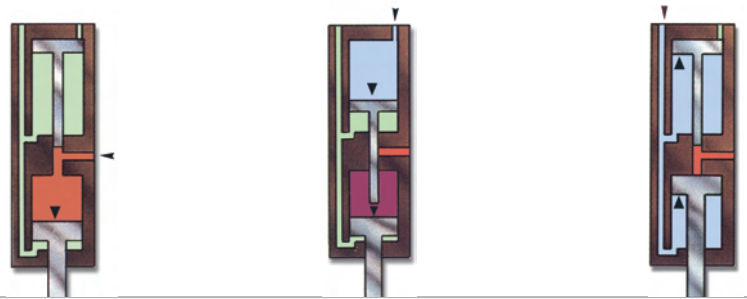
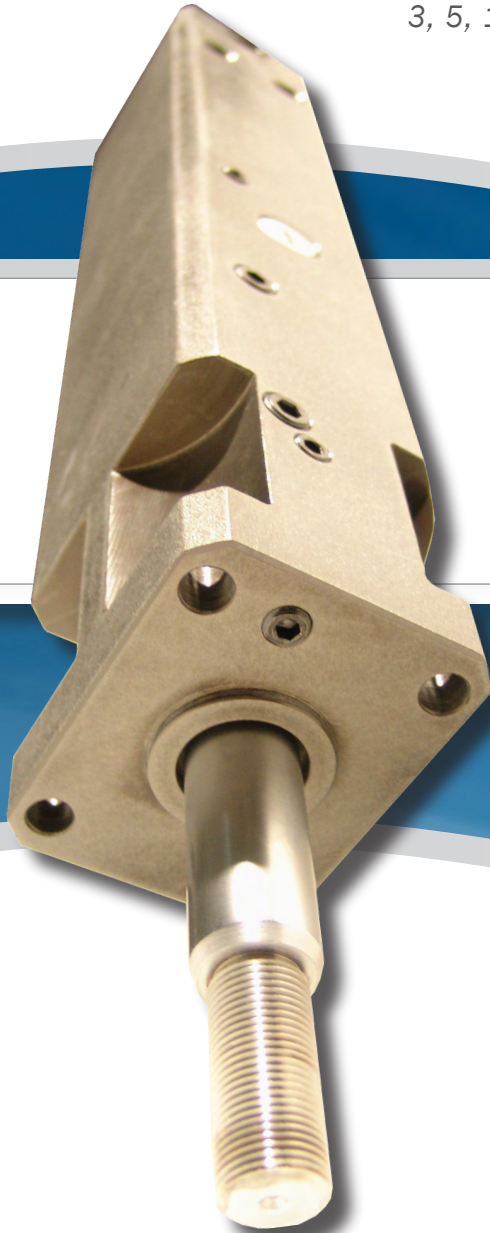


Air/Oil Intensified Cylinders

3, 5, 12, 18, 26 & 34 Ton Models Available - Each Using 80 PSI of Air!



Ideal for use in bending, piercing, stamping, Tog-L-Loc®, and riveting

Easy to setup - uses shop air and standard pneumatic valves

Operates with air - no hydraulic power unit required

BTM
CORPORATION

www.BTMcorp.com

810-364-4567

INTRODUCTION

BTM Air/Oil Cylinders generate high forces with shop air pressure to perform various press operations. They can be used with many types of tooling, including Tog-L-Loc®, Piercing, Riveting, Crimping, Stud insertion and Bending. These versatile cylinders can be mounted in floor or bench press frames, tool positioner units, hand operated units, special fixtures and work stations.

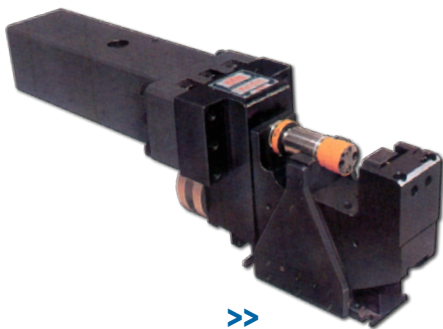
Advantages & Features of BTM Air/Oil Cylinders

- Uses common shop air - tonnages are rated at 80 PSI air.
- No hydraulic power unit is required.
- No high pressure hydraulic lines required.
- Quiet operation.
- Lower Cost - Uses standard pneumatic valves and shop air. No costly hydraulic pumps, valves, manifolds, or gauges are required.
- Lubed for life.
- One stop shopping. BTM can provide all components, accessories, and tooling for your Air/Oil Cylinder application.

Contact BTM's Sales Department for an Air/Oil Cylinder specifically designed for your application.

Examples of Special Machines created using [BTM Air/Oil Cylinders](#)

For over 40 years, BTM Corporation has been building special machines to meet a wide variety of applications- everything from automated systems to simple alterations of our standard products. If you require a custom machine, BTM Corporation can help! Contact our highly experienced Sales Department for more information.



>>
A BTM Air/Oil Cylinder attached to a special unit designed for piercing applications.



>>
This machine features a standard frame, a custom tank mount, and a die set designed for a bending application.

Contents

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Tank Mounting Hardware	23



3 Ton
(p. 6-7)



5 Ton
(p. 8-9)

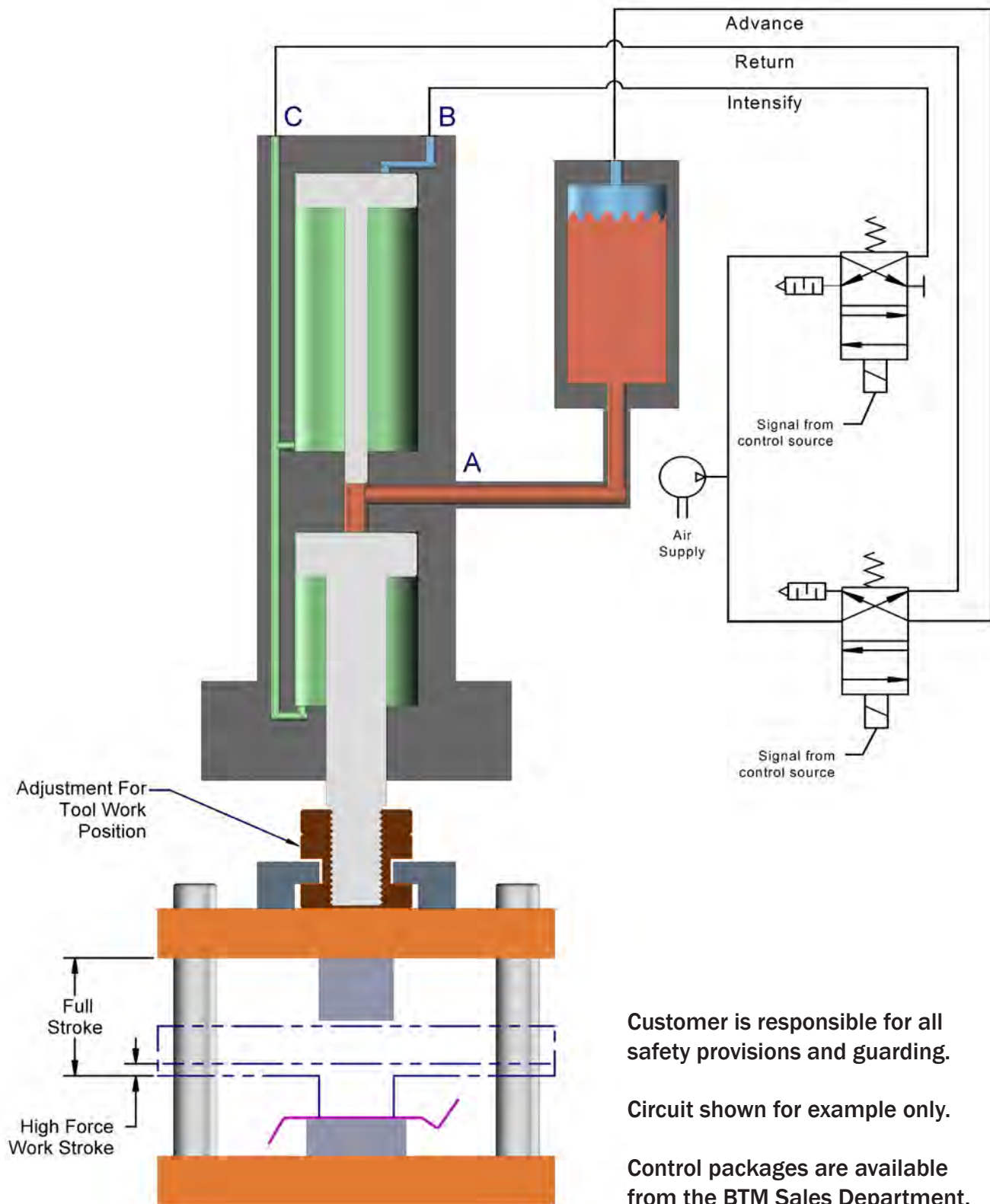


12 & 18 Ton
(p. 10-13)



26 & 34 Ton
(p. 14-17)

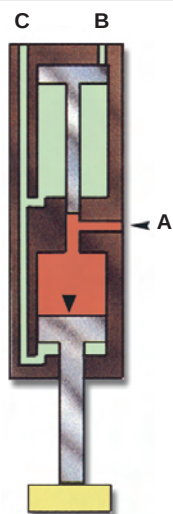
HOW BTM AIR/OIL INTENSIFYING CYLINDERS WORK



Customer is responsible for all safety provisions and guarding.

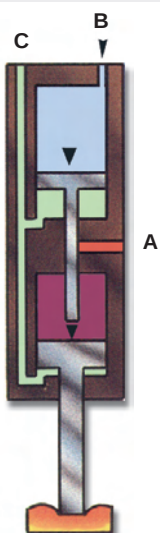
Circuit shown for example only.

Control packages are available from the BTM Sales Department.



Low Pressure Air Advance Stroke (Port "A"):

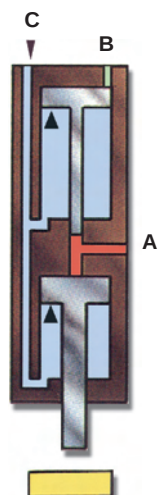
Air is introduced into the system's air/oil tank (not shown), and low pressure oil advances the ram until it contacts the work.



Intensified Stroke (Port "B"):

The intensify piston advances (triggered by a timer, pressure switch, or prox. sensor) and the intensify rod seals off the high pressure chamber.

The force on the ram increases due to the pressure being multiplied by the ratio between the areas of the intensify piston, intensify rod, and ram. This intensified stroke may be produced anywhere on the overall stroke of the ram.



Low Pressure Air Return Stroke (Port "C"):

Air is introduced into the unit at the return port ("C") and both the ram and intensify piston return.

3 TON AIR/OIL INTENSIFYING CYLINDER



ORDERING INFORMATION

PD204900A

BTM No.

(Reference "Unit Selection" chart)

USE AIR-OIL TANK BTM #016527

(See p. 22)

Note: There are no standard mounting brackets for the 3 ton Air/Oil cylinder. Please see the note on page 22 for tank mounting information.

STANDARD FRAME BTM #034150

(See p. 18)

REPLACEMENT SEAL KIT

BTM #PD204900K

TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	0.16 kN	2.4 lb
Power Ratio (Intensified Advance)	5 kN	77 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.05 kN	0.8 lb
Max. Intensified Stroke	6.4 mm	0.25"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	8.2 kg	18 lbs

AIR VOLUME (Per one complete cycle)

25mm [.98"] Stroke	780 cm ³	47.6 in ³
50mm [1.97"] Stroke	842 cm ³	51.4 in ³
75mm [2.95"] Stroke	904 cm ³	55.1 in ³

OIL VOLUME (Per one complete cycle)

25mm [.98"] Stroke	38.8 cm ³	2.4 in ³
50mm [1.97"] Stroke	77.6 cm ³	4.8 in ³
75mm [2.95"] Stroke	116.4 cm ³	7.1 in ³

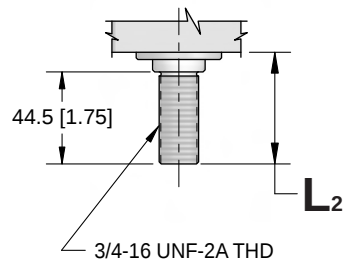
FORCE CHART

Air Pressure		Intensified Stroke	
BAR	PSI	kN	lb
6.2	90	30.8	6930
5.5	80	27.4	6160
4.1	60	20.6	4620

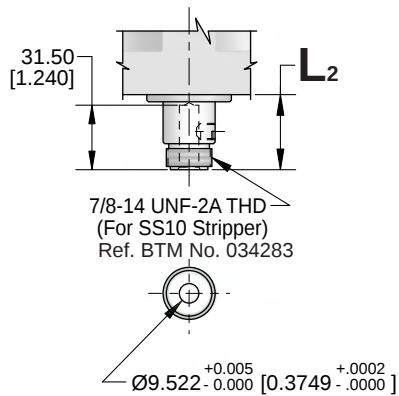
UNIT SELECTION (See p. 7 for diagram)

RAM STYLE	RAM STROKE		"L ₁ "		"L ₂ " RAM RETRACTED		"L ₃ " RAM EXTENDED		BTM NUMBER
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	
① TE	25.0	0.98	409.5	16.12	79.0	3.11	104.0	4.09	PD204900A
	50.0	1.97	434.5	17.11	54.0	2.13	104.0	4.09	PD204900B
	75.0	2.95	459.5	18.09	54.0	2.13	129.0	5.08	PD204900C
② PT	25.0	0.98	409.5	16.12	61.6	2.43	86.6	3.41	PD204900D
	50.0	1.97	434.5	17.11	36.6	1.44	86.6	3.41	PD204900E
	75.0	2.95	459.5	18.09	36.6	1.44	111.6	4.39	PD204900F
③ PA	25.0	0.98	409.5	16.12	103.0	4.06	128.0	5.04	PD204900G
	50.0	1.97	434.5	17.11	78.0	3.07	128.0	5.04	PD204900H
	75.0	2.95	459.5	18.09	53.0	2.09	128.0	5.04	PD204900J

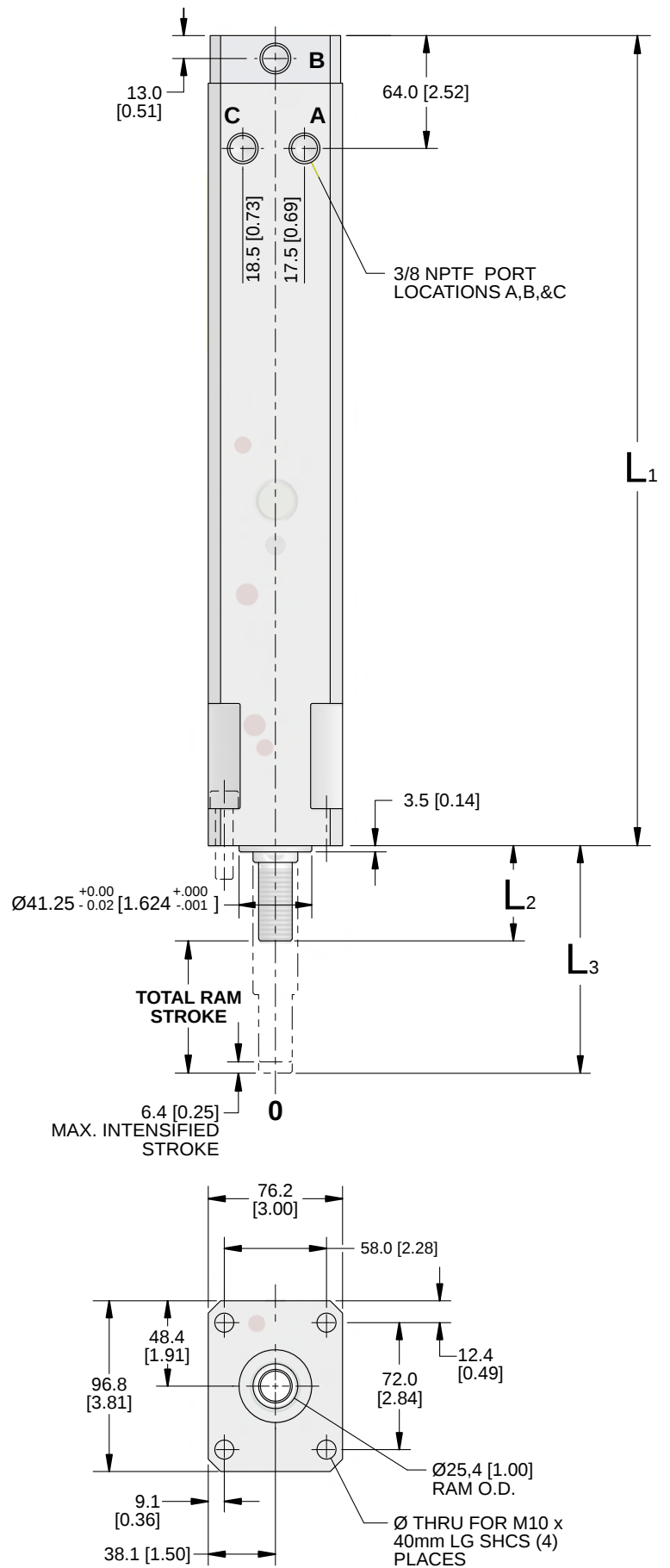
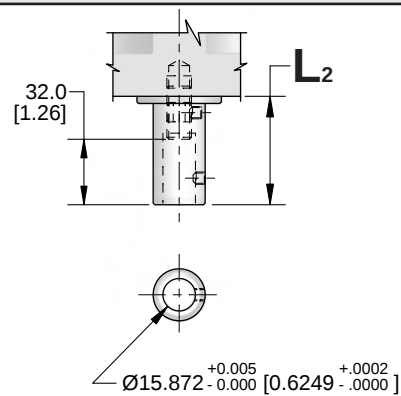
1 "TE" RAM STYLE



2 "PT" RAM STYLE



3 "PA" RAM STYLE



5 TON AIR/OIL INTENSIFYING CYLINDER



TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	0.32 kN	4.9 lb
Power Ratio (Intensified Advance)	8 kN	122 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.09 kN	1.4 lb
Max. Intensified Stroke	9.5 mm	0.38"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	13.6 kg	30 lbs

AIR VOLUME (Per one complete cycle)

51mm [2"] Stroke	2707 cm ³	165 in ³
102mm [4"] Stroke	2961 cm ³	181 in ³
152mm [6"] Stroke	3215 cm ³	196 in ³

OIL VOLUME (Per one complete cycle)

51mm [2"] Stroke	161 cm ³	9.8 in ³
102mm [4"] Stroke	322 cm ³	19.6 in ³
152mm [6"] Stroke	483 cm ³	29.5 in ³

FORCE CHART

Air Pressure		Intensified Stroke	
Bar	PSI	kN	Pounds
6.2	90	48.8	10980
5.5	80	43.4	9760
4.1	60	32.6	7320

ORDERING INFORMATION

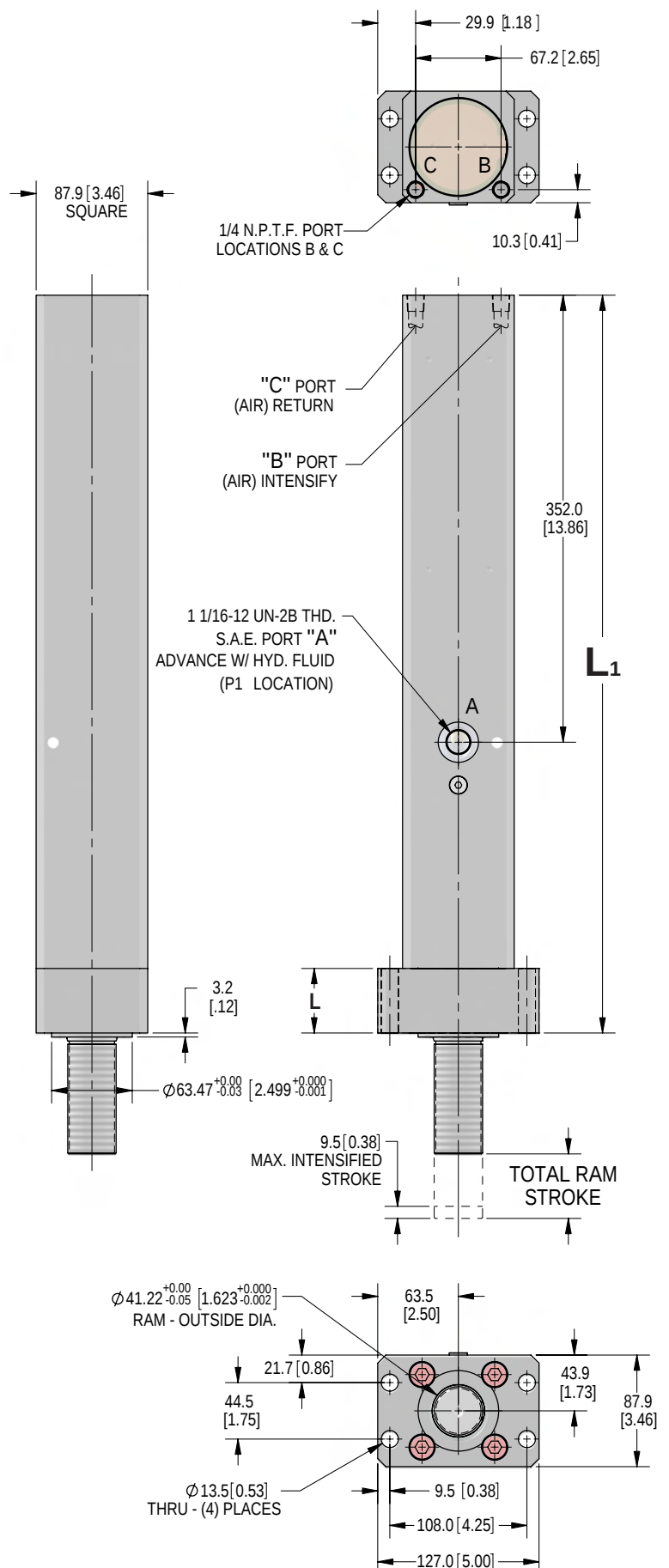
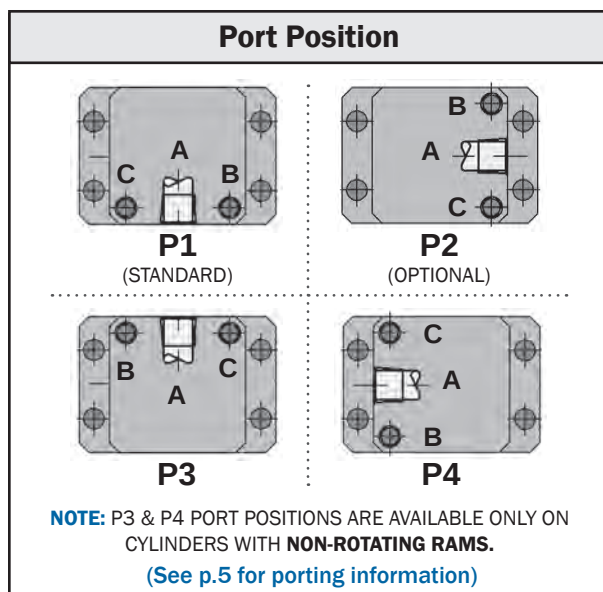
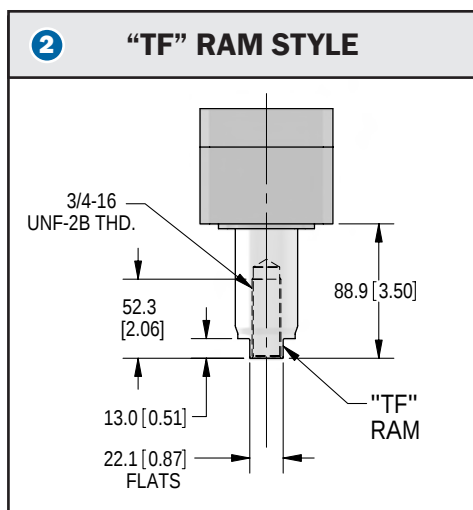
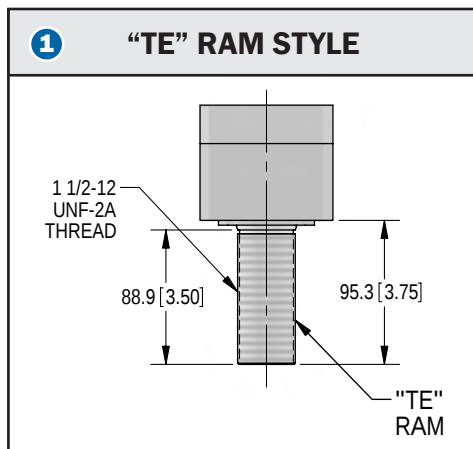
PD221800A - **P1** - **PD204500A**
 BTM No. Port Die Set Adapter
 (See "Unit Selection" chart below) Position Group
 (See p. 21 or leave blank if not required)

USE AIR-OIL TANK BTM #016526
 with bracket #799800A
 (See p. 22-23)

REPLACEMENT SEAL KIT
 BTM #PD221800N

UNIT SELECTION (See p. 7 for diagram)

	RAM STYLE	RAM STROKE		"L"		"L ₁ "		BTM NUMBER
		(mm)	(in)	(mm)	(in)	(mm)	(in)	
1	TE Rotating	51.0	2.00	50.8	2.00	581.0	22.88	PD221800A
		102.0	4.00	50.8	2.00	631.8	24.88	PD221800B
		152.0	6.00	50.8	2.00	682.6	26.88	PD221800C
2	TE Non-Rotating	51.0	2.00	76.2	3.00	606.4	23.88	PD221800G
		102.0	4.00	76.2	3.00	657.2	25.88	PD221800H
		152.0	6.00	76.2	3.00	708.0	27.88	PD221800I
3	TF Rotating	51.0	2.00	50.8	2.00	581.0	22.88	PD221800D
		102.0	4.00	50.8	2.00	631.8	24.88	PD221800E
		152.0	6.00	50.8	2.00	682.6	26.88	PD221800F
4	TF Non-Rotating	51.0	2.00	76.2	3.00	606.4	23.88	PD221800K
		102.0	4.00	76.2	3.00	657.2	25.88	PD221800L
		152.0	6.00	76.2	3.00	708.0	27.88	PD221800M



12 TON AIR/OIL INTENSIFYING CYLINDER



ORDERING INFORMATION

PD221900A - **P1** - **PD204500C**
 BTM No. Port Die Set Adapter
 (See "Unit Selection" chart below) Position Group
 (See p. 9) (See p. 21 or leave blank if not required)

USE AIR-OIL TANK BTM #014236
with bracket #033676
 (See p. 22-23)

STANDARD FRAME
BTM #018726
 (See p. 19)

REPLACEMENT SEAL KIT
BTM #PD221900N

TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	0.54 kN	8.3 lb
Power Ratio (Intensified Advance)	21 kN	327 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.17 kN	2.6 lb
Max. Intensified Stroke	17.3 mm	0.68"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	50.0 kg	110 lbs

AIR VOLUME (Per one complete cycle)

51mm [2"] Stroke	8657 cm ³	528 in ³
102mm [4"] Stroke	9098 cm ³	555 in ³
152mm [6"] Stroke	9539 cm ³	582 in ³

OIL VOLUME (Per one complete cycle)

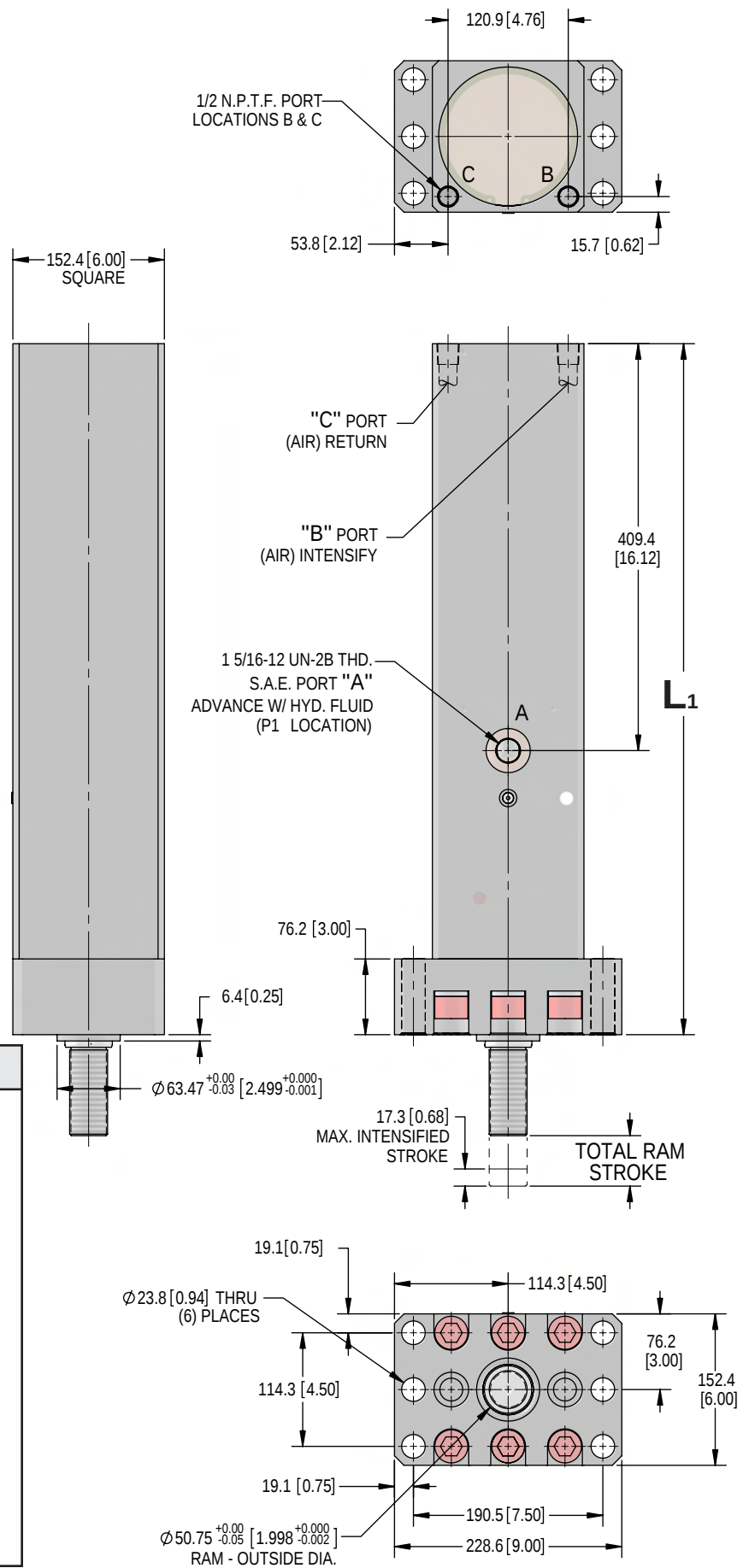
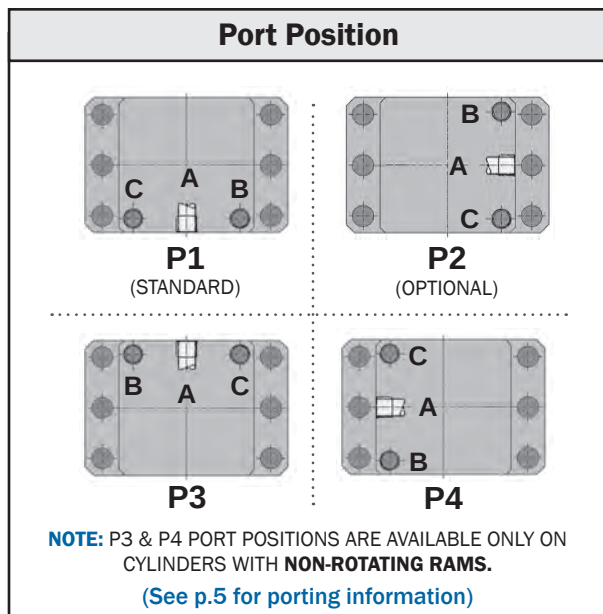
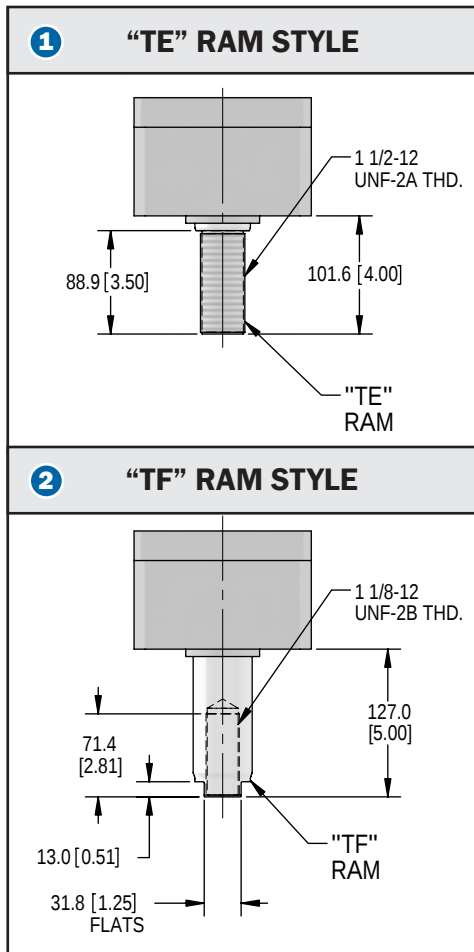
51mm [2"] Stroke	272 cm ³	16.6 in ³
102mm [4"] Stroke	544 cm ³	33.2 in ³
152mm [6"] Stroke	816 cm ³	49.8 in ³

FORCE CHART

Air Pressure		Intensified Stroke	
Bar	PSI	kN	Pounds
6.2	90	130.9	29430
5.5	80	116.4	26160
4.1	60	87.3	19620

UNIT SELECTION (See p. 11 for diagram)

	RAM STYLE	RAM STROKE		“L ₁ ”		BTM NUMBER
		(mm)	(in)	(mm)	(in)	
1	TE Rotating	51.0	2.00	695.3	27.38	PD221900A
		102.0	4.00	746.1	29.38	PD221900B
		152.0	6.00	796.9	31.38	PD221900C
2	TE Non-Rotating	51.0	2.00	695.3	27.38	PD221900G
		102.0	4.00	746.1	29.38	PD221900H
		152.0	6.00	796.9	31.38	PD221900D
2	TF Rotating	51.0	2.00	695.3	27.38	PD221900E
		102.0	4.00	746.1	29.38	PD221900F
		152.0	6.00	796.9	31.38	PD221900K
2	TF Non-Rotating	51.0	2.00	695.3	27.38	PD221900L
		102.0	4.00	746.1	29.38	PD221900L



18 TON AIR/OIL INTENSIFYING CYLINDER



ORDERING INFORMATION

PD222000A - **P1** - **PD204500C**
 BTM No. Port Die Set Adapter
 (See "Unit Selection" chart below) Position Group
 (See p. 13) (See p. 21 or leave blank if not required)

USE AIR-OIL TANK BTM #014236
 with bracket #033676
 (See p. 22-23)

STANDARD FRAME
 BTM #018727
 (See p. 19)

REPLACEMENT SEAL KIT
 BTM #PD222000N

TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	0.54 kN	8.3 lb
Power Ratio (Intensified Advance)	29 kN	446 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.17 kN	2.6 lb
Max. Intensified Stroke	12.7 mm	0.50"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	50.0 kg	110 lbs

AIR VOLUME (Per one complete cycle)

51mm [2"] Stroke	8685 cm ³	530 in ³
102mm [4"] Stroke	9126 cm ³	557 in ³
152mm [6"] Stroke	9567 cm ³	584 in ³

OIL VOLUME (Per one complete cycle)

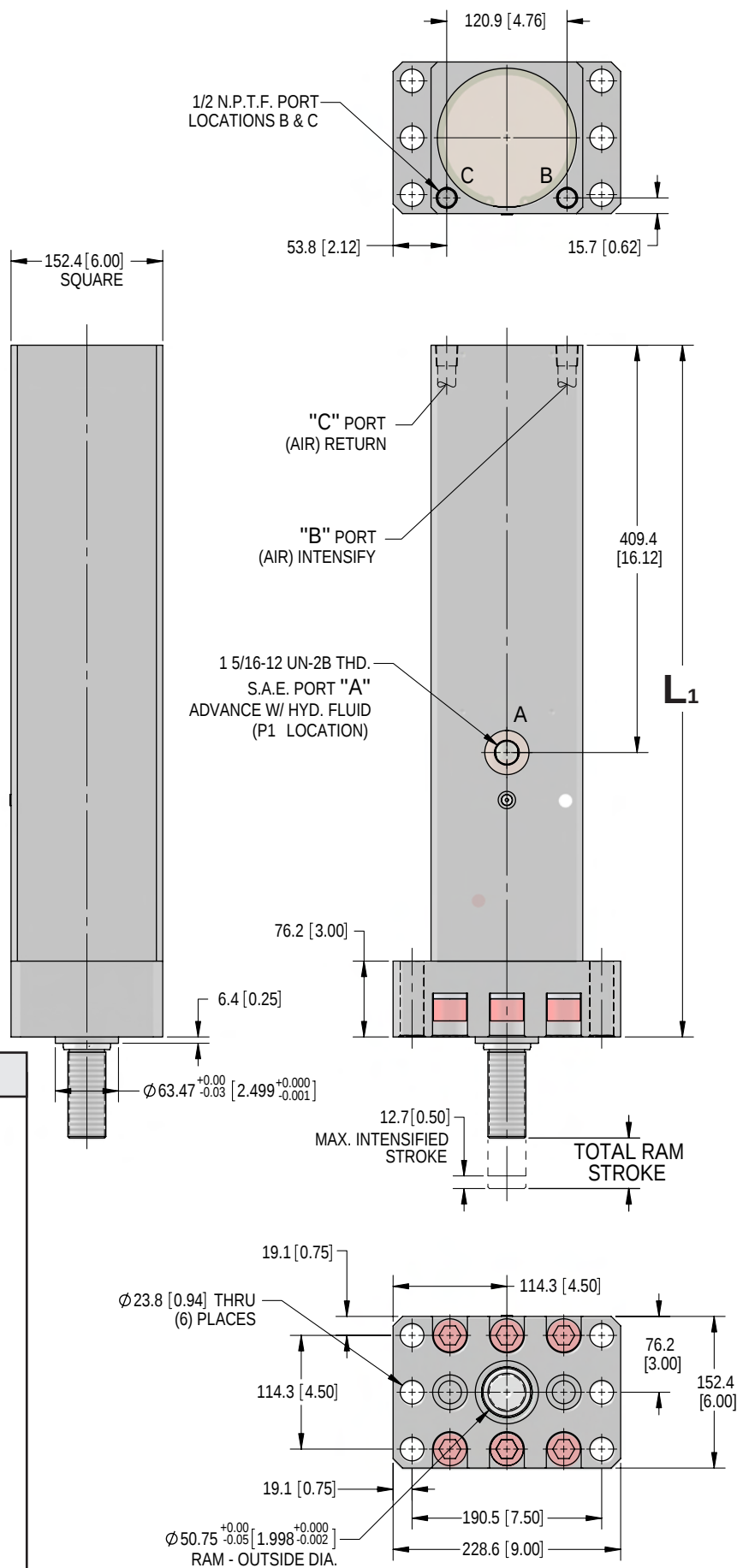
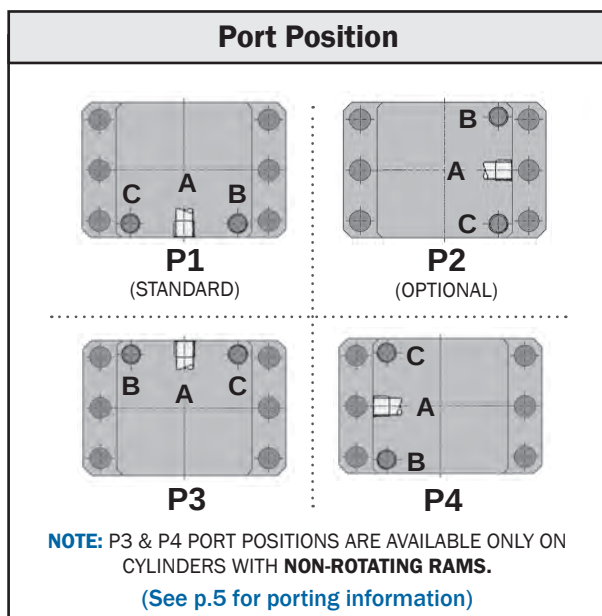
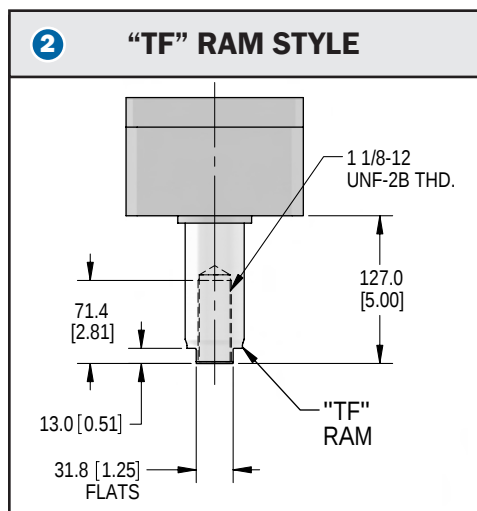
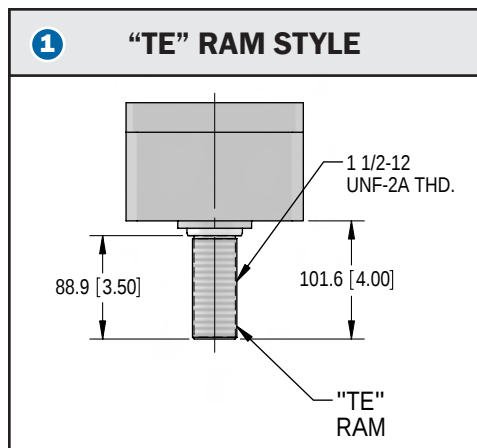
51mm [2"] Stroke	272 cm ³	16.6 in ³
102mm [4"] Stroke	544 cm ³	33.2 in ³
152mm [6"] Stroke	816 cm ³	49.8 in ³

FORCE CHART

Air Pressure		Intensified Stroke	
Bar	PSI	kN	Pounds
6.2	90	178.6	40140
5.5	80	158.7	35680
4.1	60	119.0	26760

UNIT SELECTION (See p. 13 for diagram)

	RAM STYLE	RAM STROKE		“L ₁ ”		BTM NUMBER
		(mm)	(in)	(mm)	(in)	
1	TE Rotating	51.0	2.00	695.3	27.38	PD222000A
		102.0	4.00	746.1	29.38	PD222000B
		152.0	6.00	796.9	31.38	PD222000C
2	TE Non-Rotating	51.0	2.00	695.3	27.38	PD222000G
		102.0	4.00	746.1	29.38	PD222000H
		152.0	6.00	796.9	31.38	PD222000D
2	TF Rotating	51.0	2.00	695.3	27.38	PD222000E
		102.0	4.00	746.1	29.38	PD222000F
		152.0	6.00	796.9	31.38	PD222000K
2	TF Non-Rotating	51.0	2.00	695.3	27.38	PD222000L
		102.0	4.00	746.1	29.38	PD222000L



26 TON AIR/OIL INTENSIFYING CYLINDER



TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	1.3 kN	19.6 lb
Power Ratio (Intensified Advance)	42 kN	641 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.33 kN	5 lb
Max. Intensified Stroke	15.0 mm	0.59"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	102.3 kg	225 lbs

ORDERING INFORMATION

PD219500A - P1 - PD204500C
BTM No. **Port** **Die Set Adapter**
(See "Unit Selection" chart below) *(See p. 15)* *(See p. 21 or leave blank if not required)*

USE AIR-OIL TANK BTM #016525
with bracket #799700A
(See p. 22-23)

STANDARD FRAME
BTM #034147
(See p. 20)

REPLACEMENT SEAL KIT
BTM #PD219500E

AIR VOLUME (Per one complete cycle)

102mm [4"] Stroke	16112 cm ³	983 in ³
152mm [6"] Stroke	17084 cm ³	1042 in ³

OIL VOLUME (Per one complete cycle)

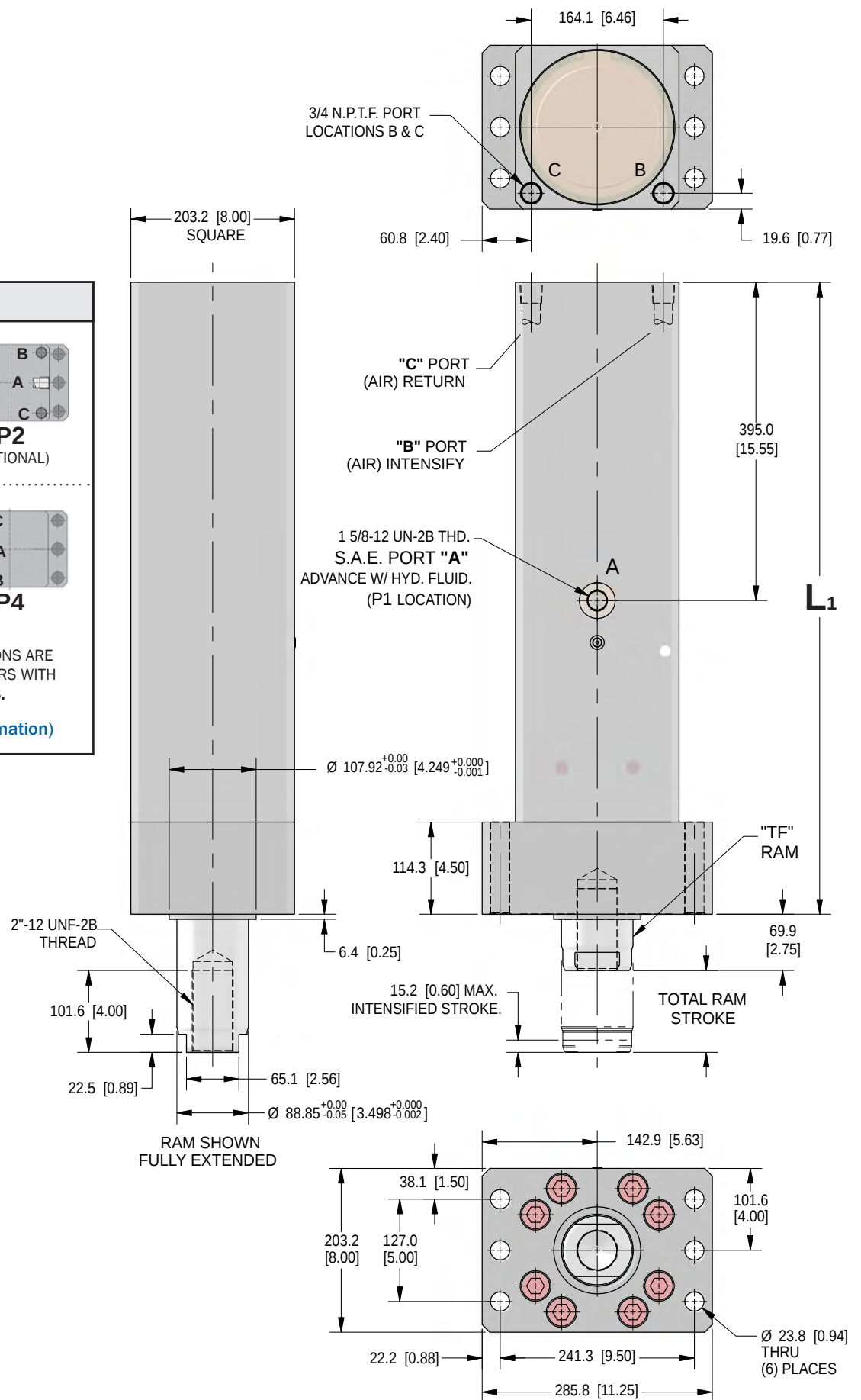
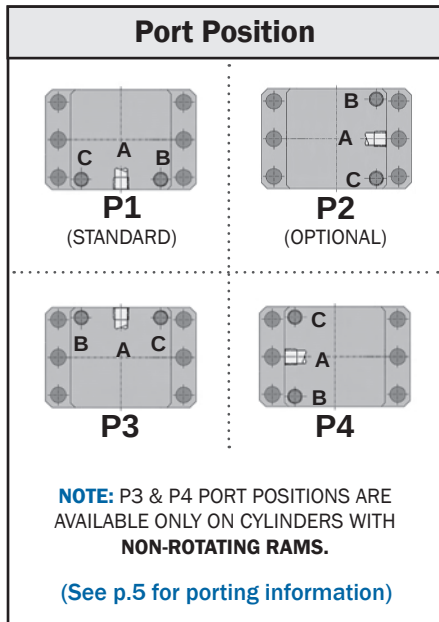
102mm [4"] Stroke	1287 cm ³	78.5 in ³
152mm [6"] Stroke	1931 cm ³	117.8 in ³

FORCE CHART

Air Pressure		Intensified Stroke	
Bar	PSI	kN	Pounds
6.2	90	256.6	57690
5.5	80	228.1	51280
4.1	60	171.1	38460

UNIT SELECTION (See p. 15 for diagram)

RAM STYLE	RAM STROKE		"L ₁ "		BTM NUMBER
	(mm)	(in)	(mm)	(in)	
Rotating	102.0	4.00	784.4	30.88	PD219500A
	152.0	6.00	835.2	32.88	PD219500B
Non-Rotating	102.0	4.00	784.4	30.88	PD219500C
	152.0	6.00	835.2	32.88	PD219500D



34 TON AIR/OIL INTENSIFYING CYLINDER



ORDERING INFORMATION

PD222100A - **P1** - **PD204500E**
BTM No. **Port** **Die Set Adapter**
(See "Unit Selection" chart below) *(See p. 17)* *(See p. 21 or leave blank if not required)*

USE AIR-OIL TANK BTM #016525
with bracket #799700A
(See p. 22-23)

STANDARD FRAME
BTM #034148
(See p. 20)

REPLACEMENT SEAL KIT
BTM #PD222100E

TECHNICAL DATA

	BAR	PSI
Power Ratio (Air Advance)	1.3 kN	19.6 lb
Power Ratio (Intensified Advance)	57 kN	872 lb
Power Ratio (Air Return) <i>Includes safety factor for lifting</i>	0.33 kN	5 lb
Max. Intensified Stroke	11.0 mm	0.43"
Rated Operating Air Pressure	5.5 BAR	80 PSI
Max. Operating Air Pressure	6.2 BAR	90 PSI
Min. Operating Air Pressure	4.1 BAR	60 PSI
Approximate Unit Weight	108.9 kg	240 lbs

AIR VOLUME (Per one complete cycle)

102mm [4"] Stroke	16170 cm ³	987 in ³
152mm [6"] Stroke	17142 cm ³	1046 in ³

OIL VOLUME (Per one complete cycle)

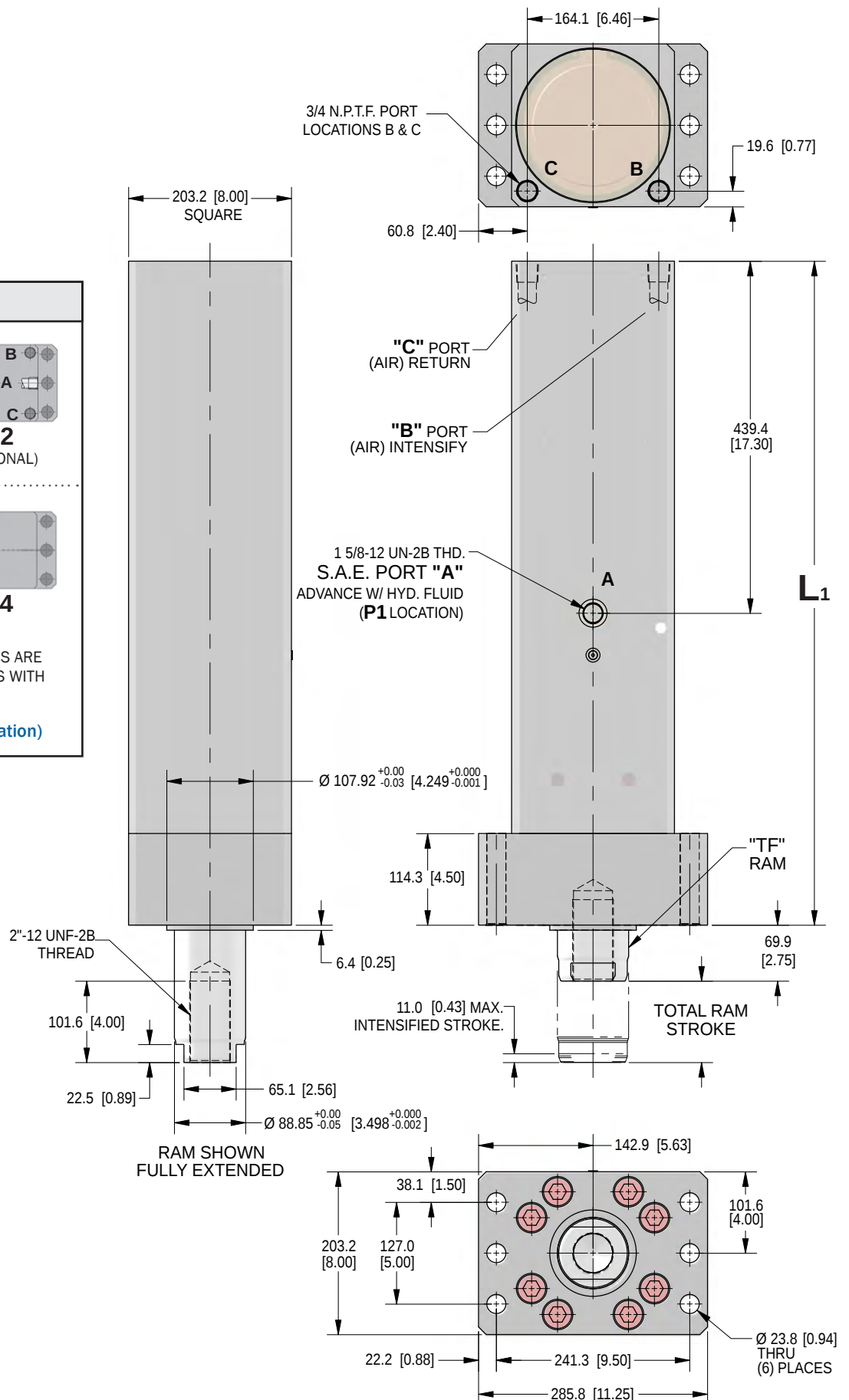
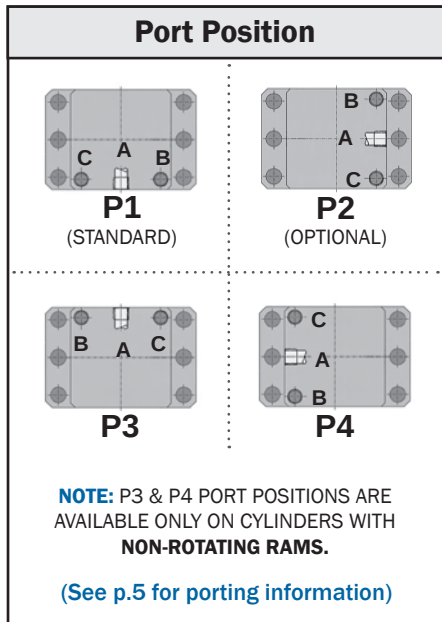
102mm [4"] Stroke	1287 cm ³	78.5 in ³
152mm [6"] Stroke	1931 cm ³	117.8 in ³

FORCE CHART

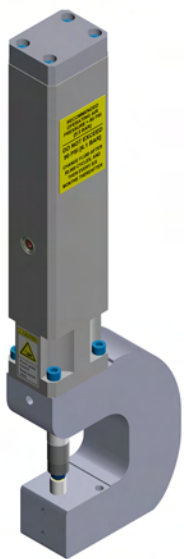
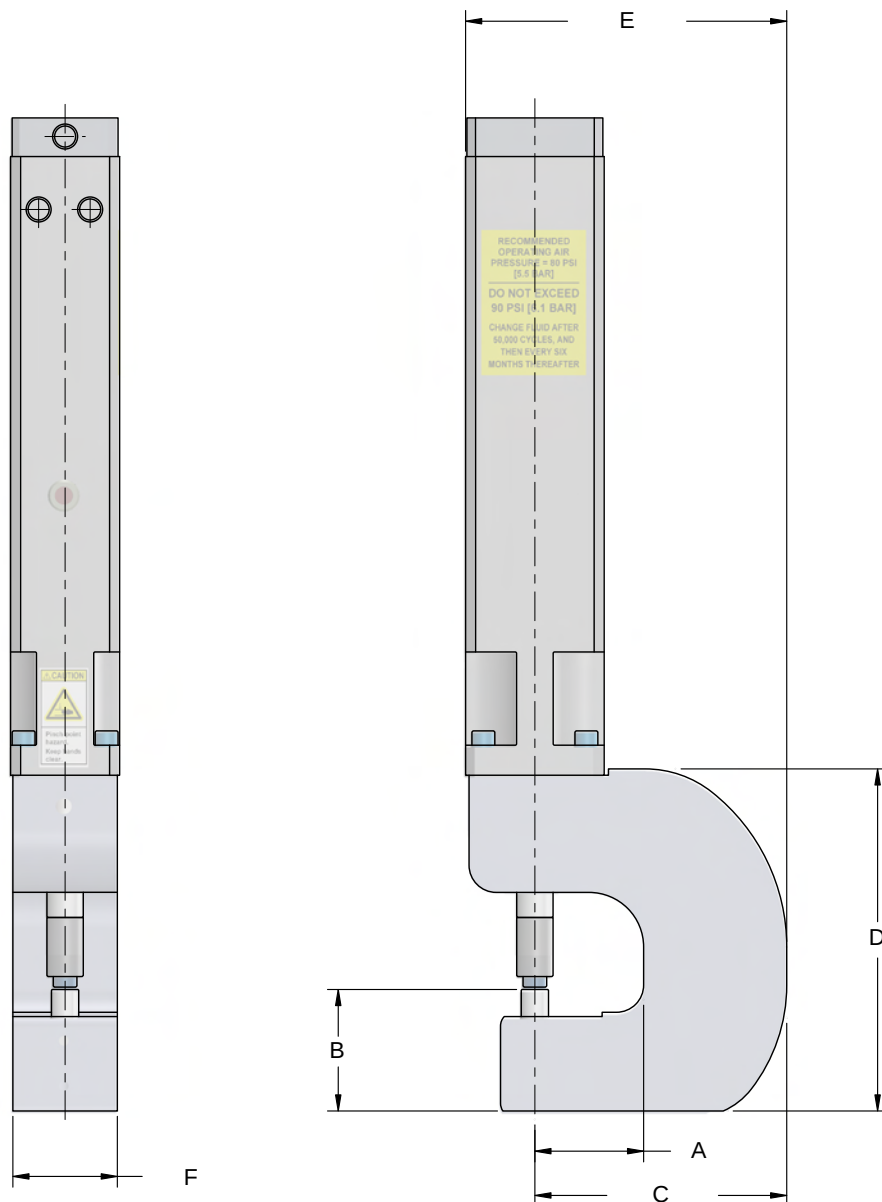
Air Pressure		Intensified Stroke	
Bar	PSI	kN	Pounds
6.2	90	349.1	78480
5.5	80	310.3	69760
4.1	60	232.7	52320

UNIT SELECTION (See p. 17 for diagram)

RAM STYLE	RAM STROKE		"L ₁ "		BTM NUMBER
	(mm)	(in)	(mm)	(in)	
Rotating	102.0	4.00	828.7	32.62	PD222100A
	152.0	6.00	879.5	34.62	PD222100B
Non-Rotating	102.0	4.00	828.7	32.62	PD222100C
	152.0	6.00	879.5	34.62	PD222100D



Custom “C” Frames Available



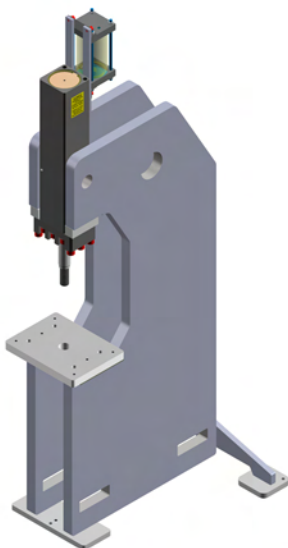
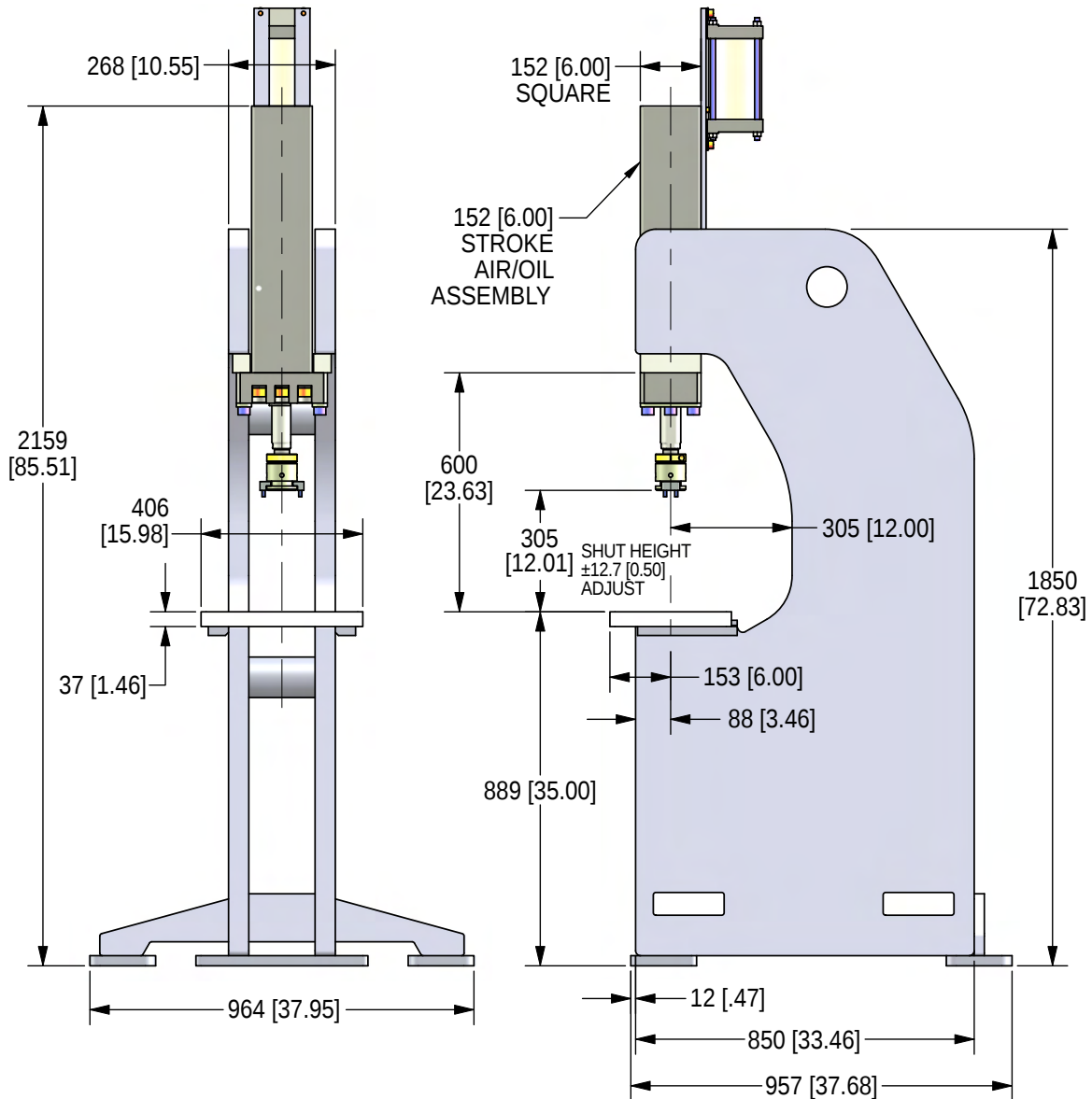
CONTACT BTM FOR ORDERING INFORMATION

BTM offers custom “C” frames.
BTM provides design and/or build services.

Contact our Sales Department to receive a quote.

See page 22-23 for Tank information.

12 & 18 Ton Floor Frame



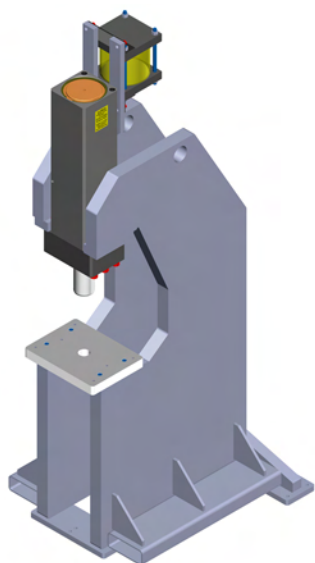
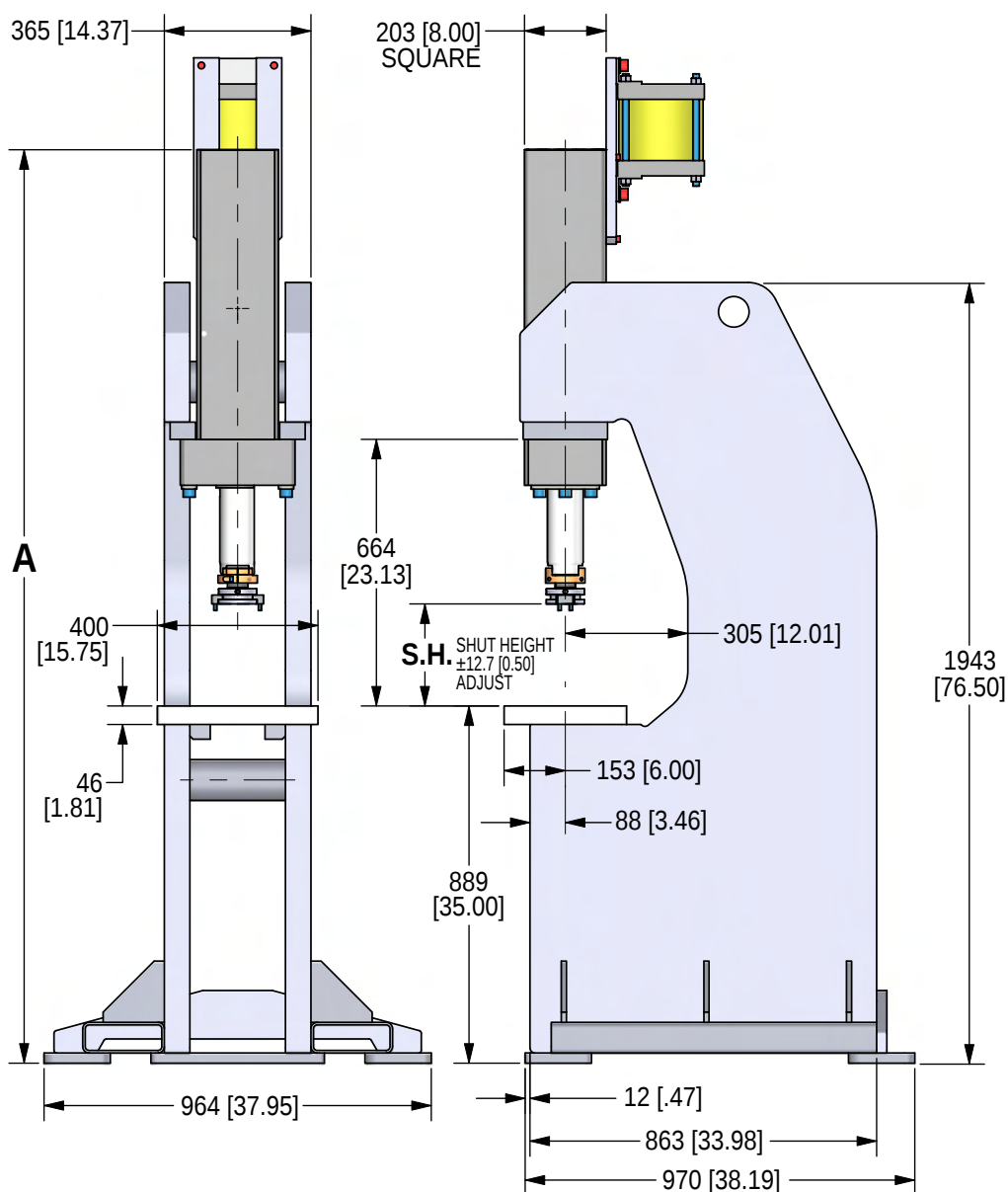
BTM ORDER NUMBERS

12 ton = 018726
18 ton = 018727

NOTE: BTM Offers a standard configuration for the 12 & 18 ton floor frame (as shown above) or BTM will create a custom frame from customer supplied dimensions.

Please contact a BTM sales engineer for custom applications.

26 & 34 Ton Floor Frame



Stroke	"A" - 26 Ton	"A" - 34 Ton	"S.H."
101.6mm [4.00"]	2222.5 [87.50]	2267 [89.25]	304.8 [12.00]
152.4mm [6.00"]	2273.3 [89.50]	2317.8 [91.25]	254.0 [10.00]

BTM ORDER NUMBERS

26 ton = 034147

34 ton = 034148

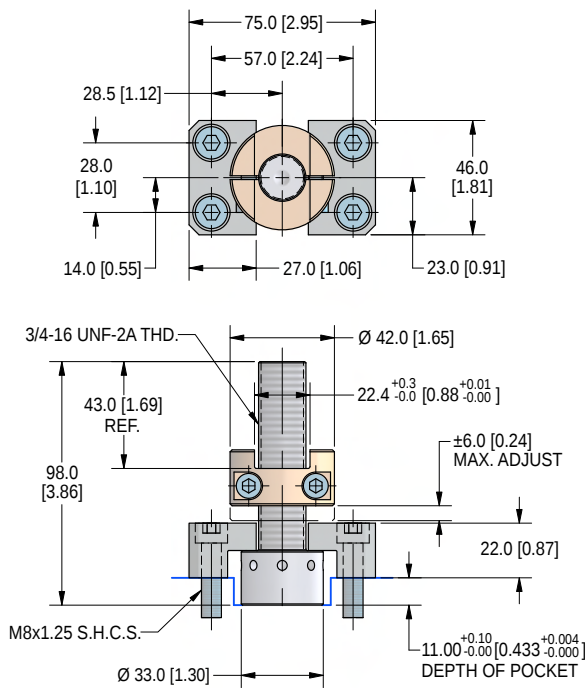
NOTE: BTM Offers a standard configuration for the 26 & 34 ton floor frame (as shown above) or BTM will create a custom frame from customer supplied dimensions.

Please contact a BTM sales engineer for custom applications.

Die Set Adapter Groups (DSAG)

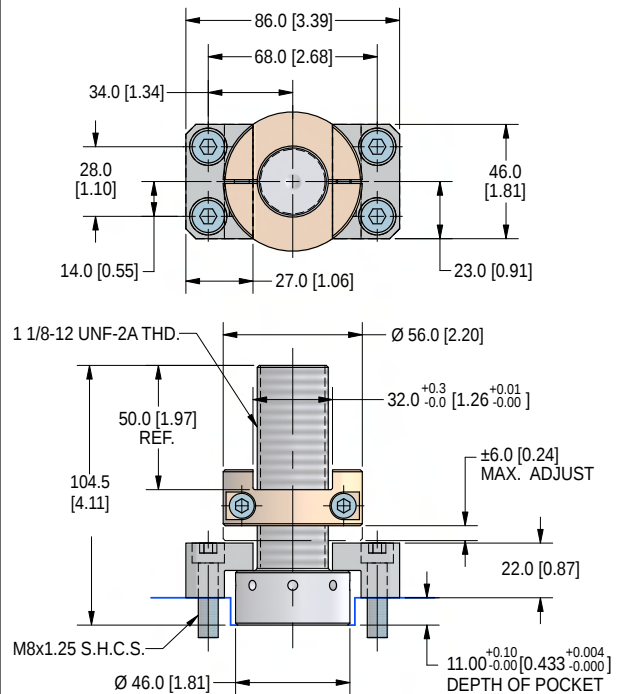
DSAG FOR 5 TON AO

FOR GUIDE PACKAGE APPLICATIONS
USE WITH **TF RAM**
BTM ASSEMBLY No. **PD204500A**



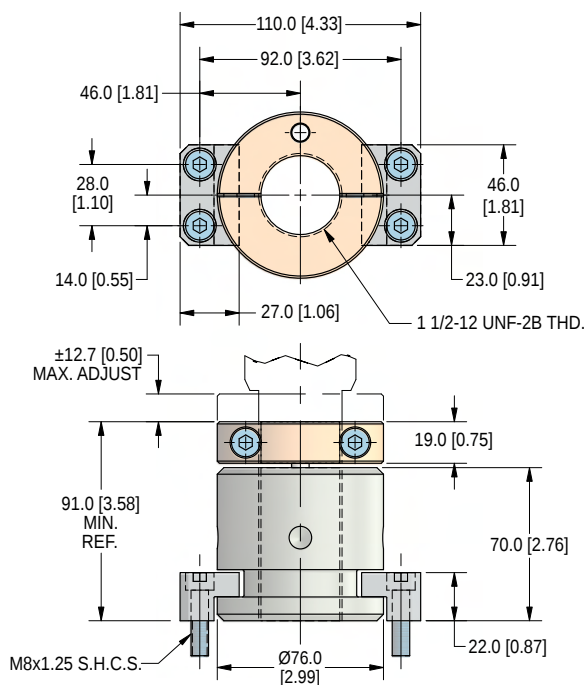
DSAG FOR 12 & 18 TON AO

FOR GUIDE PACKAGE APPLICATIONS
USE WITH **TF RAM**
BTM ASSEMBLY No. **PD204500C**



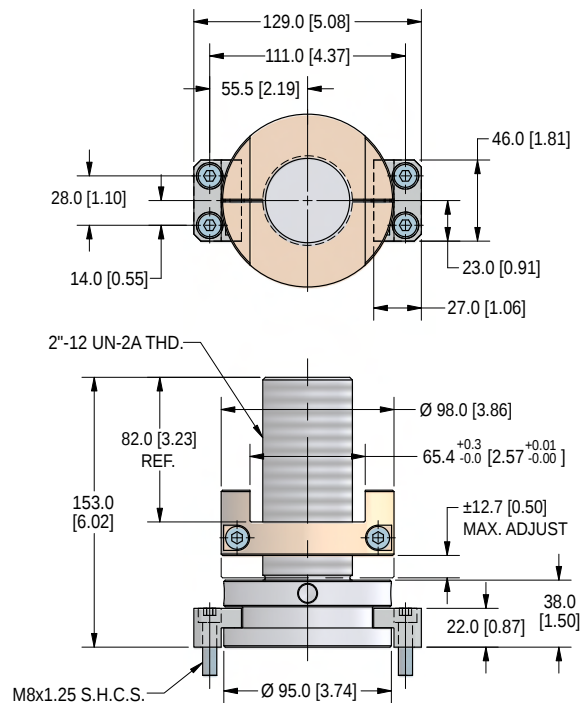
DSAG FOR 5, 12 & 18 TON AO

FOR DIE SET APPLICATIONS
USE WITH **TE RAM**
BTM ASSEMBLY No. **PD204500D**

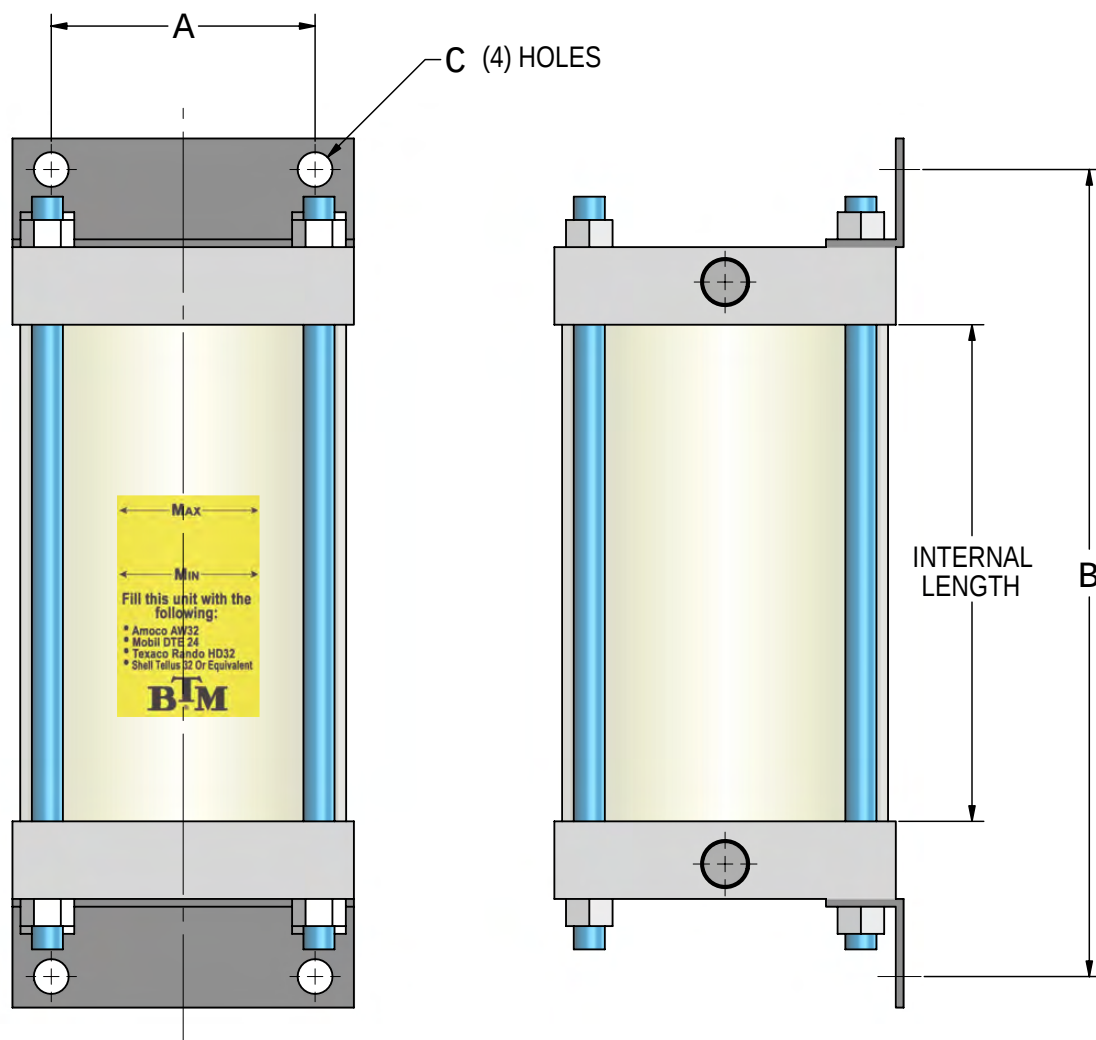


DSAG FOR 26 & 34 TON AO

USE WITH **TF RAM**
BTM ASSEMBLY No. **PD204500E**



Air/Oil Cylinder Tank Selection

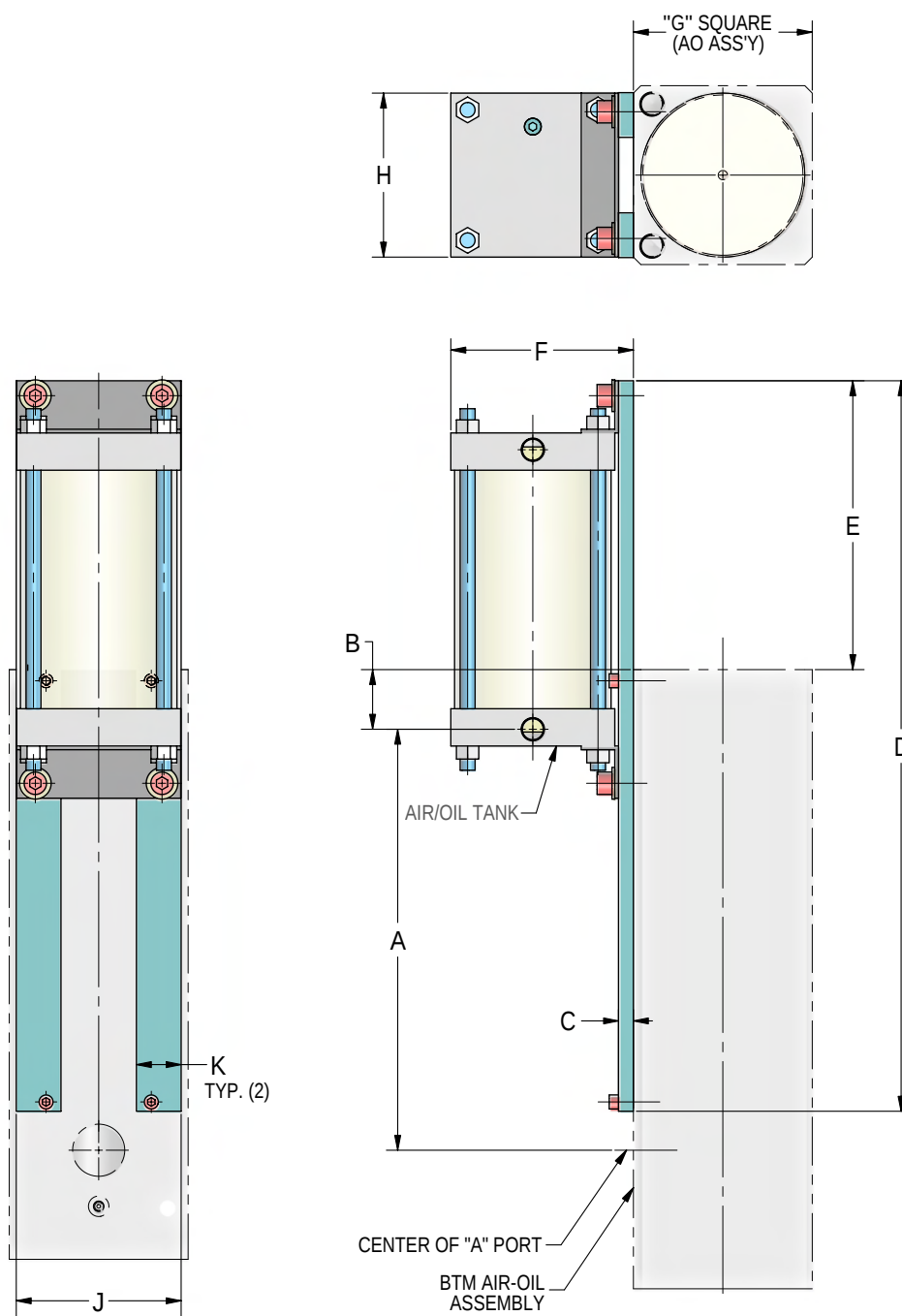


NOTE: The Air/Oil Tank should be located as near to the BTM Air/Oil Intensified Cylinder as is practical. The oil outlet port on the bottom of the Air/Oil Tank must be located above the oil inlet (ref. Port "A") on the Air/Oil Intensified Cylinder.

TANK SELECTION

Size	Ports	Usable Volume		Internal Length		Bore		A		B		C		BTM No.
		cm ³	in ³	mm	in	mm	in	mm	in	mm	in	mm	in	
3 Ton	3/8 NPT	175	10.7	152	6.00	51	2.00	44.4	1.75	254	10.00	11.1	7/16	016527
5 Ton	1/2 NPT	672	41	203	8.00	82.5	3.25	69.8	2.75	330	13.00	14.3	9/16	016526
12 & 18 Ton	1/2 NPT	1508	92	203	8.00	127	5.00	107.9	4.25	330	13.00	14.3	9/16	014236
26 & 34 Ton	3/4 NPT	2393	146	152	6.00	203	8.00	181	7.125	321	12.625	20.6	13/16	016525

Air/Oil Cylinder Tank Mounting Brackets



AIR/OIL TANK BRACKET ASSEMBLY DIMENSIONS

Size	A	B	C	D	E	F	G	H	J	K	BTM No.
5 Ton	215.4 [8.48]	136.5 [5.38]	12.7 [0.50]	387.4 [15.25]	158.8 [6.25]	114.3 [4.50]	87.9 [3.46]	95.2 [3.75]	98.0 [3.86]	31.8 [1.25]	799800A
12 & 18 Ton	359.4 [14.12]	50.8 [2.00]	12.7 [0.50]	622.3 [24.50]	246.1 [9.69]	155.4 [6.12]	152.4 [6.00]	139.7 [5.50]	140.5 [5.53]	38.1 [1.50]	033676
26 & 34 Ton	349 [13.74]	46 [1.81]	25.4 [1.00]	463.6 [18.25]	228.6 [9.00]	244.5 [9.63]	203.2 [8.00]	215.9 [8.50]	219.1 [8.62]	63.5 [2.50]	799700A

NOTE: BTM does not offer an Air/Oil Tank Bracket Assembly for the 3 Ton Air/Oil Cylinder.
Please see the "NOTE" on page 22 for mounting information.

BTM[®] CORPORATION

BTM has a wide range of standard products to meet your needs including:

PNEUMATIC CLAMPS & GRIPPERS

Light & Heavy Duty Clamps

Clamps range from light duty omni-directional head clamps to heavy duty precision sealed power clamps.



Light & Heavy Duty Grippers

BTM's Gripper line ranges from compact light duty models to locking & non-locking heavy duty models.



PIN PRODUCTS

Precision Shot Pin cylinders

BTM's Precision Part Locators are used whenever your production needs require locating precise holes in a workpiece.



Pin Locator Clamps

BTMs' Pin Locator Clamps and Single Finger clamps are used in stationary part nests, welding fixtures, transfer systems, robot end effectors and numerous other clamping applications. These clamps locate and hold the work while other operations are performed.



Standard pin sizes range from 12.5mm - 40mm.

SHEET METAL JOINING

Tog-L-Loc[®]

BTM's Tog-L-Loc[®] sheet metal joining system is a cold forming process that quickly joins pre-painted, galvanized, coated, and dissimilar metals.



Lance-N-Loc[®]

BTM's Lance-N-Loc[®] Joining System produces clean, strong and consistent joints in most coated or uncoated metals.



Ways to Tog-L-Loc[®]



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Die Sets



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Specialized Units

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