90° (Slot Width 90° to Mnt'g Surface)
- X** No Slot

### Slot Width

- 06.00** 6mm - 25mm (4) Places with Decimal  
For Pin Types **B, C, D** Only
- 00.00** No Slot

\*\*Max Diameter & Slot Length for Offset Pin is 19.00

### SPECIFICATIONS:

MATERIAL: A2 TOOL STEEL  
HEAT TREAT: 52-56 R/C THROUGH  
WELD SPATTER FREE FINISH

### NOTES:

SEE PIN BLANK DIMENSIONAL SHEET FOR ALL OTHER DIMENSIONS AND PIN DIAMETER RANGES

(DO NOT SCALE DRAWING)

TOLERANCES (mm)	
3 PLACE	± 0.03 (.001")
2 PLACE	± 0.10 (.005")
1 PLACE	± 0.50 (.020")
ANGLE	± .5°



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Model No.	Hole "A"		Hole "B"	
	Type	mm	Type	mm
WMB1-CM-F2-02	SF Dowel	8.00	Drilled Thru	11.00
WMB1-CM-F2-03	Drilled Thru	11.00	SF Dowel	8.00
WMB1-TM-F2-02	SF Dowel	8.00	Tapped Thru	M10x1.5
WMB1-TM-F2-03	Tapped Thru	M10x1.5	SF Dowel	8.00

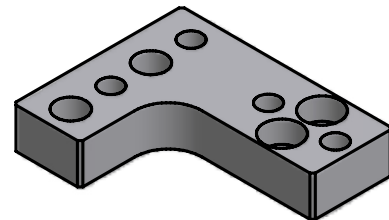
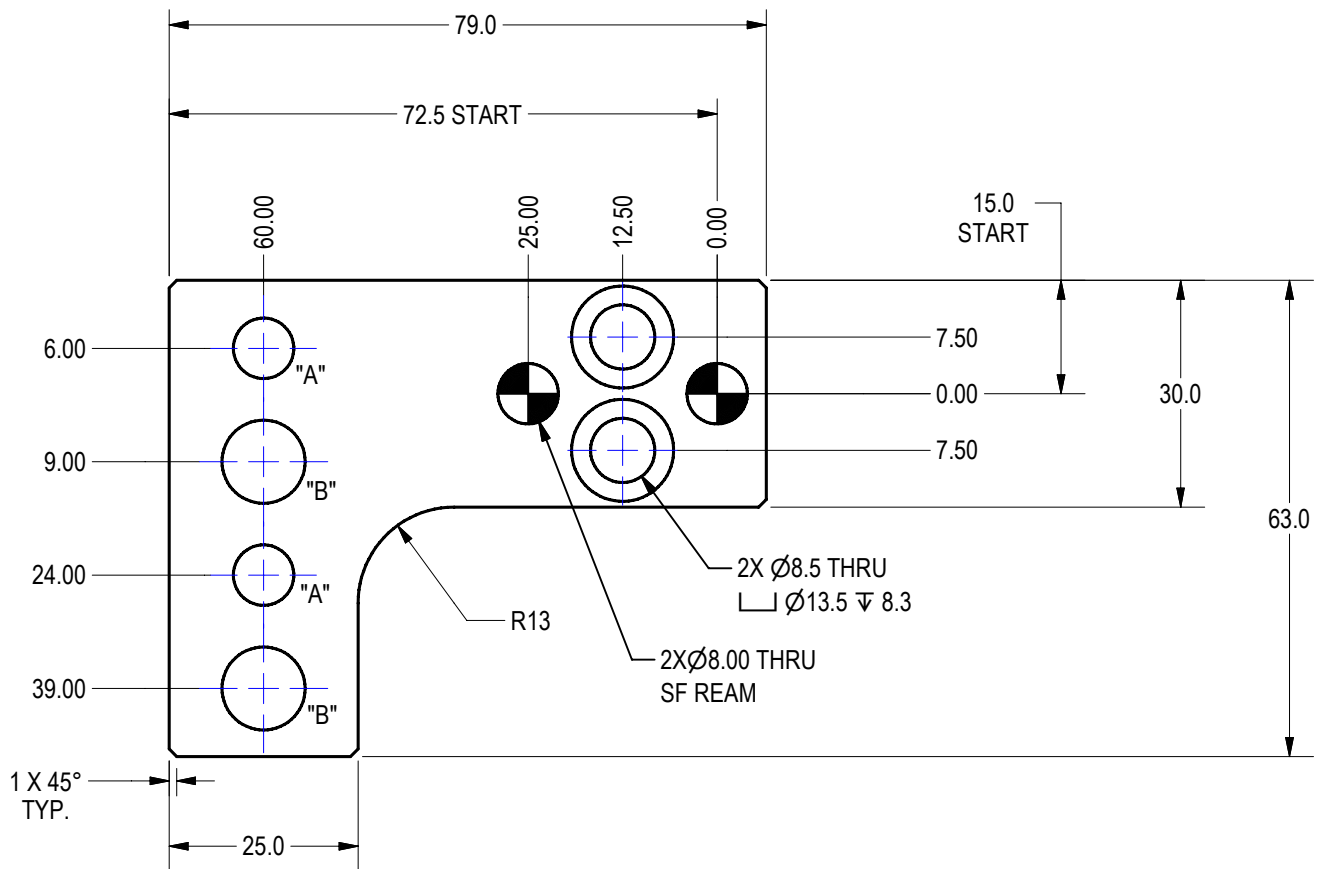
WMB1-CM-F2-02 SHOWN

### WMB1 MINI PIN MOUNTING BLOCK

11L17 CRS

WELD SPATTER RESISTANT FINISH

0.31 kg [0.7 lbf]



(DO NOT SCALE DRAWING)

METRIC TOLERANCES
1 PLC ± 0.2
2 PLC ± 0.10
3 PLC ± 0.012
DOWEL LOC ± 0.012
BETWEEN HOLES



ENGINEERED PRODUCTS

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SHEET 7

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Model No.	Hole "A"		Hole "B"	
	Type	mm	Type	mm
WMB1-CM-S1-02	SF Dowel	8.00	Drilled Thru	11.00
WMB1-CM-S1-03	Drilled Thru	11.00	SF Dowel	8.00
WMB1-TM-S1-02	SF Dowel	8.00	Tapped Thru	M10x1.5
WMB1-TM-S1-03	Tapped Thru	M10x1.5	SF Dowel	8.00

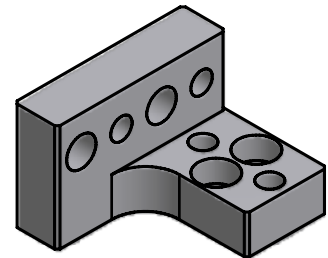
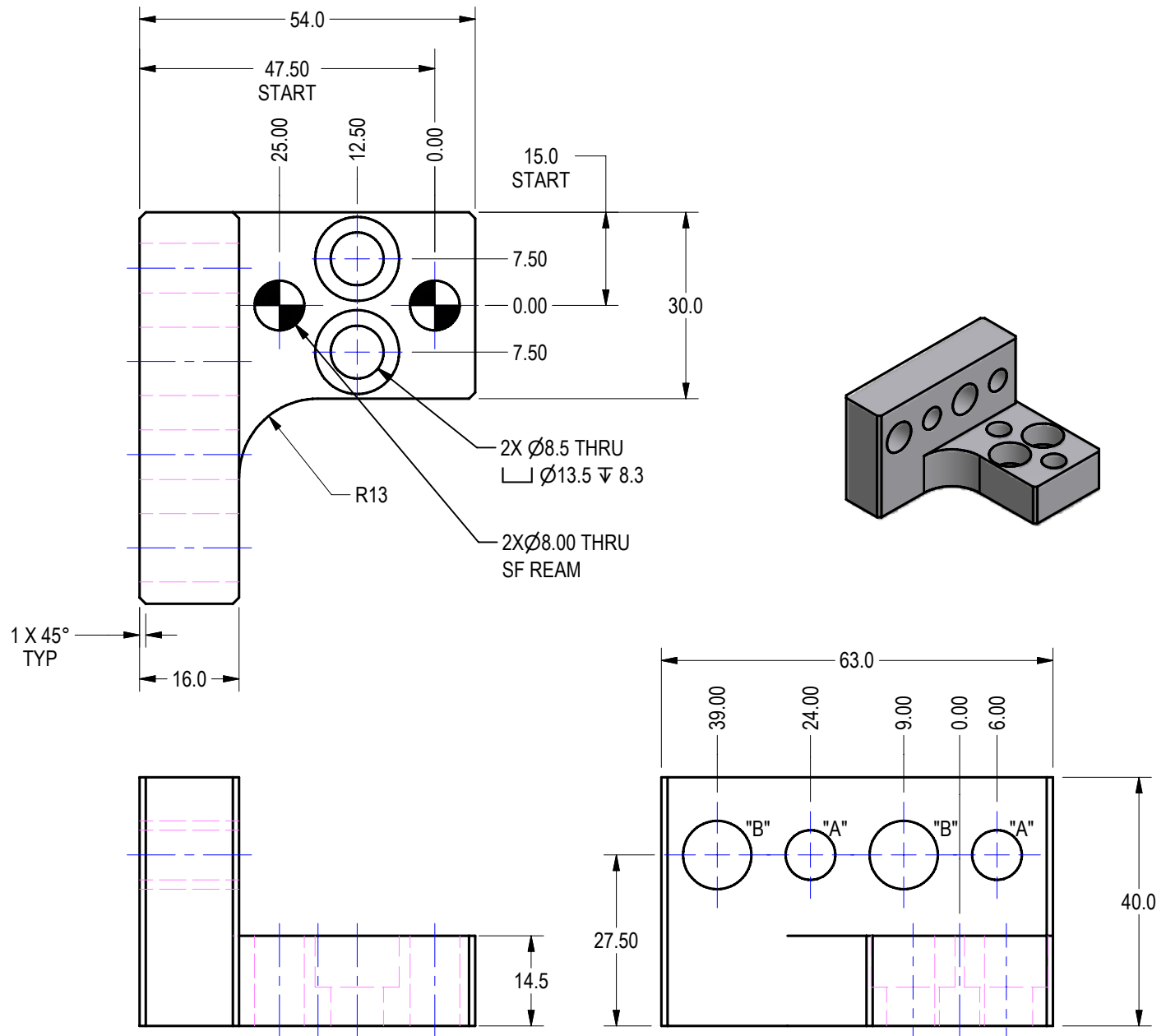
WMB1-CM-S1-02 SHOWN

### WMB1 MINI PIN MOUNTING BLOCK

11L17 CRS

WELD SPATTER RESISTANT FINISH

0.38 kg [0.8 lbf]



(DO NOT SCALE DRAWING)

METRIC TOLERANCES	
1 PLC	± 0.2
2 PLC	± 0.10
3 PLC	± 0.012
DOWEL LOC	± 0.012
BETWEEN HOLES	

**WELKER**  
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Model No.	Hole "A"		Hole "B"	
	Type	mm	Type	mm
WMB1-CM-S2-02	Drilled Thru	11.00	SF Dowel	8.00
WMB1-CM-S2-03	SF Dowel	8.00	Drilled Thru	11.00
WMB1-TM-S2-02	Tapped Thru	M10x1.5	SF Dowel	8.00
WMB1-TM-S2-03	SF Dowel	8.00	Tapped Thru	M10x1.5

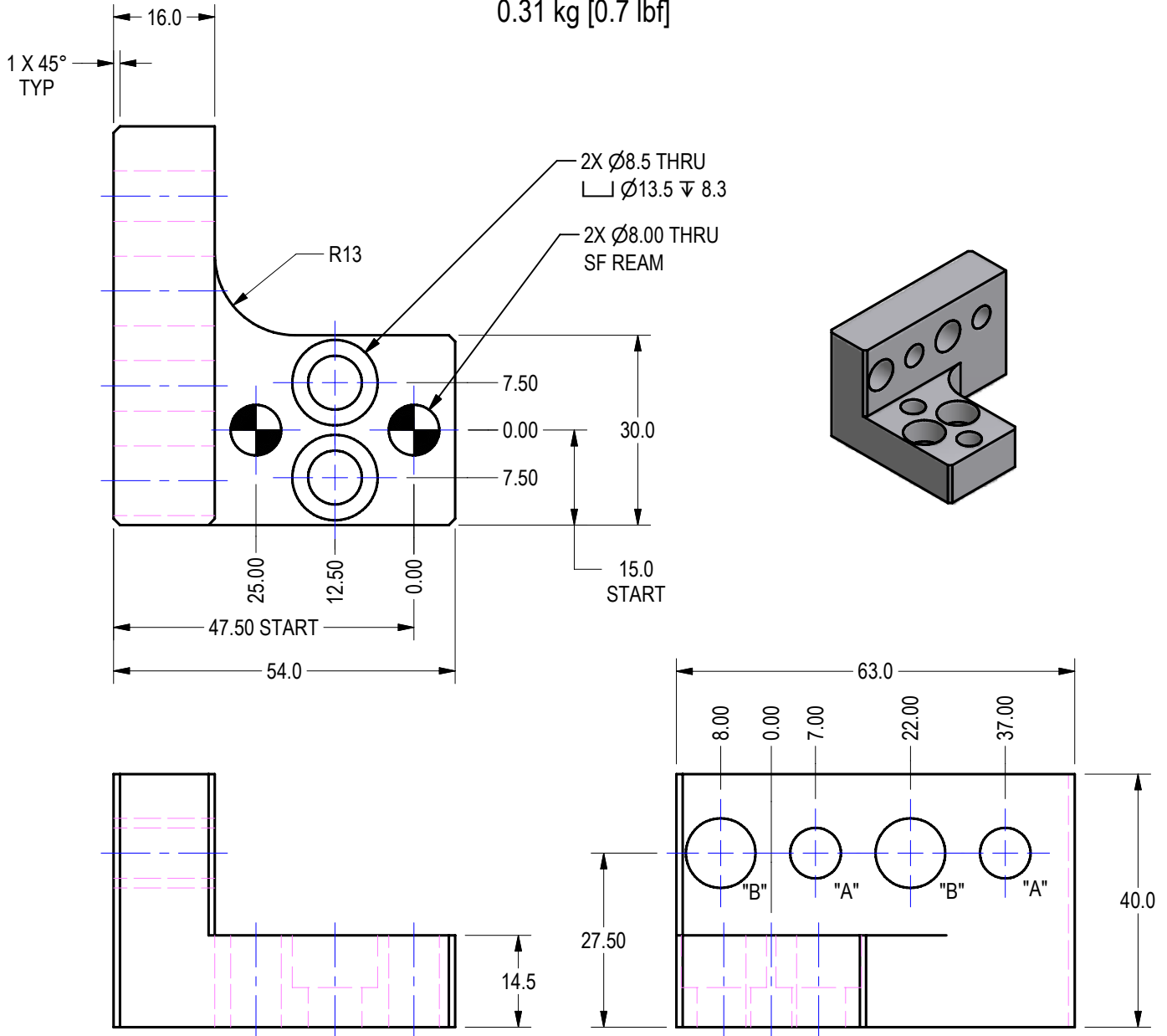
WMB1-CM-S2-03 SHOWN

### WMB1 MINI PIN MOUNTING BLOCK

11L17 CRS

WELD SPATTER RESISTANT FINISH

0.31 kg [0.7 lbf]



(DO NOT SCALE DRAWING)

METRIC TOLERANCES	
1 PLC	± 0.2
2 PLC	± 0.10
3 PLC	± 0.012
DOWEL LOC	± 0.012
BETWEEN HOLES	



ENGINEERED PRODUCTS

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SHEET 10

Model No.	Hole "A"		Hole "B"	
	Type	mm	Type	mm
WMB1-CM-T1-02	SF Dowel	8.00	Drilled Thru	11.00
WMB1-CM-T1-03	Drilled Thru	11.00	SF Dowel	8.00
WMB1-TM-T1-02	SF Dowel	8.00	Tapped Thru	M10x1.5
WMB1-TM-T1-03	Tapped Thru	M10x1.5	SF Dowel	8.00

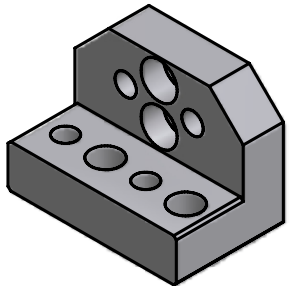
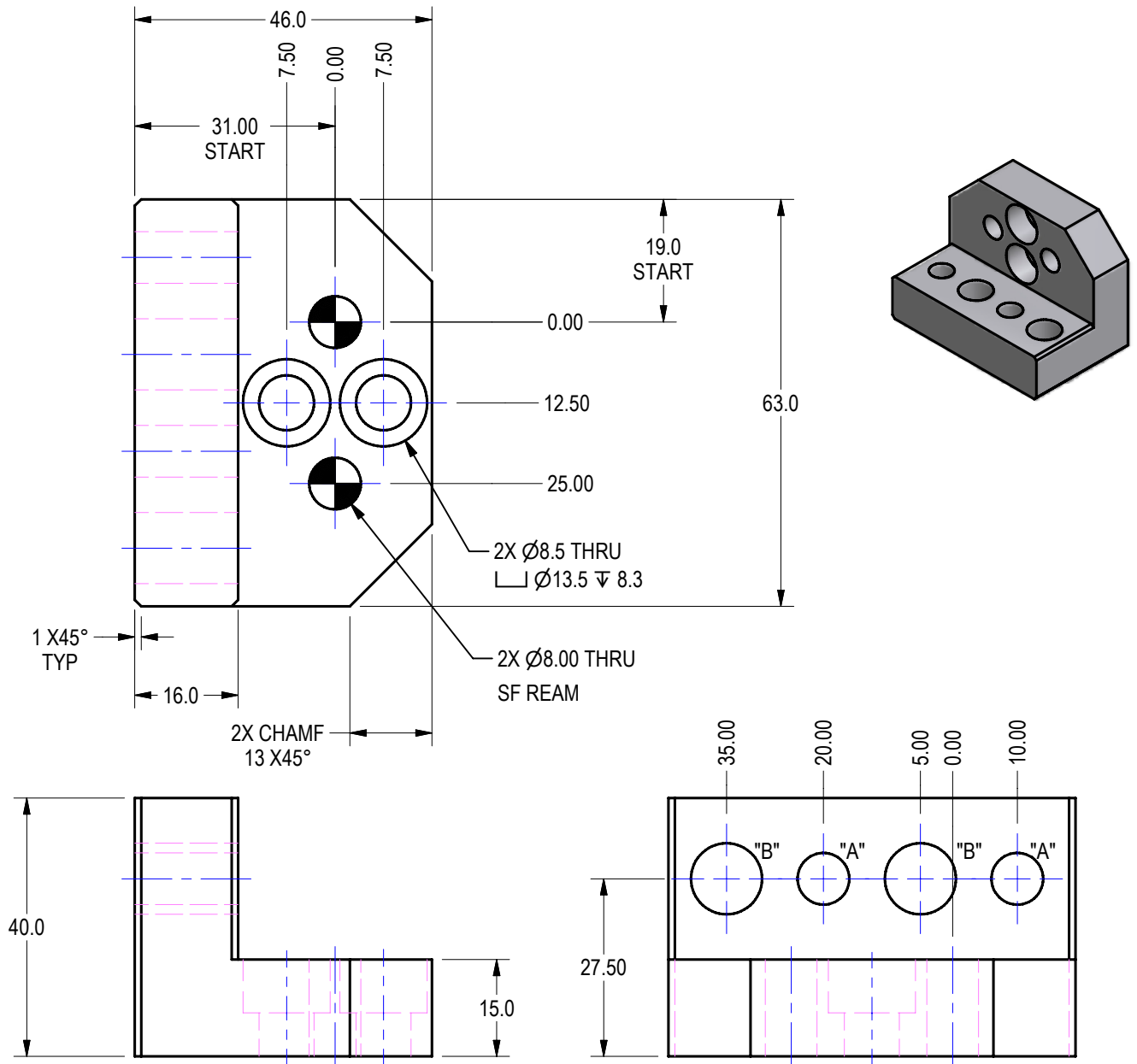
WMB1-CM-T1-02 SHOWN

### WMB1 MINI PIN MOUNTING BLOCK

11L17 CRS

WELD SPATTER RESISTANT FINISH

0.46 kg [1.0 lbf]



(DO NOT SCALE DRAWING)

METRIC TOLERANCES	
1 PLC	± 0.2
2 PLC	± 0.10
3 PLC	± 0.012
DOWEL LOC	± 0.012
BETWEEN HOLES	

**WELKER**  
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Model No.	Hole "A"		Hole "B"	
	Type	mm	Type	mm
WMB1-CM-F1-02	SF Dowel	8.00	Drilled Thru	11.00
WMB1-CM-F1-03	Drilled Thru	11.00	SF Dowel	8.00
WMB1-TM-F1-02	SF Dowel	8.00	Tapped Thru	M10x1.5
WMB1-TM-F1-03	Tapped Thru	M10x1.5	SF Dowel	8.00

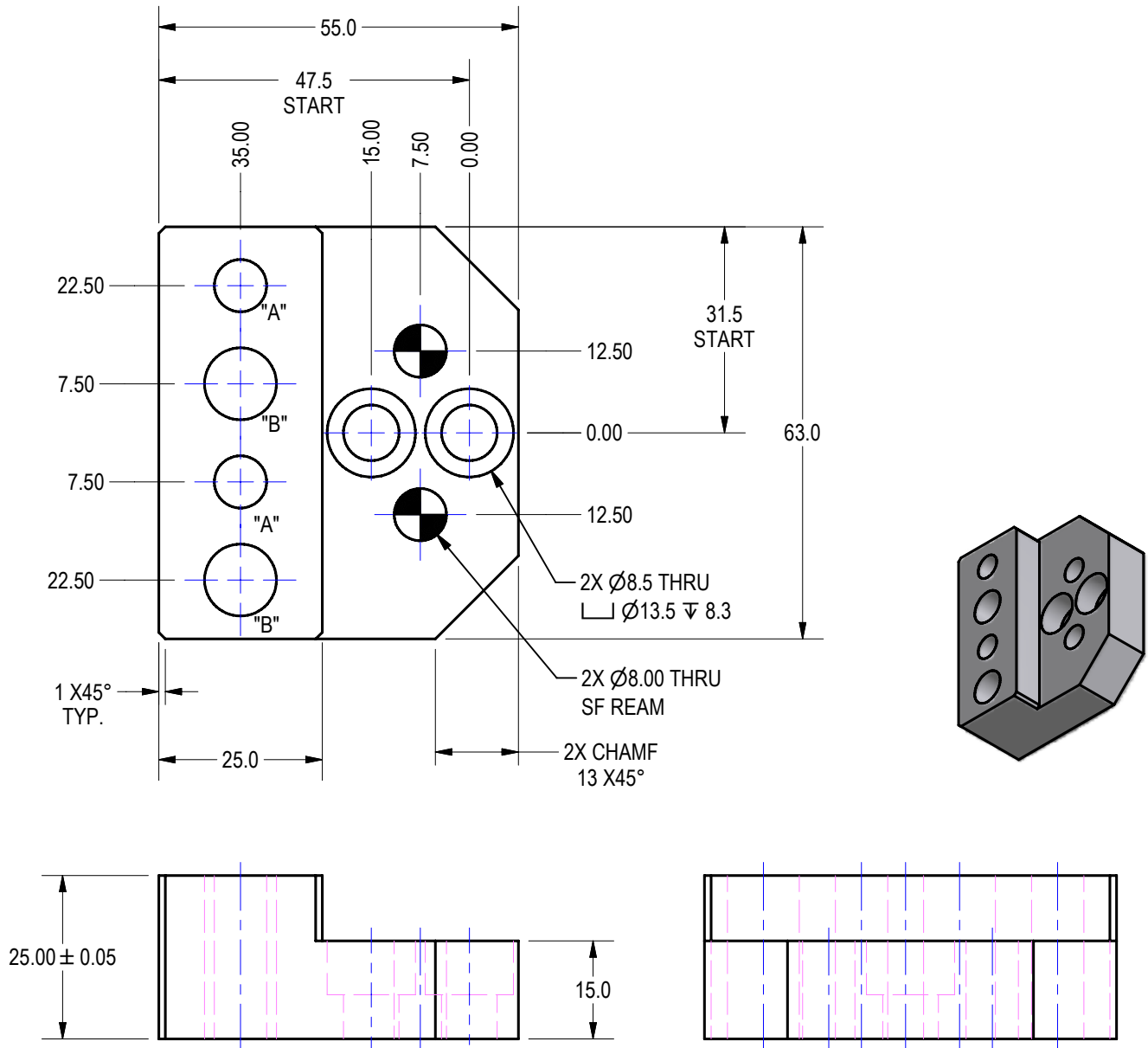
WMB1-CM-F1-02 SHOWN

### WMB1 MINI PIN MOUNTING BLOCK

11L17 CRS

WELD SPATTER RESISTANT FINISH

0.48 kg [1.0 lbf]



(DO NOT SCALE DRAWING)

METRIC TOLERANCES	
1 PLC	± 0.2
2 PLC	± 0.10
3 PLC	± 0.012
DOWEL LOC	± 0.012
BETWEEN HOLES	



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