

PERMCO HYDRAULIC/PNEUMATIC PRODUCTS

Engineering Bulletin

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TO: All Sales, Pump Assembly
Cc: Manufacturing DATE: 06-14-2017

Subject

We have made a product development change to our EVO Thru-Drive vane unit product family (PT6CR, PT6DR and PT6ER) both industrial and mobile versions. This development change will affect the pad adapters, shaft assemblies and couplers.

Pad adapter overall length has been increased to add rigidity and greater support for add-a-pump scenarios; shaft assemblies and couplers have changed to accommodate the increased pad adapter lengths and couplers have incorporated a spline data change to increase PL factors.

This running production change will not affect the cam ring, cartridge kits and seal kits as these components can continue to be utilized for repair purposes.

It is important to note that Permco EVO Thru-Drive shaft assemblies and couplers will not interchange with competitor like models; however cam rings, cartridge kits and seal kits are interchangeable.

We will continue to utilize the same model number structure for unit assemblies; serviceable items such as shaft assemblies and couplers part numbers will change; all listed within this bulletin along with updated catalog information.

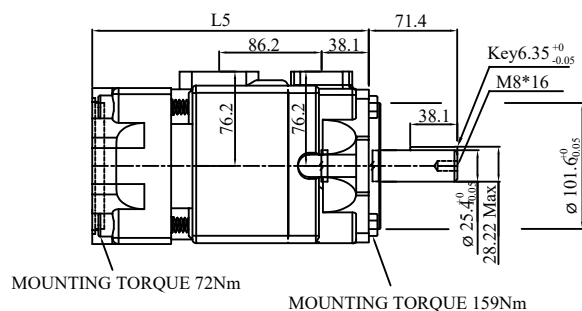
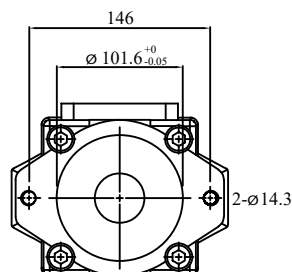
Thanks

Permco Product Development Division

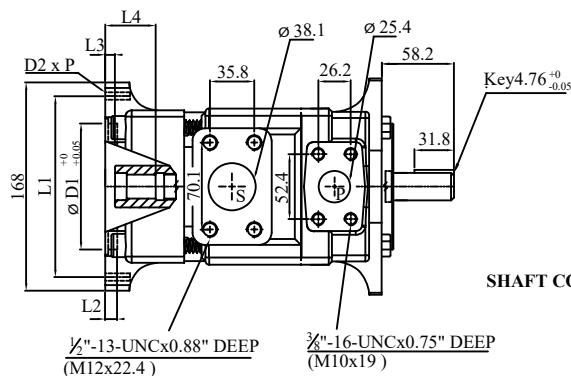
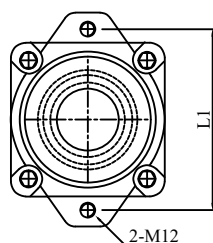


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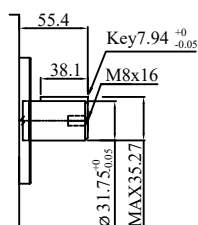
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PS24-26346-1D	PT6CR	SHAFT ASSY CODE 3 PT6CR/M REV 2
PS24-26347-1D	PT6CR	SHAFT ASSY CODE 4 PT6CR/M REV 2
PS24-26348-1D	PT6CR	SHAFT ASSY CODE 5 PT6CR/M REV 2
P034-66537-1D	PT6CR	COUPLER 9 TOOTH FOR A ADAPTER PT6CR/M REV 2
P034-66540-1D	PT6CR	COUPLER 13 TOOTH FOR B ADAPTER PT6CR/M REV 2
P034-66649-1D	PT6CR	COUPLER 13 TOOTH FOR A ADAPTER PT6CR/M REV 2
P034-66543-1D	PT6CR	COUPLER 15 TOOTH FOR B ADAPTER PT6CR/M REV 2
P034-66652-1D	PT6CR	COUPLER 11 TOOTH FOR A ADAPTER PT6CR/M REV 2
PS24-26349-1D	PT6DR	SHAFT ASSY CODE 1 PT6DR/M REV 2
PS24-26350-1D	PT6DR	SHAFT ASSY CODE 2 PT6DR/M REV 2
PS24-26351-1D	PT6DR	SHAFT ASSY CODE 3 PT6DR/M REV 2
PS24-26352-1D	PT6DR	SHAFT ASSY CODE 5 PT6DR/M REV 2
P034-66538-1D	PT6DR	COUPLER 9 TOOTH FOR A ADAPTER PT6DR/M REV 2
P034-66541-1D	PT6DR	COUPLER 13 TOOTH FOR B ADAPTER PT6DR/M REV 2
P034-66650-1D	PT6DR	COUPLER 13 TOOTH FOR A ADAPTER PT6DR/M REV 2
P034-66544-1D	PT6DR	COUPLER 15 TOOTH FOR B ADAPTER PT6DR/M REV 2
P034-66547-1D	PT6DR	COUPLER 14 TOOTH FOR C ADAPTER PT6DR/M REV 2
P034-66653-1D	PT6DR	COUPLER 11 TOOTH FOR A ADAPTER PT6DR/M REV 2
PS24-26339-1D	PT6ER	SHAFT ASSY CODE 1 PT6ER/M REV 2
PS24-49361-1D	PT6ER	SHAFT ASSY CODE 3 PT6ER/M REV 2
PS24-26340-1D	PT6ER	SHAFT ASSY CODE 4 PT6ER/M REV 2
P034-66539-1D	PT6ER	COUPLER 9 TOOTH FOR A ADAPTER PT6ER/M REV 2
P034-66542-1D	PT6ER	COUPLER 13 TOOTH FOR B ADAPTER PT6ER/M REV 2
P034-66651-1D	PT6ER	COUPLER 13 TOOTH FOR A ADAPTER PT6ER/M REV 2
P034-66545-1D	PT6ER	COUPLER 15 TOOTH FOR B ADAPTER PT6ER/M REV 2
P034-66548-1D	PT6ER	COUPLER 14 TOOTH FOR C ADAPTER PT6ER/M REV 2
P034-66654-1D	PT6ER	COUPLER 11 TOOTH FOR A ADAPTER PT6ER/M REV 2



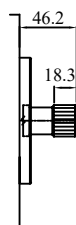
SHAFT CODE 1



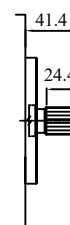
SHAFT CODE 2



SHAFT CODE 5



SHAFT CODE 4
SAE BB splined shaft
Class 1-J498b 16/32 d.p.
-15 teeth
30° pressure angle flat
root side fit



SHAFT CODE 3
SAE B splined shaft
Class 1-J498b 16/32 d.p.
-13 teeth
30° pressure angle flat
root side fit

Adapter	SAE A			SAE B	
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB
Number of teeth	9	11	13	13	15
Pitch	16/32	16/32	16/32	16/32	16/32
Pressure angle	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.40
Minor dia.(min)	12.70	16.00	19.125	19.125	22.275

Adapter	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82.6	M10	24	106.4	7.0	7.9	32.0	209.0
SAE B	101.65	M12	28	146.0	9.7	7.9	46.0	223.0

Shaft torque limits(ml/rev x bar)				
Pump	Shaft	Vp x p max	Coupling drive	Vp x p max
PT6CR	1	21420	SAE A	11000
	2	14300	SAE B	20600
	3	20600	SAE BB	22050
	4	32670	SAE C	22050
	5	34180	SAE 11 teeth	15850

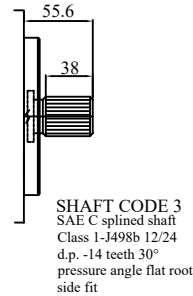
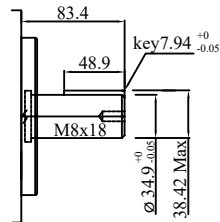
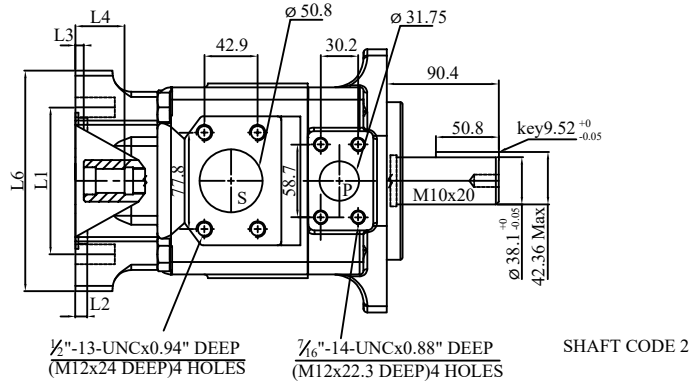
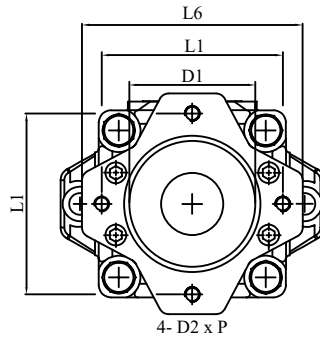
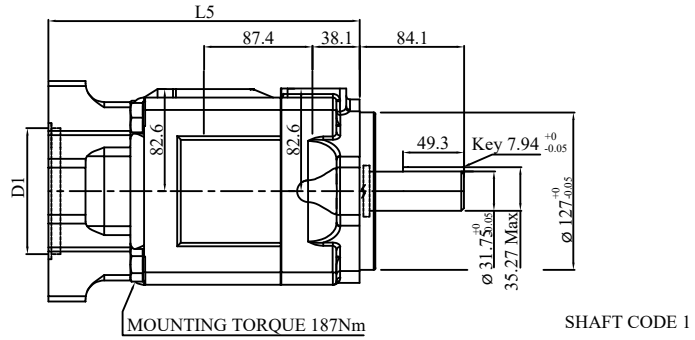
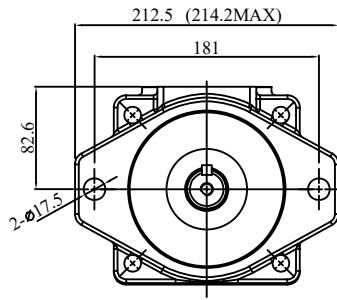
OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

(input power p (kw) for one cartridge only)

Pressure port	Series	Volumetric Displacement Vp	Flow qve l/min 1500rpm			Input power P [KW]1500rpm			P Max BAR	Max R.P.M.
		cm ³/rev	P = 0 bar	P = 140 bar	P = 240 bar	P =7 bar	P =140 bar	P =240 bar		
P1	005	17.2	25.8	20.8	17.3	1.4	7.5	12.2	275	2800
	006	21.3	31.9	26.9	23.4	1.5	8.9	14.7		
	008	26.4	39.6	34.6	31.1	1.6	10.7	17.7		
	010	34.1	51.1	46.1	42.6	1.7	13.4	22.3		
	012	37.1	55.6	50.6	47.1	1.7	14.4	24.1		
	014	46.0	69.0	64.0	60.5	1.9	17.6	29.5		
	017	58.3	87.4	82.4	78.9	2.1	21.9	36.9		
	020	63.8	95.7	90.7	87.2	2.2	23.8	40.2		
	022	70.3	105.4	100.4	96.9	2.3	26.1	44.1		
	025 1)	79.3	118.9	113.9	110.4	2.5	29.2	49.5	210	2500
	028 1)	88.8	133.2	128.2	125.8 2)	2.8	32.7	48.5 2)		
	031 1)	100.0	150.0	145.0	142.6 2)	2.8	36.5	54.4 2)		

1) 025 - 028 - 031 = 2500 R.P.M.max

2) 028 - 031 = 210 bar max. int.



Shaft torque limits (ml/rev x bar)			
Shaft	V x p max.	Couplins drive	V x p max.
1	43240	SAE A	11000
2	66036	SAE B	20600
3	61200	SAE BB	32670
5	55600	SAE C	37390
		SAE -11 teeth	15850

Adapter	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.4	31.75
Minor dia.(min)	12.7	16.017	19.134	19.134	22.268	27.589

Adaptor	D1	D2	P	L1	L2	L3	L4	L5	L6
SAE A	82.65/82.60	M10	24	106.4	7.0	8.0	32.0	237.0	178.0
SAE B	101.70/101.65	M12	28	146.0	9.7	8.0	46.0	251.0	178.0
SAE C	127.10/127.05	M16	—	181.0	12.7	8.0	56.0	261.0	216.0

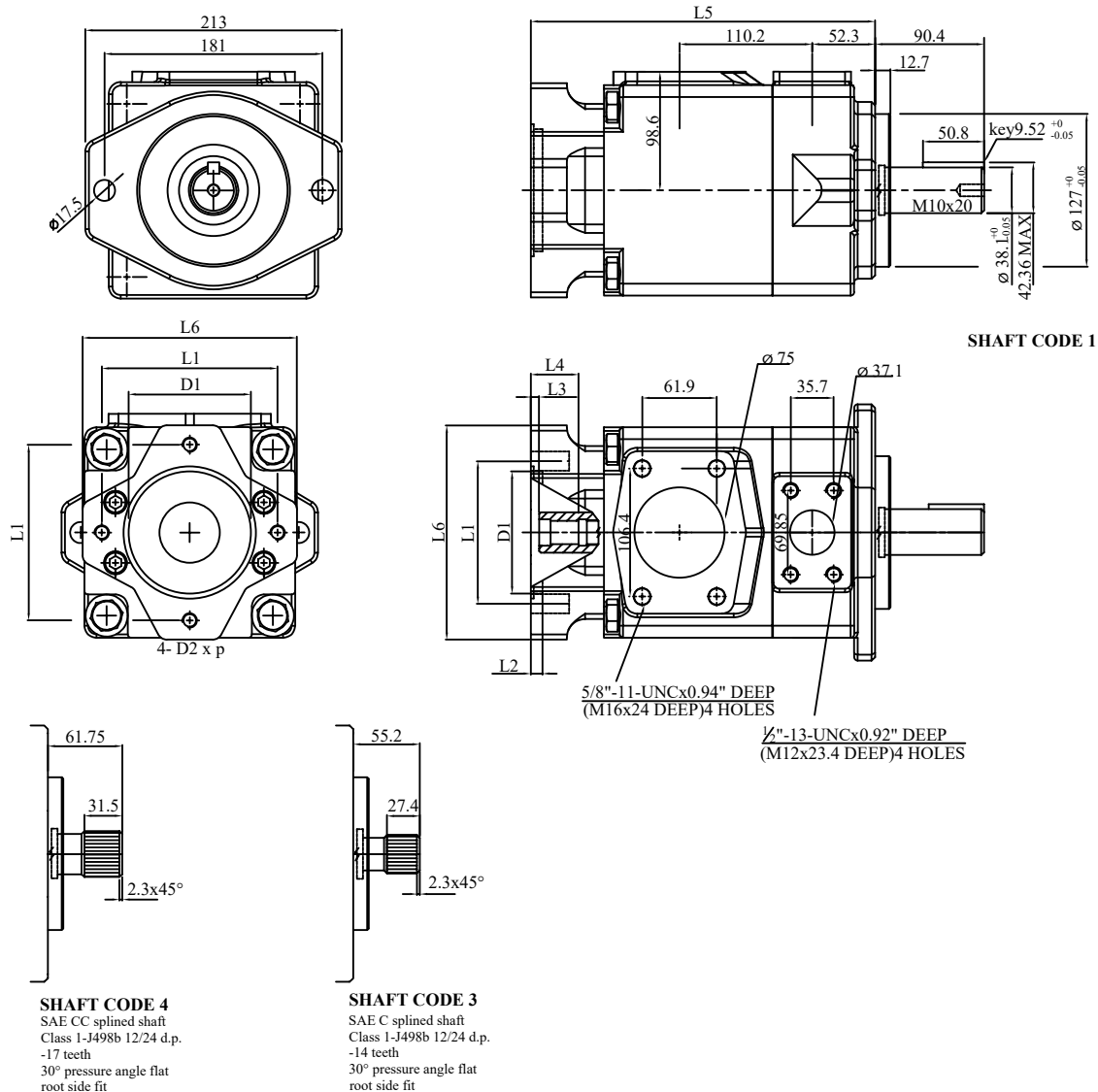
Pressure port	Series	Volumetric Displacement Vp	Flow qve [l/min]1500rpm			Input power P [KW]1500rpm			P Max BAR	Max R.P.M.
		cm ³ /rev	P = 0 bar	P = 140 bar	P = 240 bar	P = 7 bar	P = 140 bar	P = 240 bar		
P	014	47.6	71.4	62.1	55.9	2.3	18.5	30.6	240	2500
	017	58.2	87.3	78.0	71.8	2.5	22.2	37.0		
	020	66.0	99.0	89.7	83.5	2.8	24.9	41.7		
	024	79.5	119.3	110.0	103.8	3.0	29.6	49.8		
	028	89.7	134.5	125.2	119.0	3.2	33.2	55.9		
	031	98.3	147.5	138.1	131.9	3.3	36.2	61.0		
	035	111.0	166.5	157.2	151.0	3.5	40.7	68.7		
	038	120.3	180.4	171.1	164.9	3.7	43.9	74.3		
	042 1)	136.0	204.0	194.7	188.5	4.0	49.4	83.7		
	045 1)	145.7	218.5	209.2	203.0	4.1	52.8	89.5		
	050 1)	158.0	237.0	227.7	224.0 2)	4.4	57.0	85.0 2)	210	2200
	061 1)	190.5	285.7	278.0 3)	-	4.6	60.6 3)	-	120	

1) 042 - 045 - 050 - 061 = 2200 rpm.max

2) 050 = 210 bar max. int.

3) 060 = 120 bar max. int.

Min Speed : 600 rpm



Shaft torque limits (ml/rev x bar)			
Shaft	V x p max.	Couplins drive	V x p max.
1	43240	SAE A	11000
2	66036	SAE B	20600
3	61200	SAE BB	32670
5	55600	SAE C	37390
		SAE -11 teeth	15850

Adapter	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.4	31.75
Minor dia.(min)	12.7	16.017	19.134	19.134	22.268	27.589

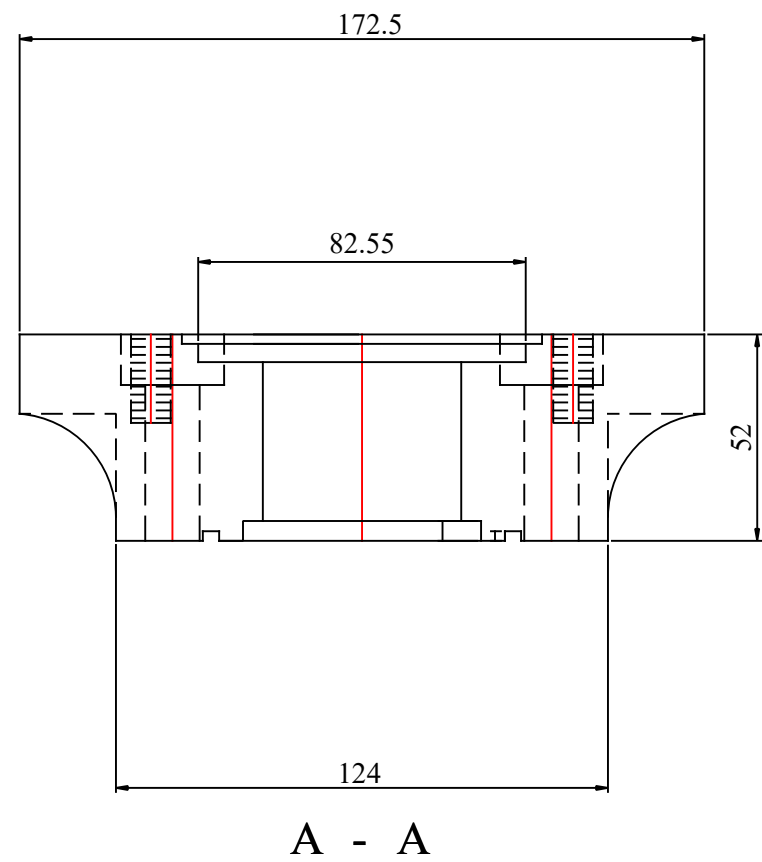
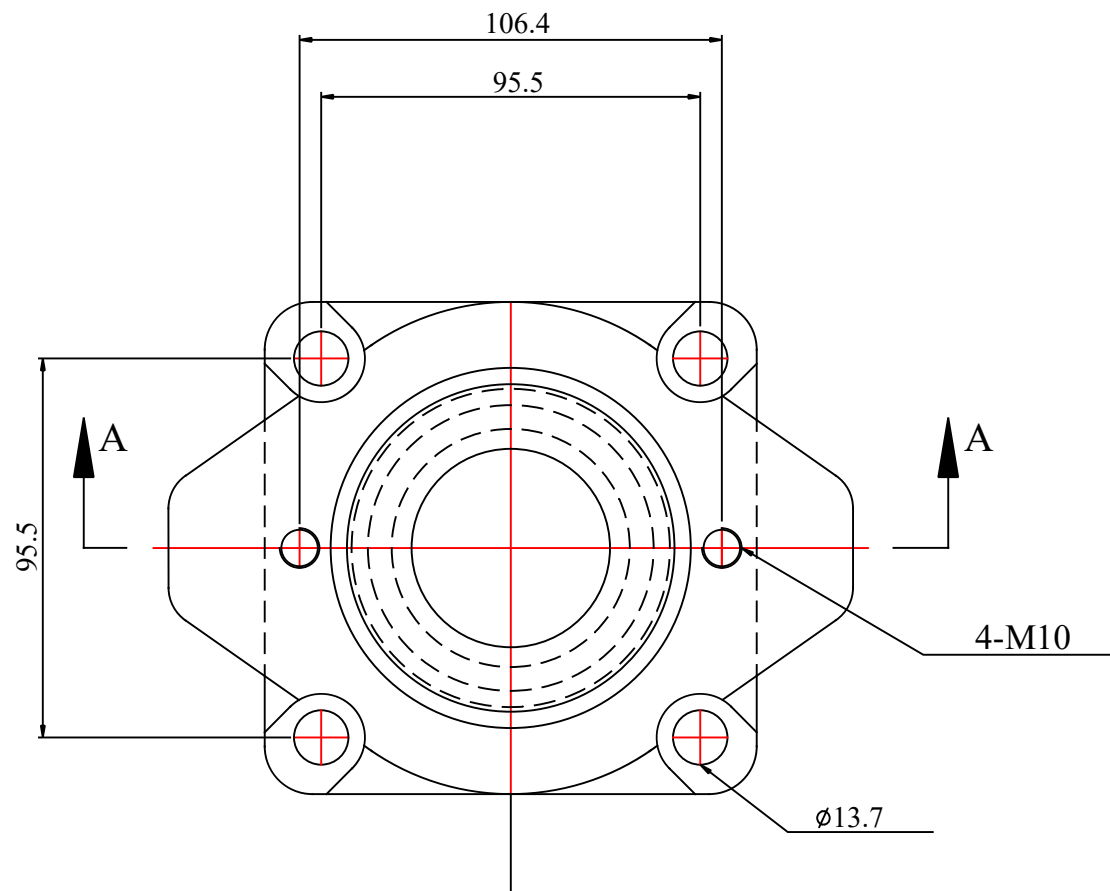
Adaptor	D1	D2	P	L1	L2	L3	L4	L5	L6
SAE A	82.65/82.60	M10	24	106.4	7.0	8.0	32.0	237.0	178.0
SAE B	101.70/101.65	M12	28	146.0	9.7	8.0	46.0	251.0	178.0
SAE C	127.10/127.05	M16	-	181.0	12.7	8.0	56.0	261.0	216.0

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

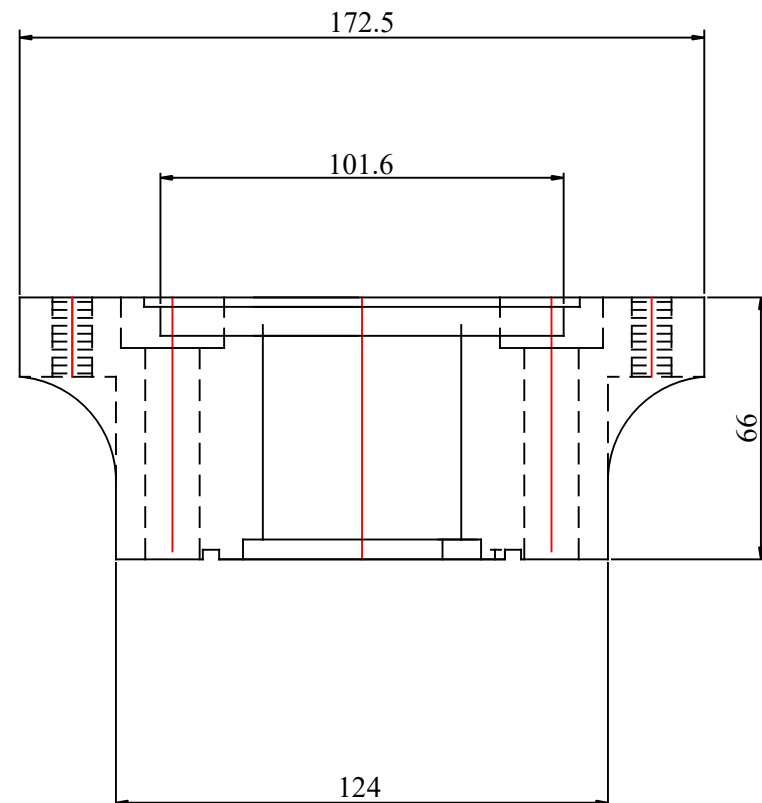
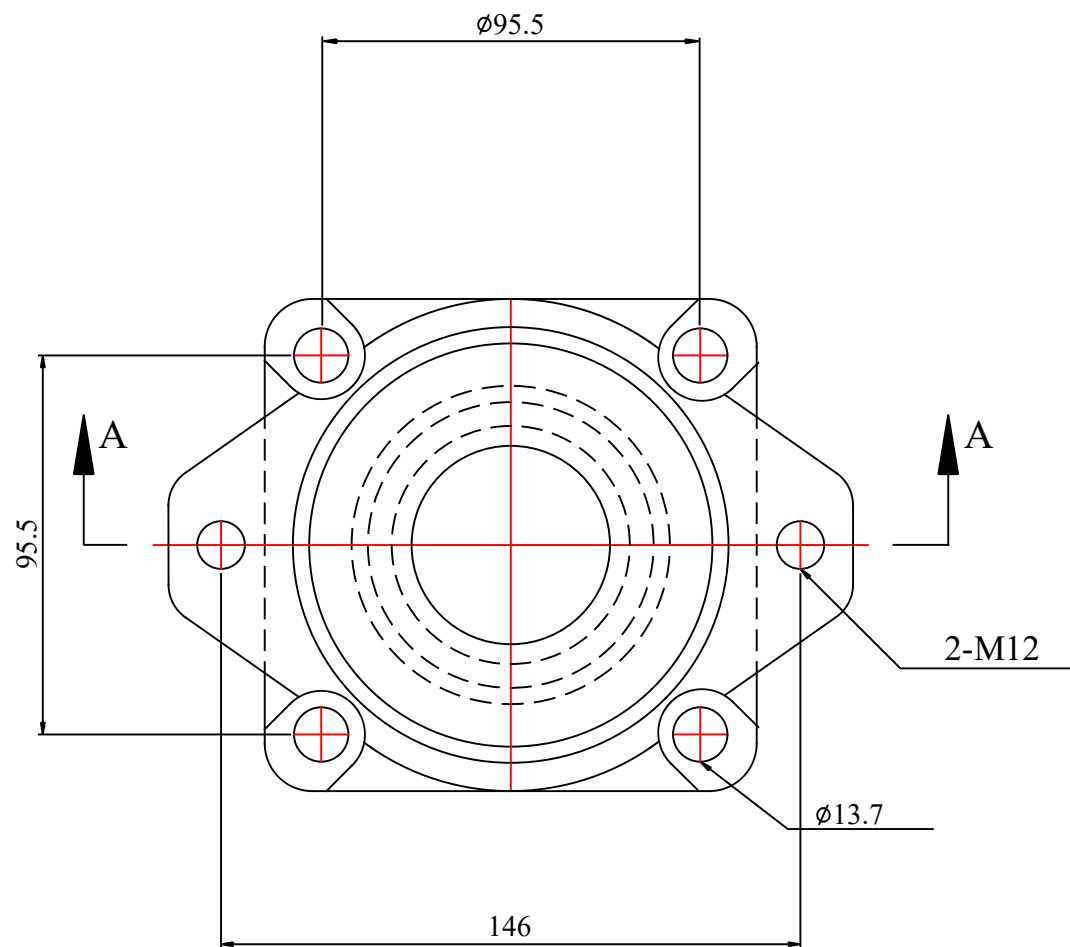
Pressure port	Series	Volumetric Displacement Vp	Flow qve [l/min]1500rpm			Input power P [KW]1500rpm			P Max BAR	Max R.P.M.
			P = 0 bar	P = 140 bar	P = 240 bar	P = 7 bar	P = 140 bar	P = 240 bar		
P	042	132.3ml/rev	198.5	188.5	181.3	5.2	49.4	82.6	240	2200
	045	142.4ml/rev	213.6	203.6	196.5	5.4	52.9	88.7		
	050	158.5ml/rev	237.7	227.7	220.6	5.7	58.5	98.3		
	052	164.8ml/rev	247.2	237.2	230.1	5.8	60.8	102.1		
	057	180.7ml/rev	271.1	261.1	254.0	6.1	66.4	106.9		
	062	196.7ml/rev	295.0	285.0	277.9	6.4	71.9	121.3		
	066	213.3ml/rev	319.9	309.9	302.8	6.7	77.7	131.2		
	072	227.1ml/rev	340.6	330.6	323.5	6.9	82.6	139.5		
	085 1)	269.8ml/rev	404.7	397.7 2)	-	7.3	65.3 2)	-	90	2000

1) 085 = 2000 rpm max.

2) 085 = 75 bar cont. 085=90bar max. int



		PT6CR (SAE-A) (82.55)		
		<i>PERMCO</i>		2013/12
	1 : 1			Rev.2
	mm			



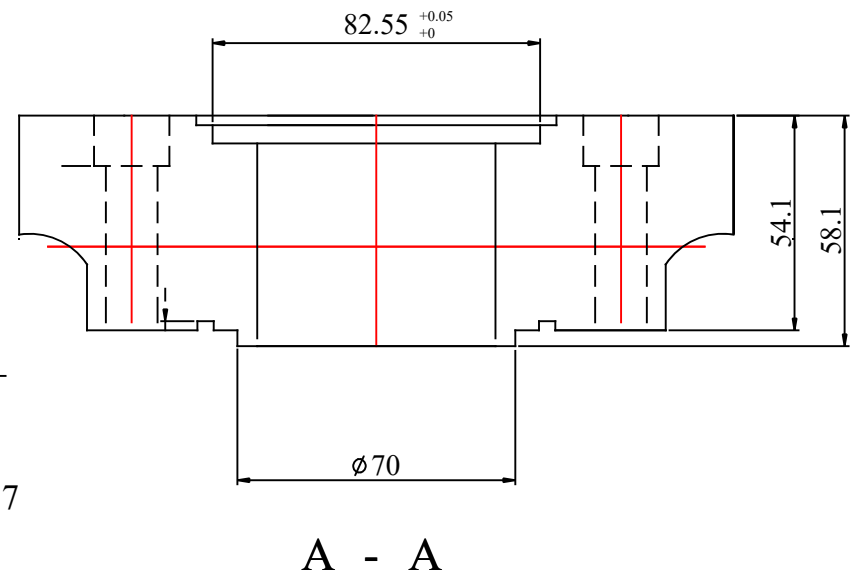
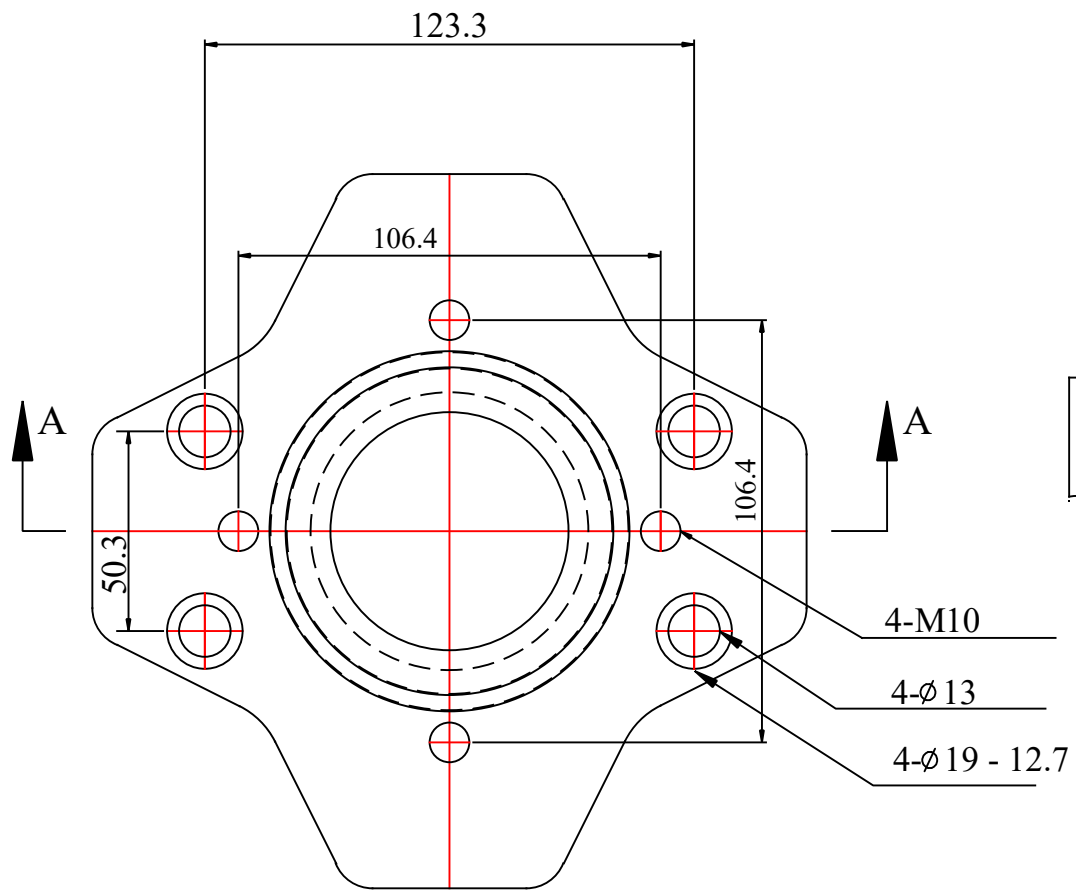
A - A

PERMCO

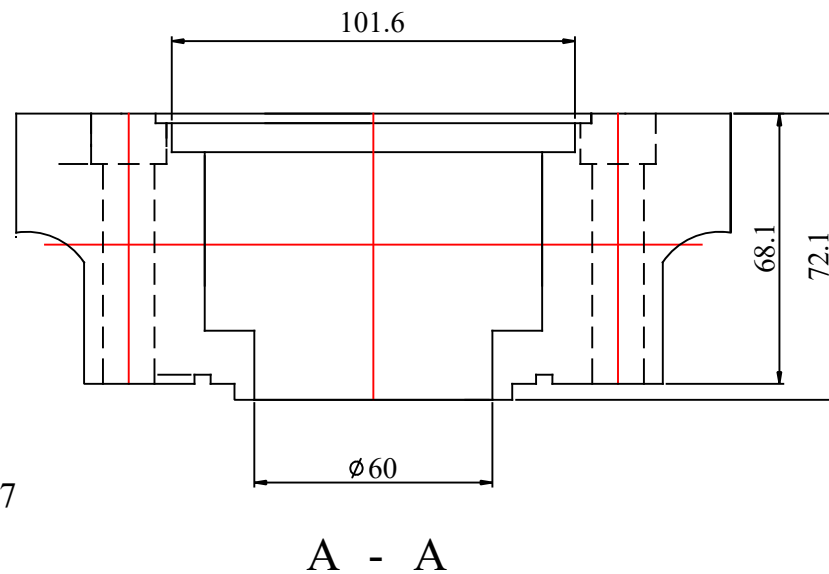
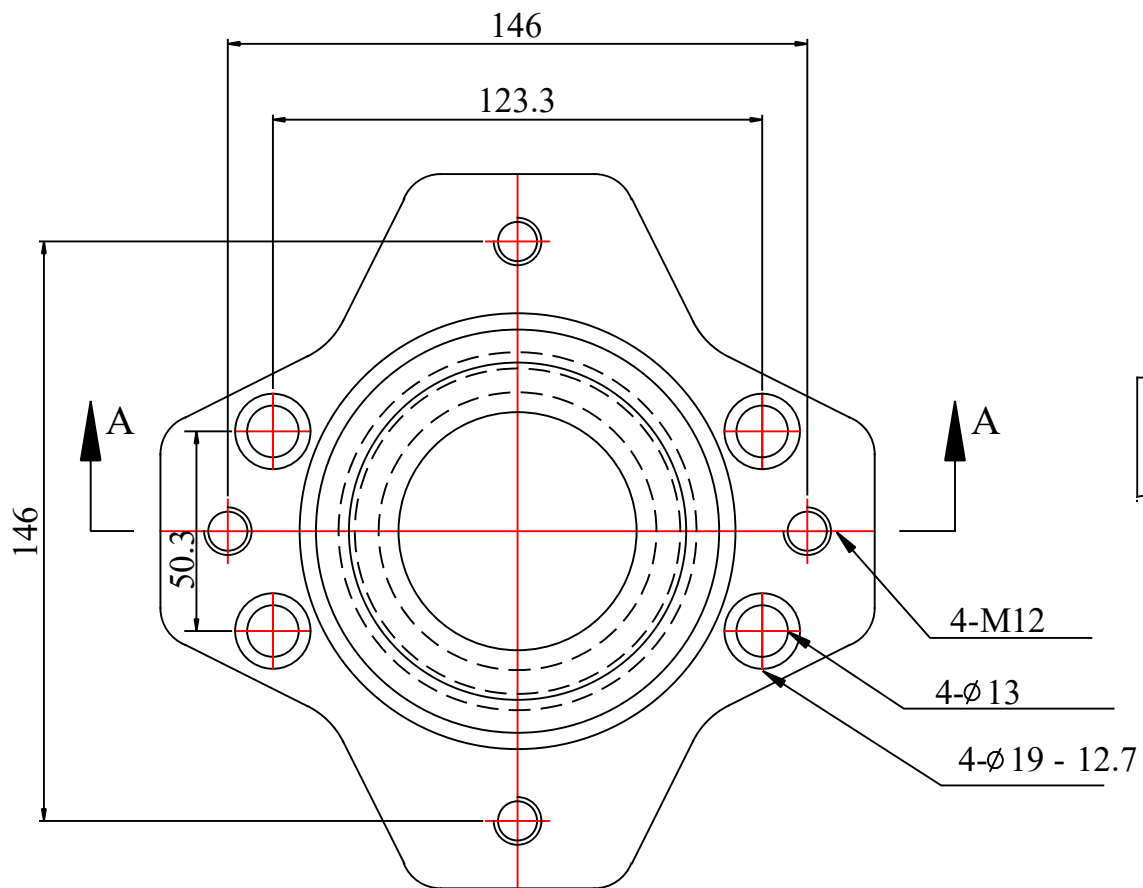
PT6CR (SAE-B) (101.6)

2013-10-31

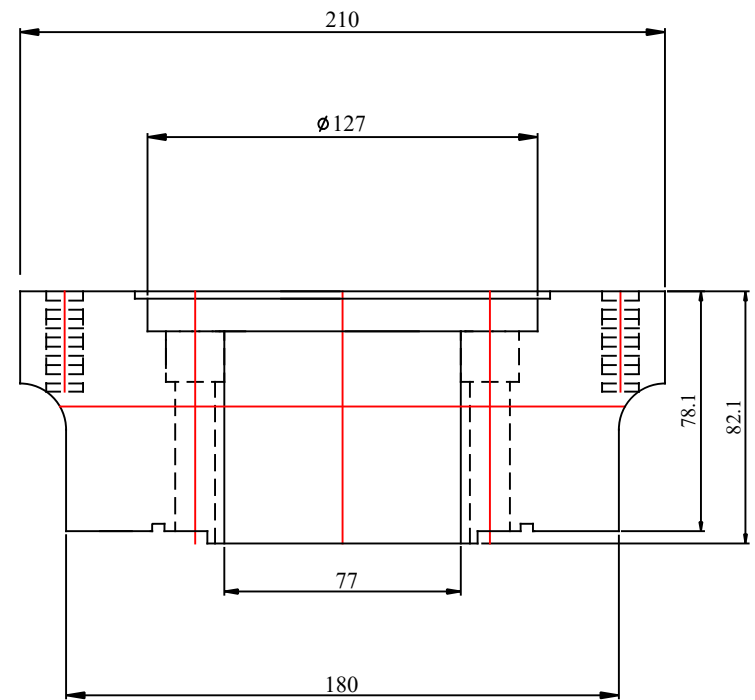
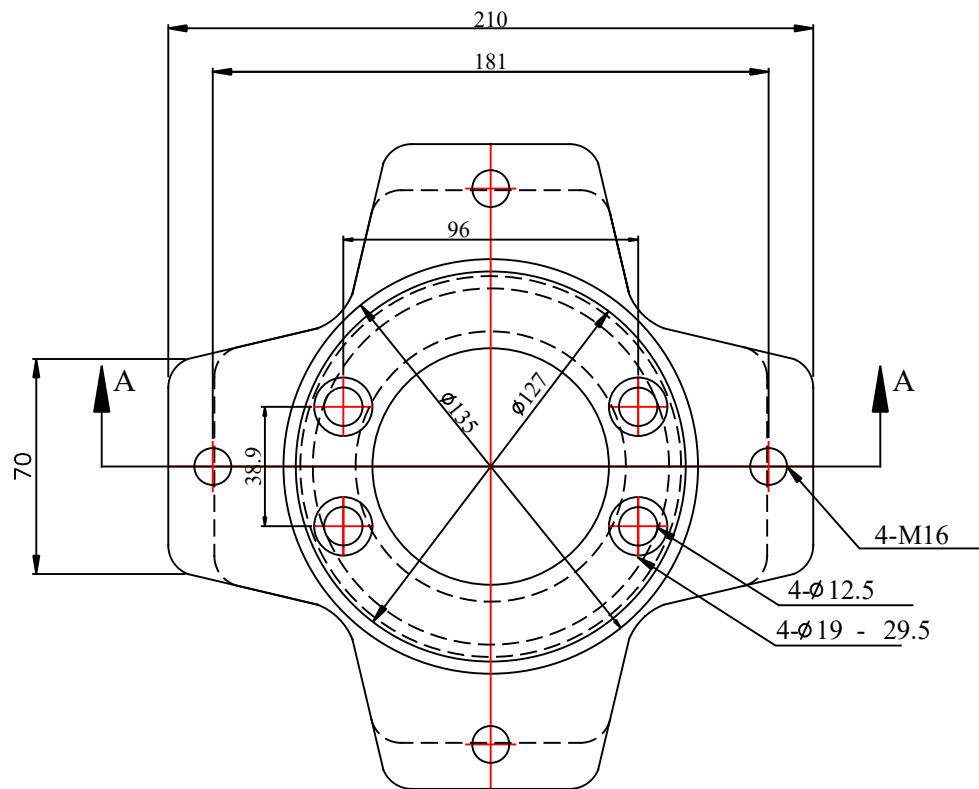
Rev.2



		PT6DR (SAE-A) (82.55)		
		<i>PERMCO</i>		
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	mm			Rev.2

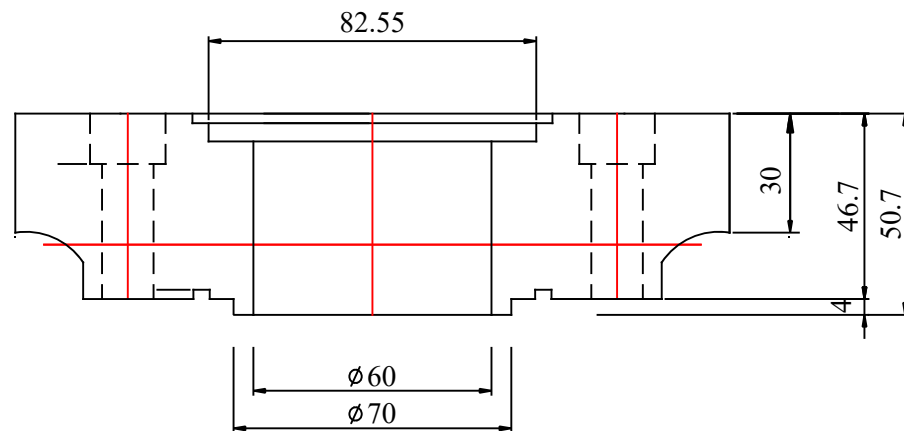
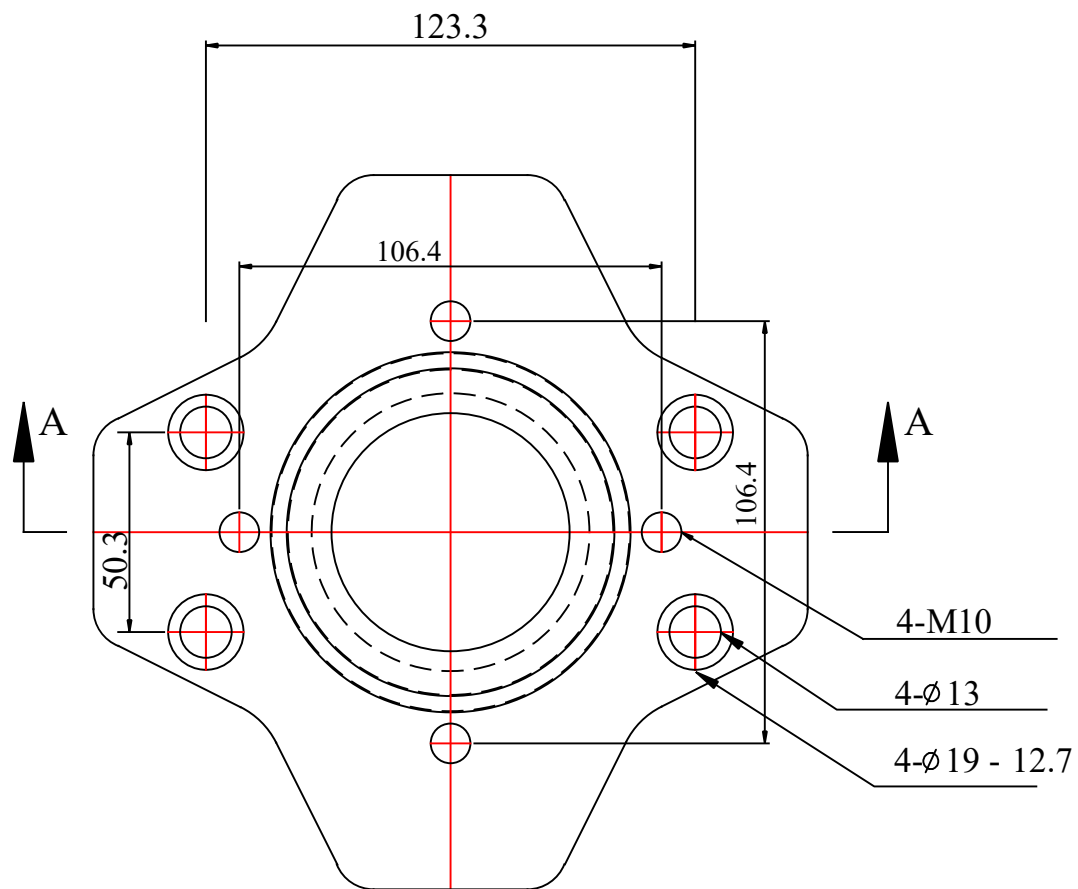


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		<i>PERMCO</i>		2013/12
	1 : 1			Rev.2
	mm			



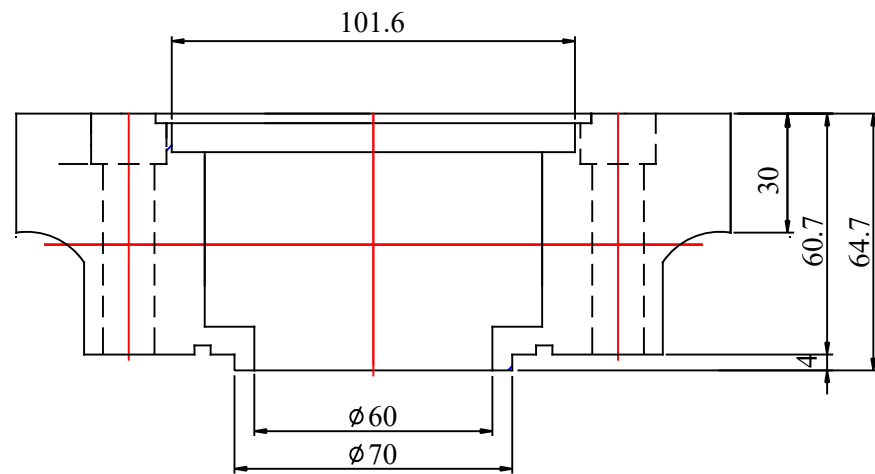
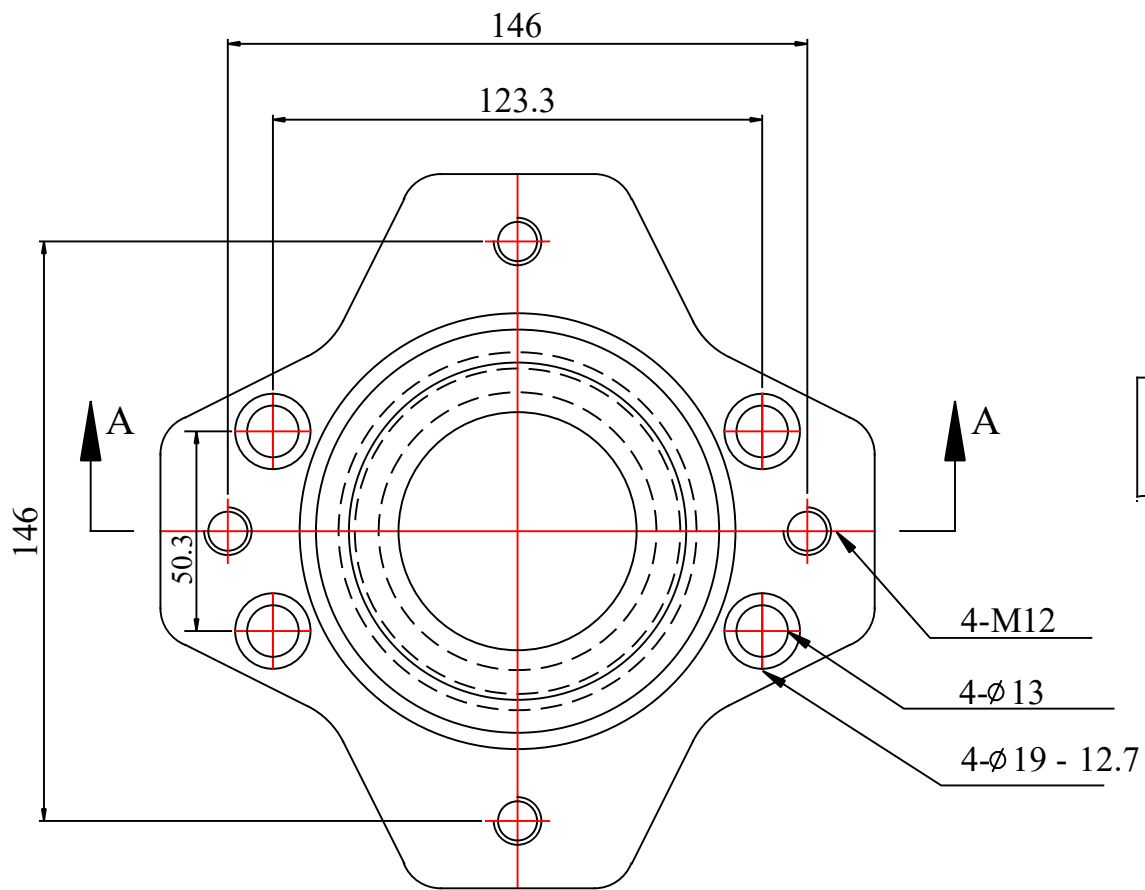
A - A

PT6DR (SAE-C) (127)				
	1 : 1	PERMCO		2013/12
	mm			Rev.2



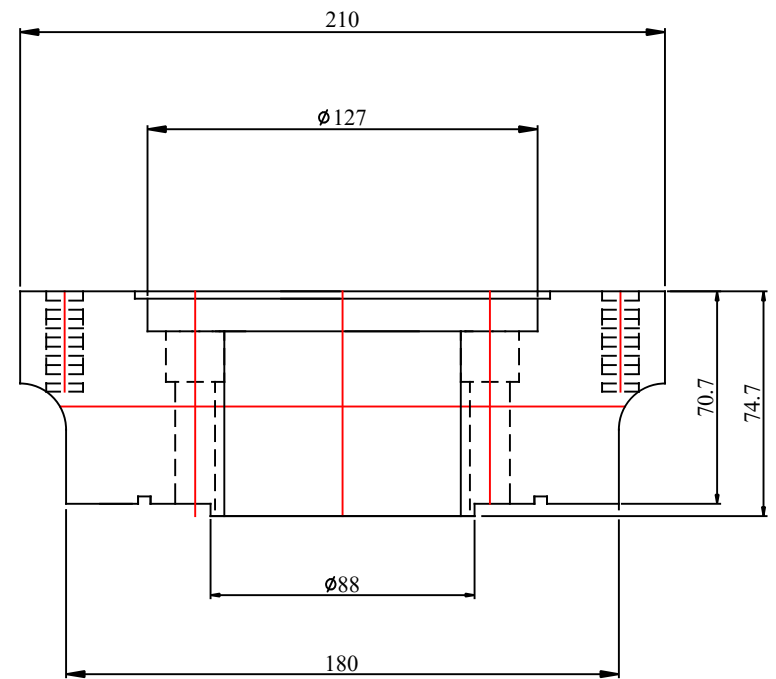
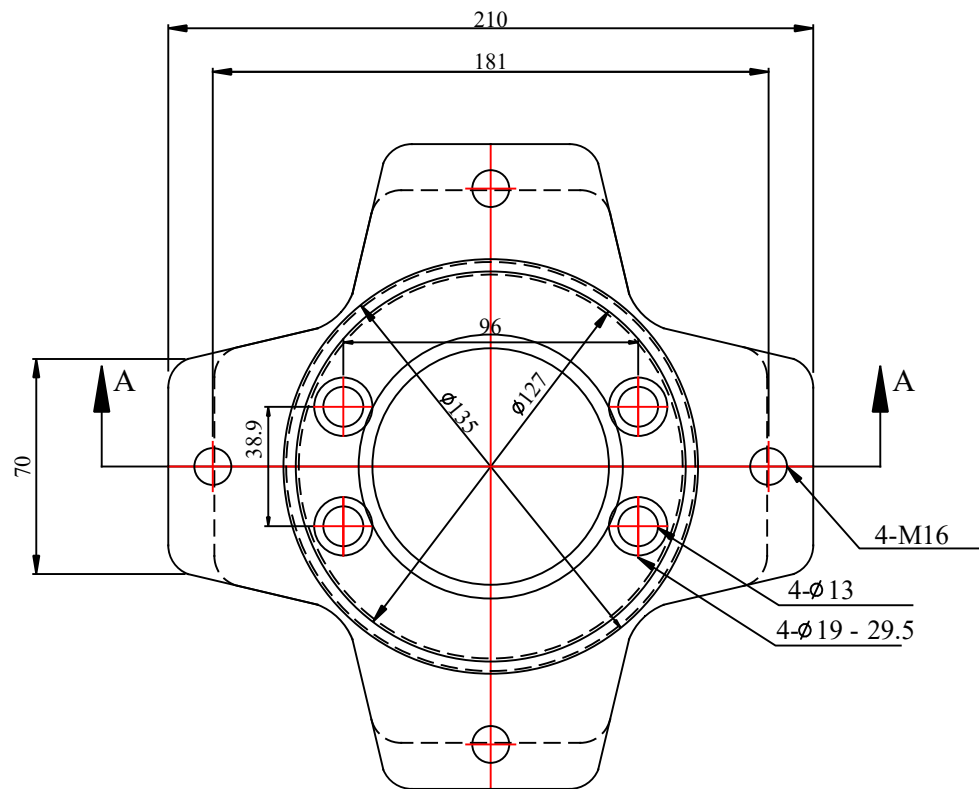
A - A

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	mm			



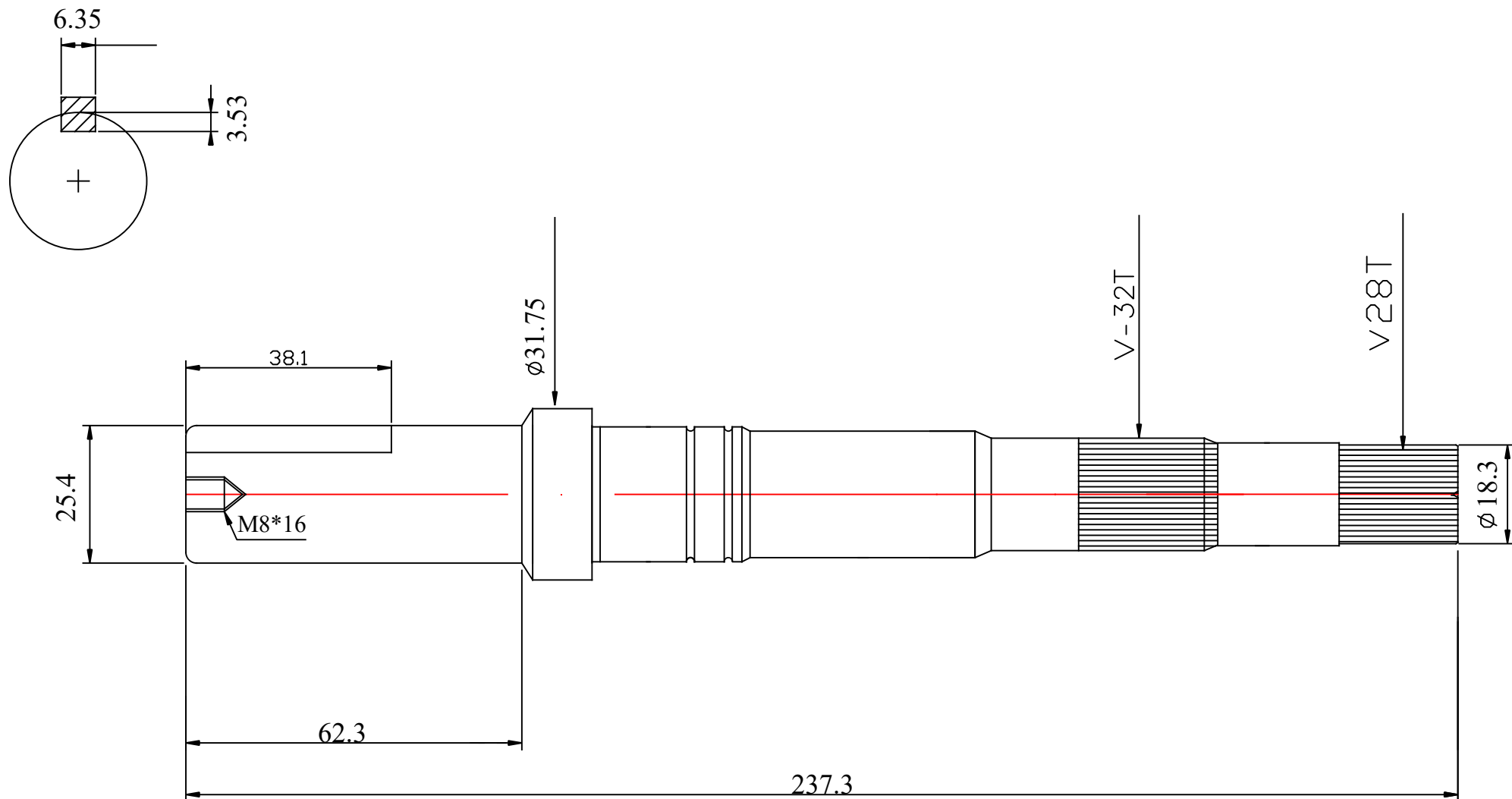
A - A

PT6ER (SAE-B) (101.6)				
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	mm			Rev.2

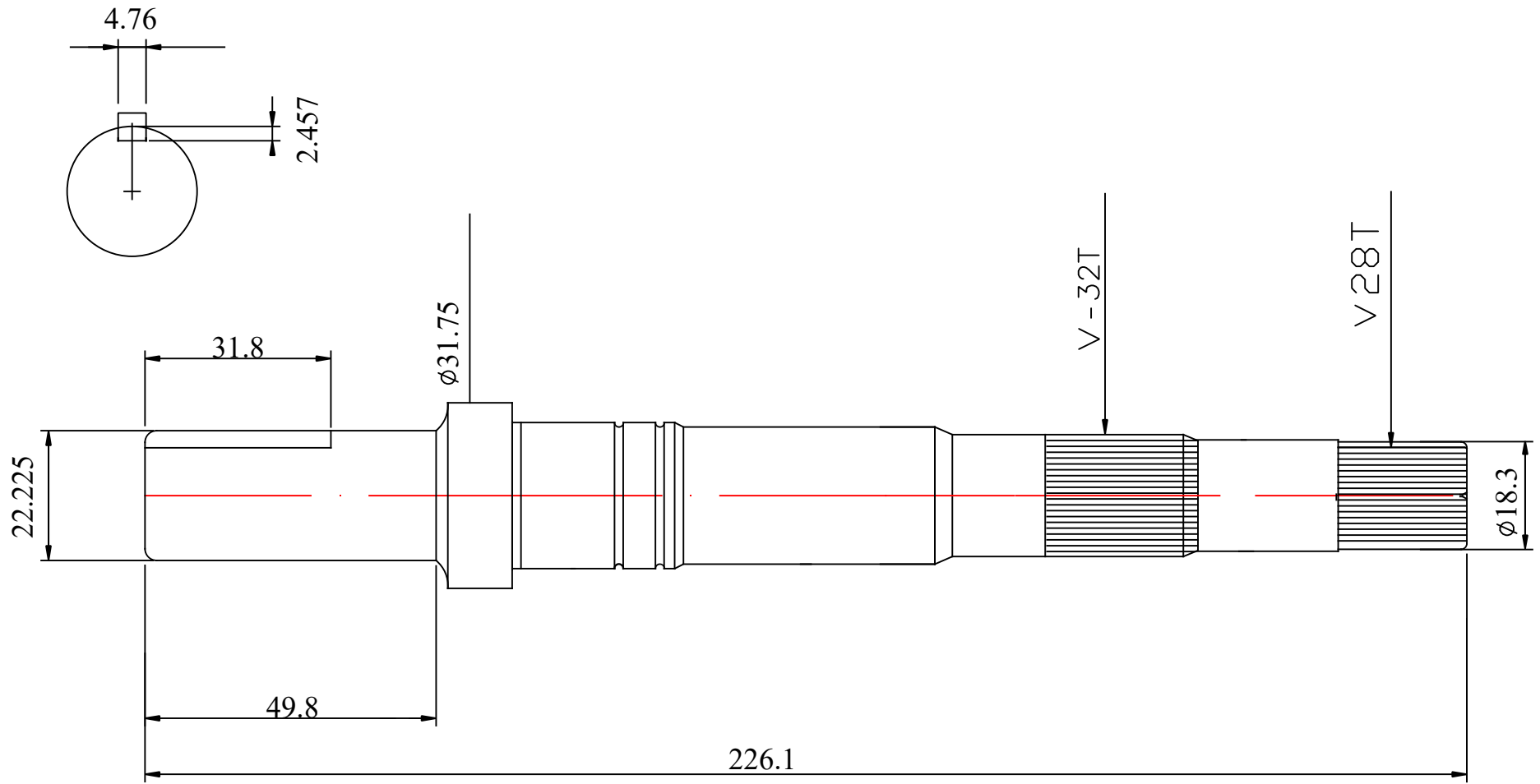


A - A

PT6ER (SAE-C) (127)				
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	mm			Rev.2

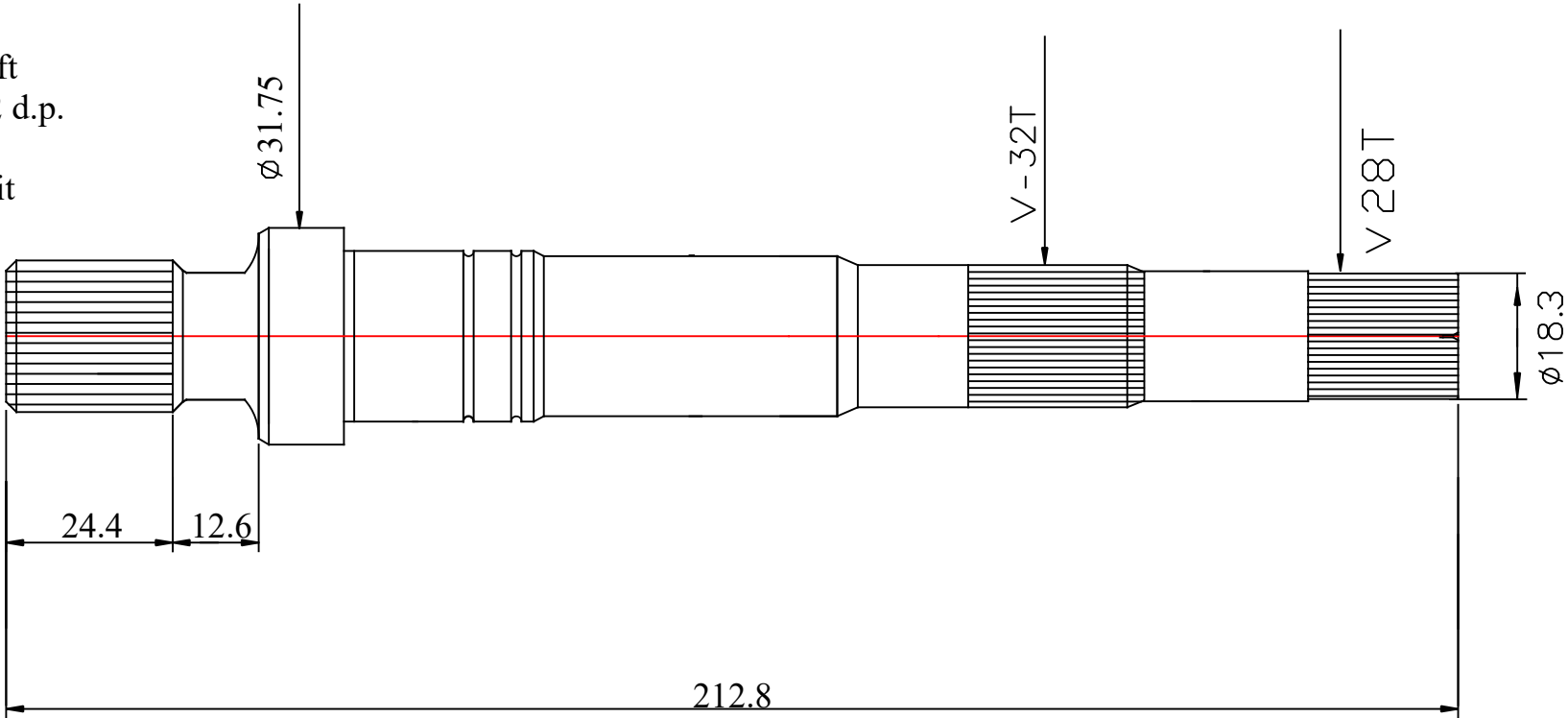


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	mm			Rev.2



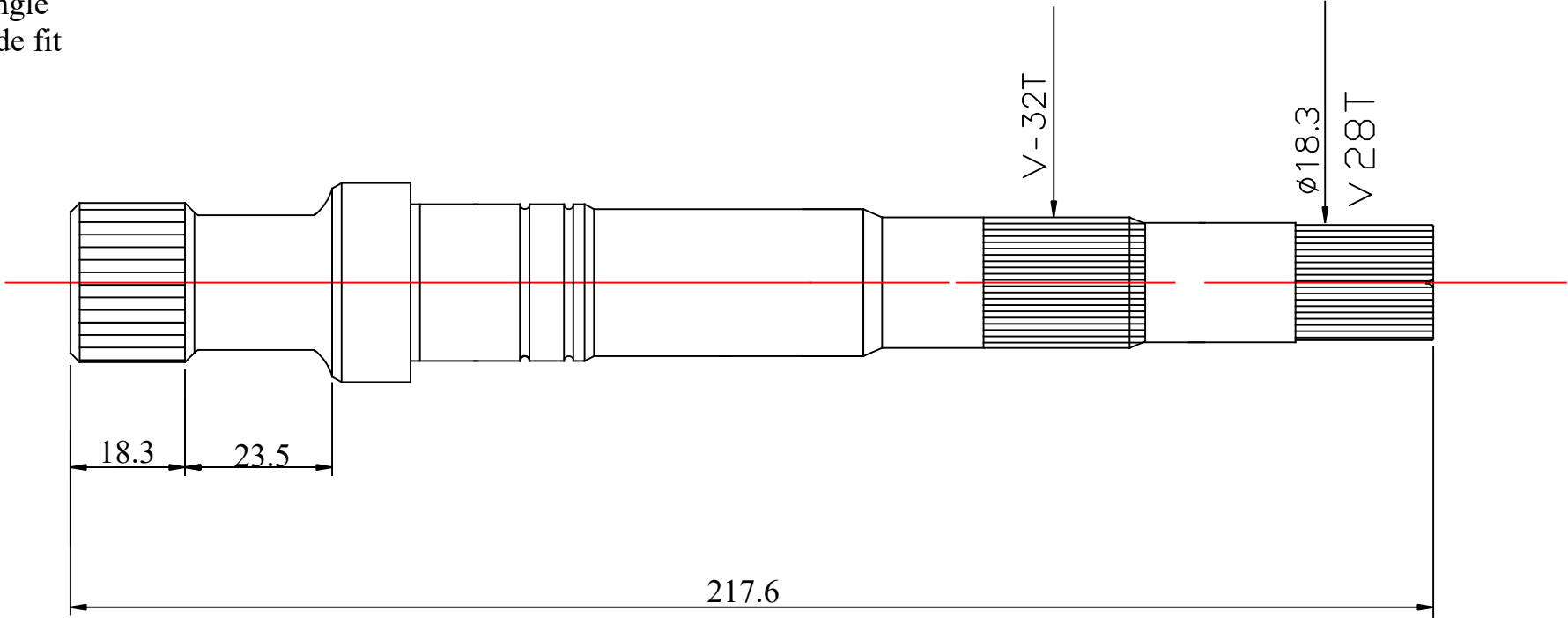
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	1:1			20131104
	mm			Rev.2

SAE B-B splined shaft
Class 1-J498 b 16/32 d.p.
-13 teeth 30° pressure
angle flat root side fit

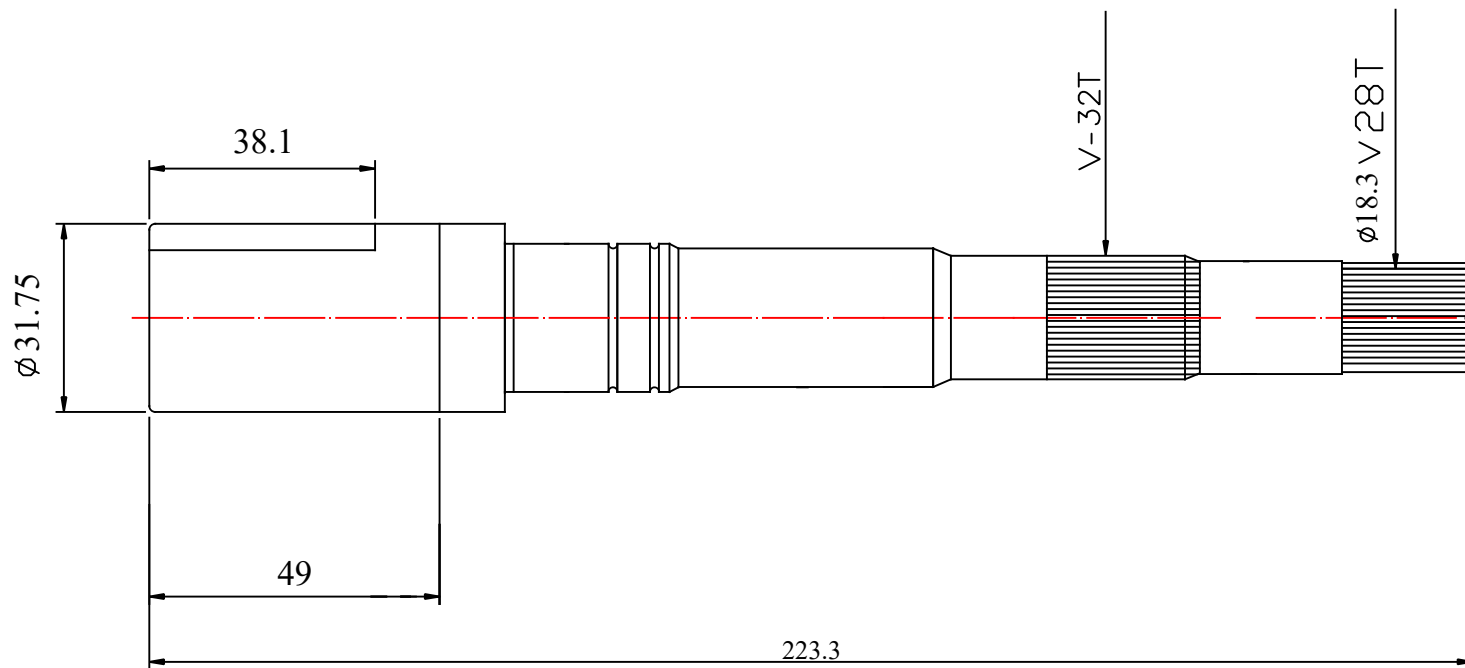
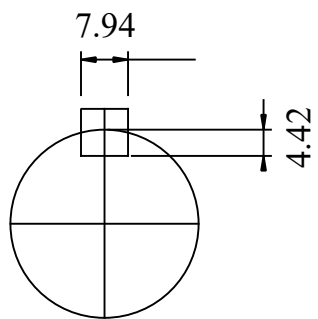


		PT6CR #3		
	1:1			201312
	mm			Rev.2

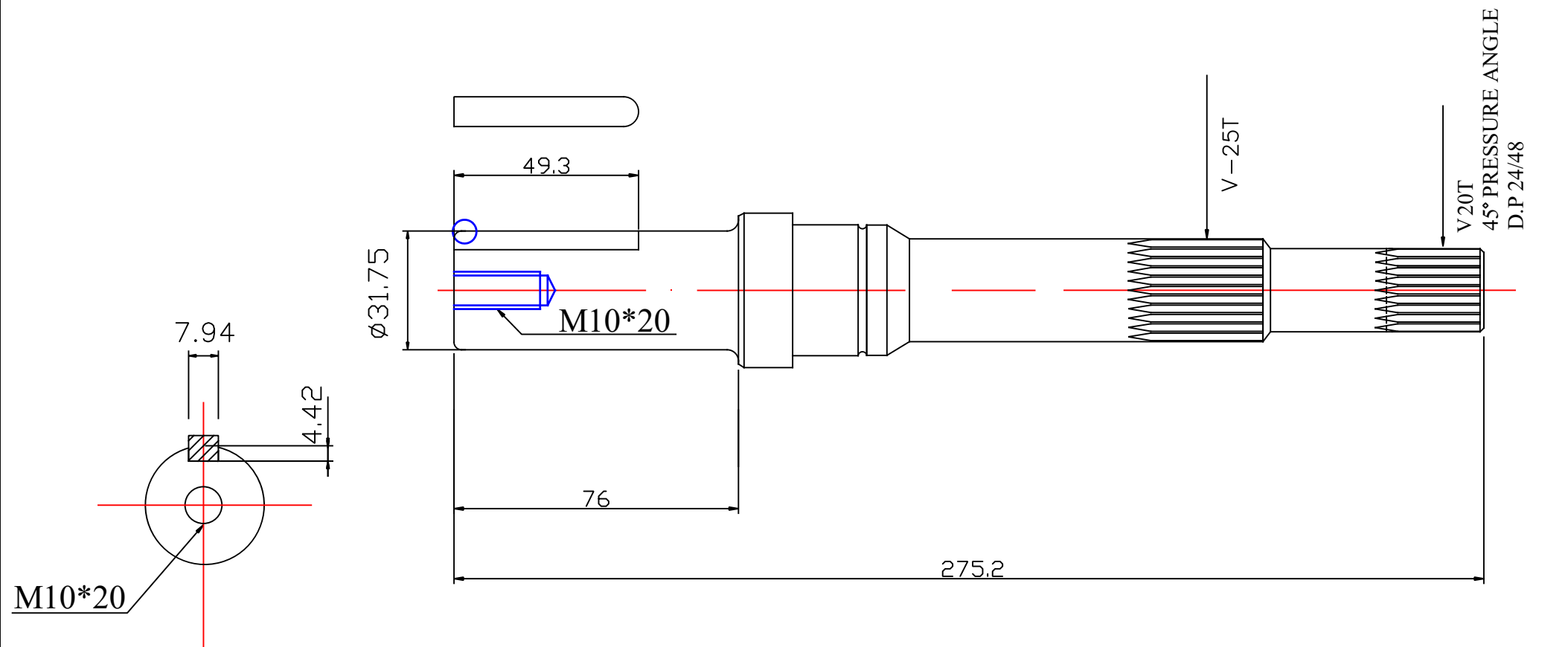
SAE B splined shaft
16/32 d.p. -15 teeth 30°
pressure angle
flat root side fit



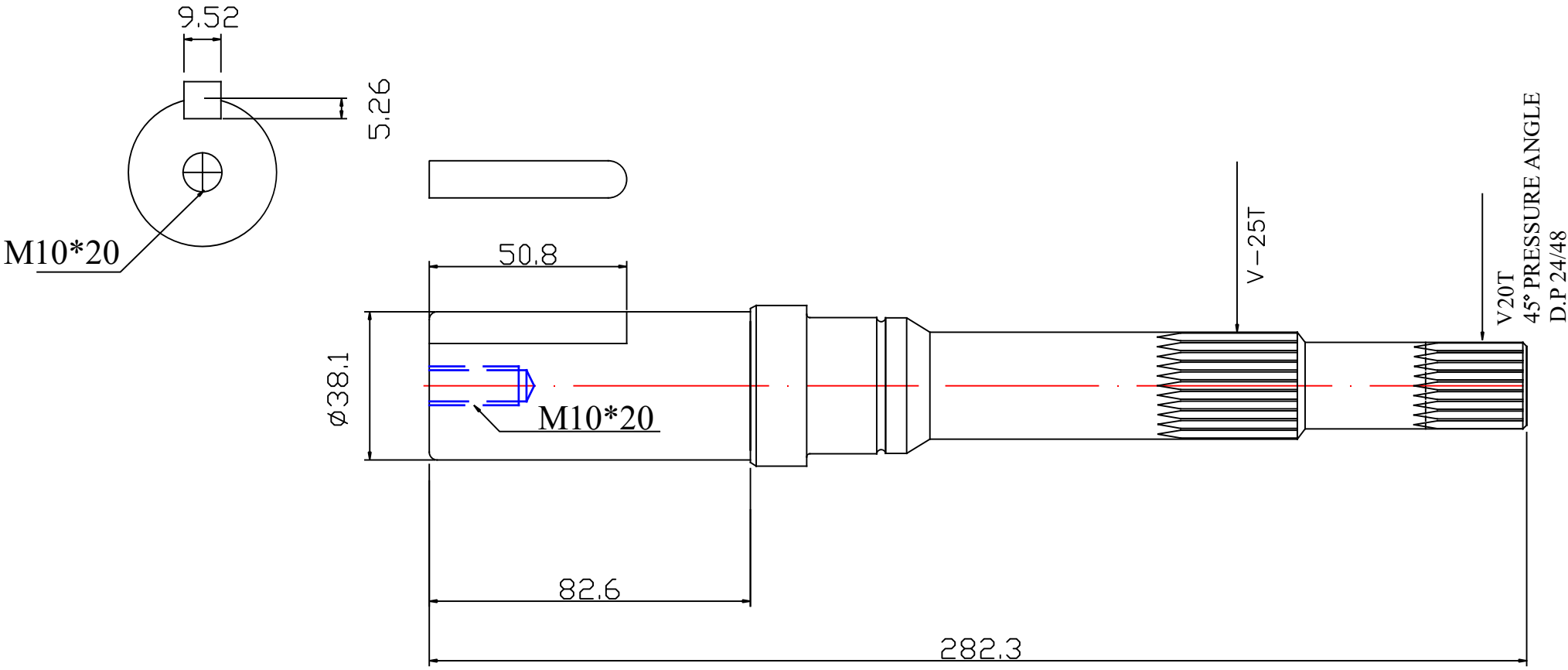
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	mm			Rev.2



		PT6CR #5		
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	mm			Rev.2

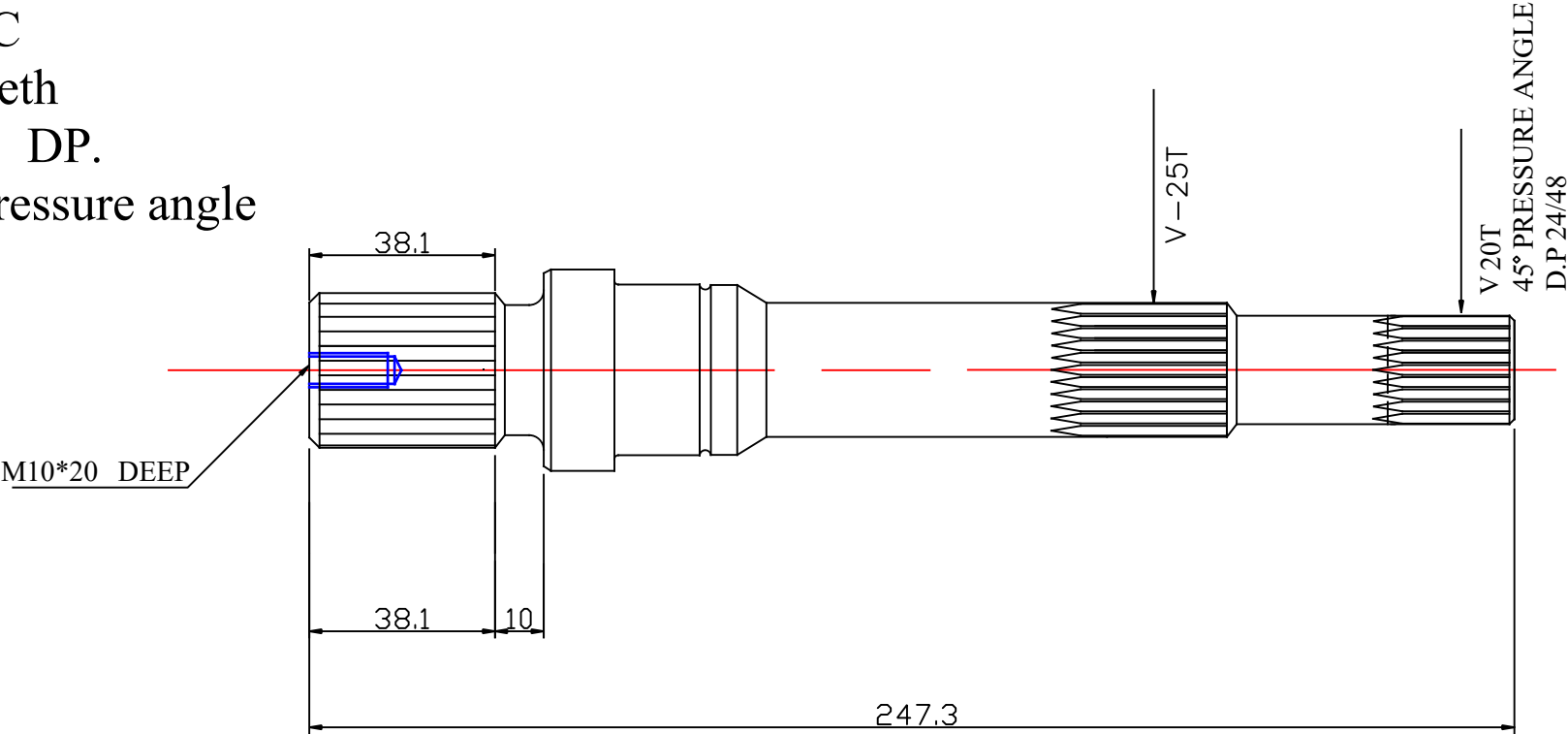


		PT6DR #1		
				2013/11
	1:1			Rev.2
	mm			

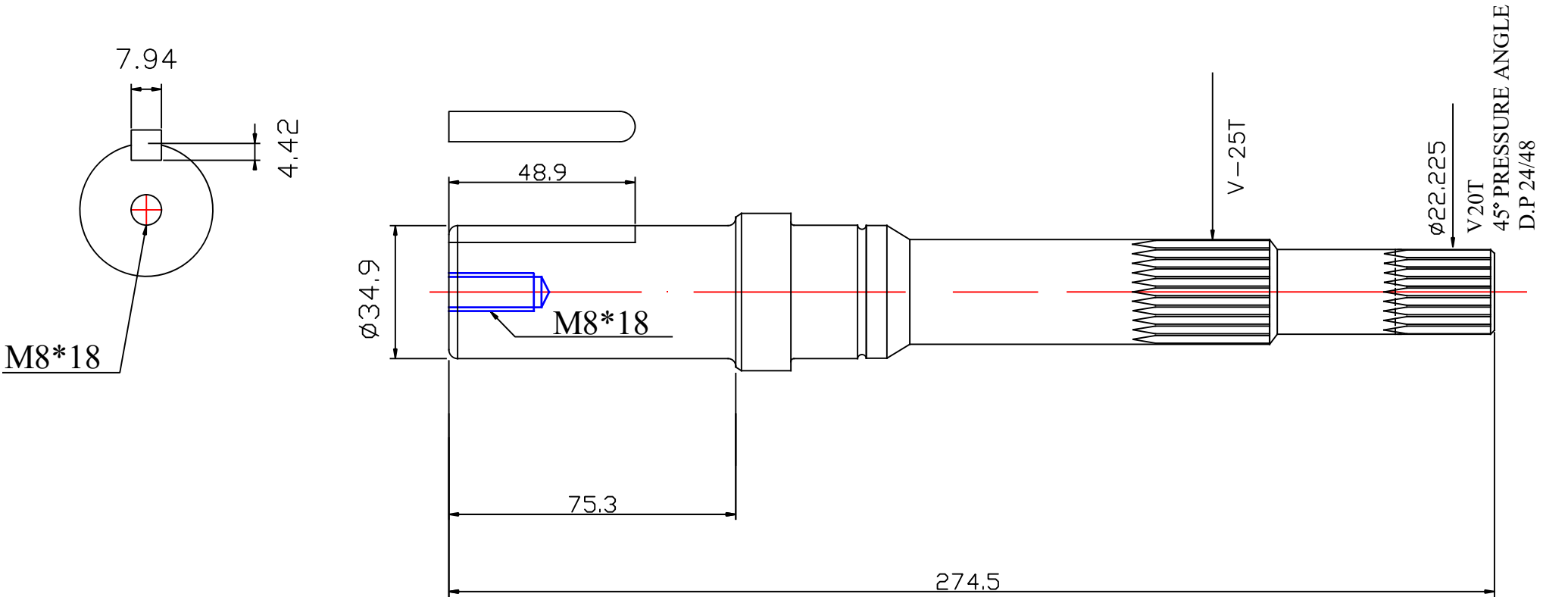


		PT6DR #2		
				2013/11
	1:1			Rev.2
	mm			

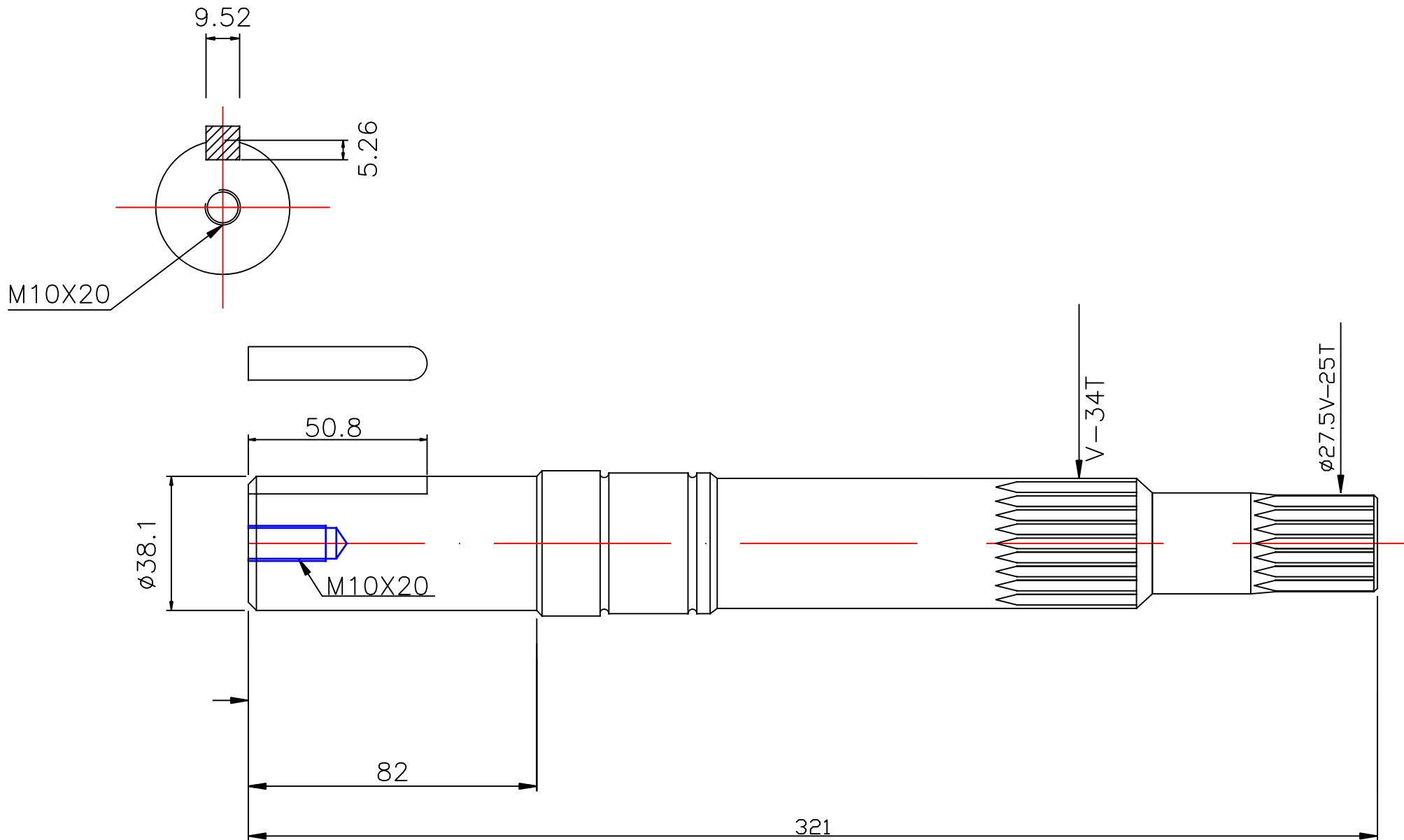
SAE C
14 teeth
12/24 DP.
30° Pressure angle



		PT6DR #3		
	1:1			2013/11
	mm			Rev.2

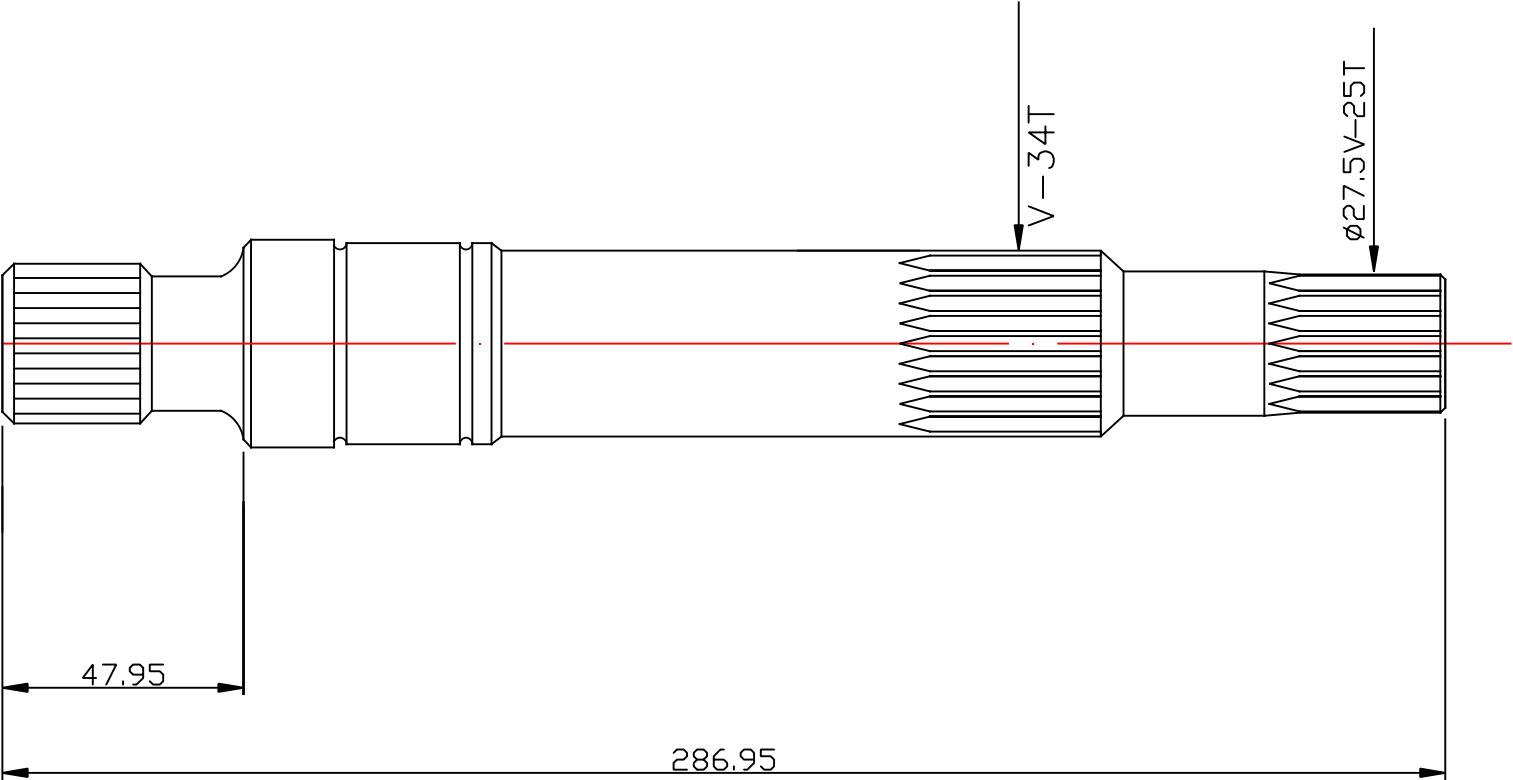


		PT6DR #5		
				2013/11
	1:1			Rev.2
	mm			



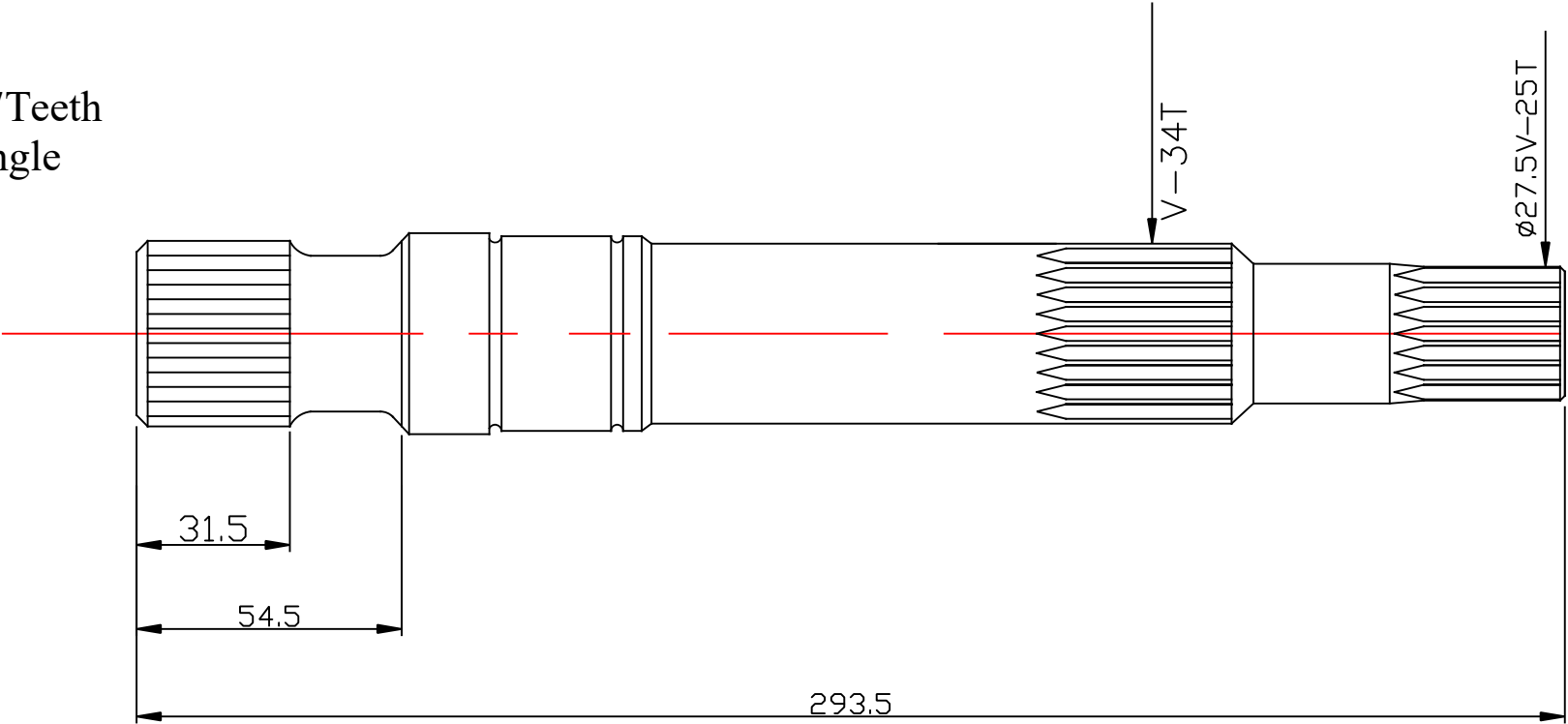
		PT6ER #1		
	1:1			2013/12
	mm			Rev.2

SAE C
12/24 dp. 14Teeth
30°Pressure Angle

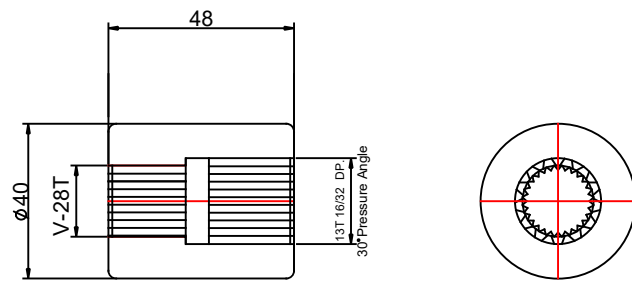


		PT6ER #3		
				2013/12
	1:1			Rev.2
	mm			

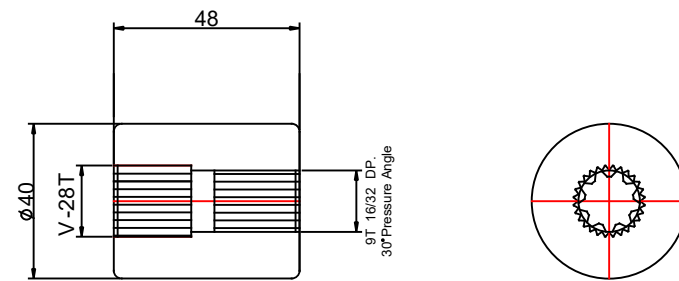
SAE CC
12/24 DP 17Teeth
30°Pressure Angle



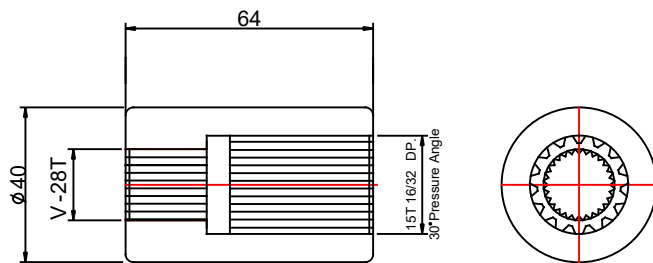
		PT6ER #4		
				2013/12
	1:1			Rev.2
	mm			



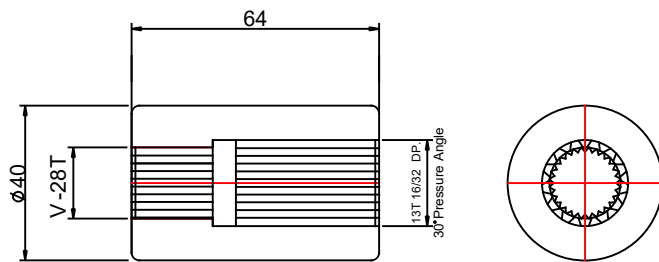
PT6CR (82.55)(V28T/13T)



PT6CR (82.55)(V28T/9T)



PT6CR (101.6)(V28T/15T)



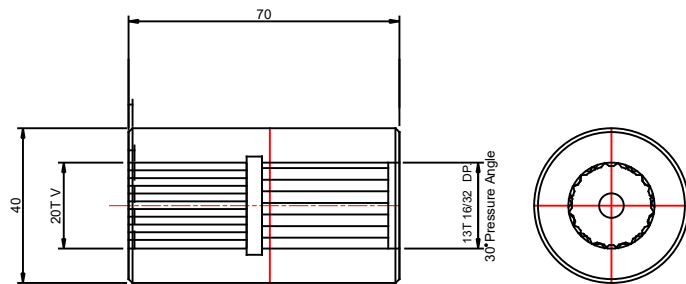
PT6CR (101.6)(V28T/13T)

SAE A splined shaft
16/32 d.p.
9 teeth
30° pressure angle

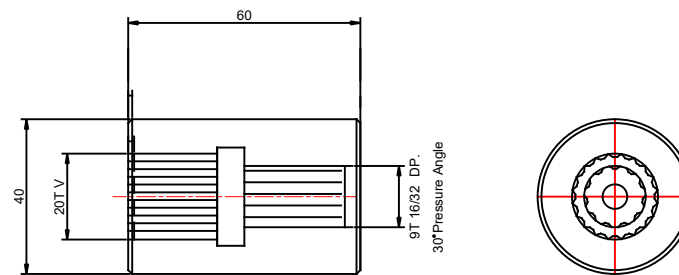
SAE B splined shaft
16/32 d.p.
13 teeth
30° pressure angle

SAE B-B splined shaft
16/32 d.p.
15 teeth
30° pressure angle

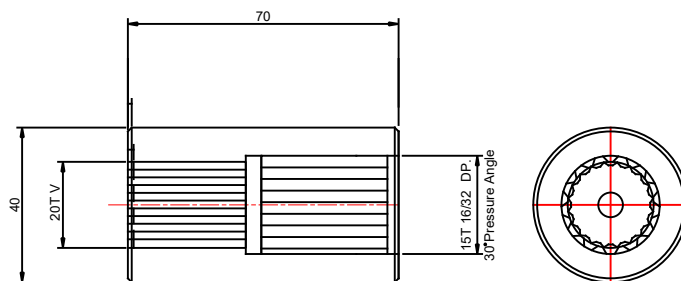
PT6CR(28T)13T&15T&9T				
	1:1			2014/02/18
	mm			Rev.2



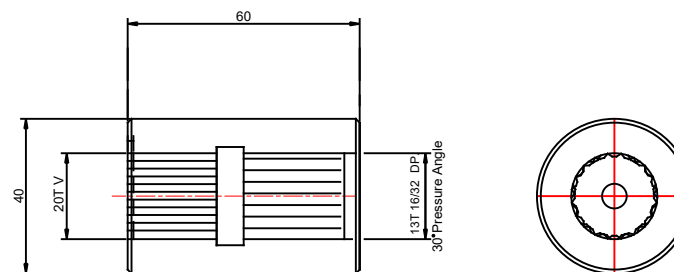
PT6DR (SAE B)(V20T/13T)



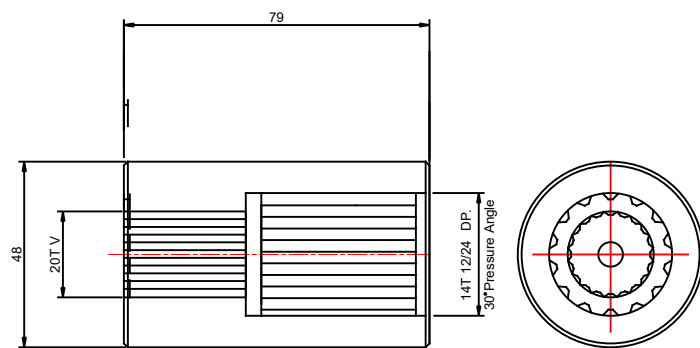
PT6DR (SAE A)(V20T/9T)



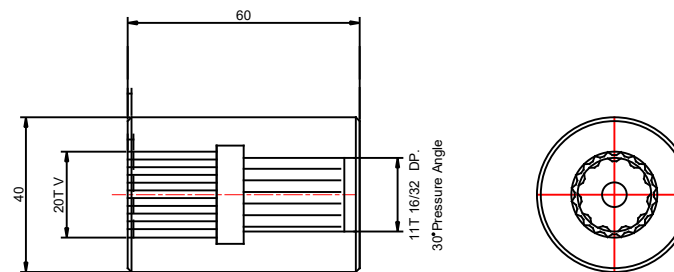
PT6DR (SAE B)(V20T/15T)



PT6DR (SAE A)(V20T/13T)



PT6DR (SAE C)(V20T/14T)



PT6DR (SAE A)(V20T/11T)

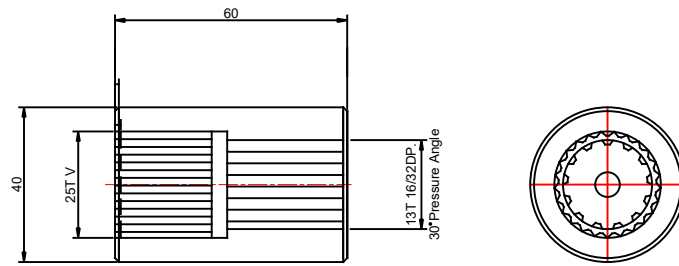
SAE C splined shaft
12/24 Dp.
14Teeth
30° Pressure angle

SAE B-B splined shaft
16/32 d.p.
15 teeth
30° pressure angle

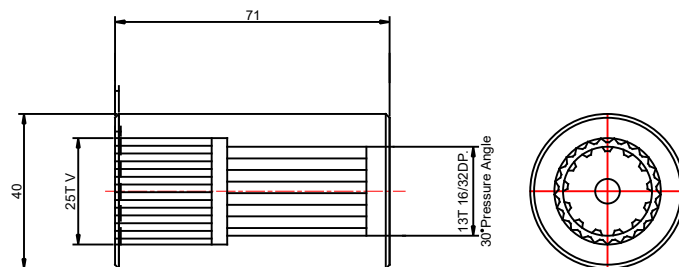
SAE B splined shaft
16/32 d.p.
13 teeth
30° pressure angle

SAE A splined shaft
16/32 d.p.
9 teeth
30° pressure angle

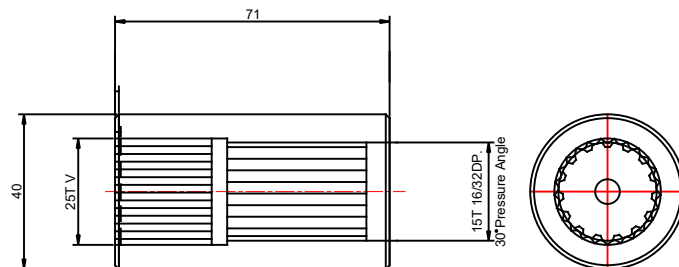
PT6DR(20T)9T&13T&15T&14T				
	1:1			2014/02/18
	mm			Rev.2



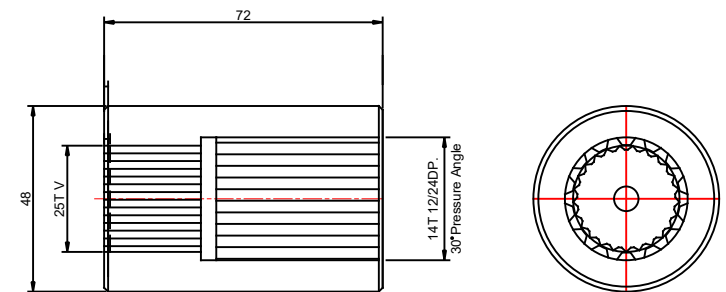
PT6ER (SAE A)(V25T/13T)



PT6ER (SAE B)(V25T/13T)



PT6ER (SAE B)(V25T/15T)



PT6ER (SAE C)(V25T/14T)

SAE C splined shaft
12/24 Dp.
14Teeth
30° Pressure angle

SAE B-B splined shaft
16/32 d.p.
15 teeth
30° pressure angle

SAE B splined shaft
16/32 d.p.
13 teeth
30° pressure angle

PT6ER(25T)13T&15T&14T				
	1:1			2014/02/18
	mm			Rev.2