

SUBMITTAL DATA SHEETS
THORNHILL-CRAVER CHOKES

T-1
07-16-99

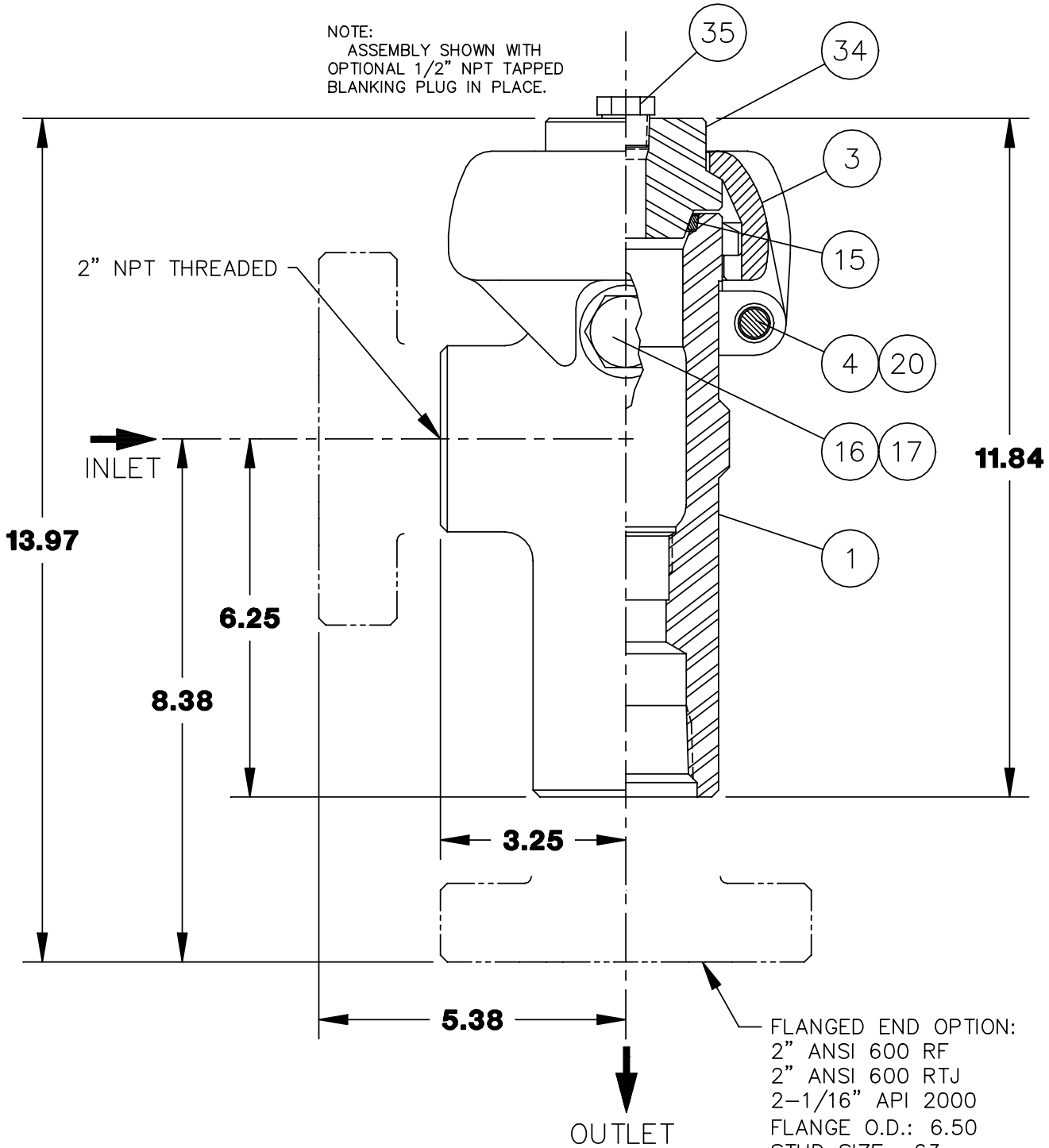
POSITIVE CHOKES w/TAPER TYPE SEAL

2" 2000 UNIBOLT CHOKE - FLANGED OR THREADED INLET & OUTLET	T-71	07-16-99
2" 10M UNIBOLT CHOKE - API FLANGED INLET & OUTLET	T-72	07-16-99
- API FLANGED INLET & UNIBOLT OUTLET	T-73	07-16-99
2" 15M UNIBOLT CHOKE - API FLANGED INLET & OUTLET	T-74	07-16-99
3" 3/5M UNIBOLT CHOKE - API FLANGED INLET & OUTLET	T-75	07-16-99
- ANSI RF FLANGED INLET & OUTLET	T-76	07-16-99
- ANSI RTJ FLANGED INLET & OUTLET	T-77	07-16-99
- 3" UNIBOLT INLET & OUTLET	T-78	07-16-99
- 4" UNIBOLT INLET & OUTLET	T-79	07-16-99
3" 10M UNIBOLT CHOKE - API FLANGED INLET & OUTLET	T-80	07-16-99

THORNHILL CRAVER
2" UNIBOLT POSITIVE CHOKE
FLANGED OR 2" NPT THREADED
INLET & OUTLET
WITH TAPER TYPE SEAL
2000 CWP MAX.

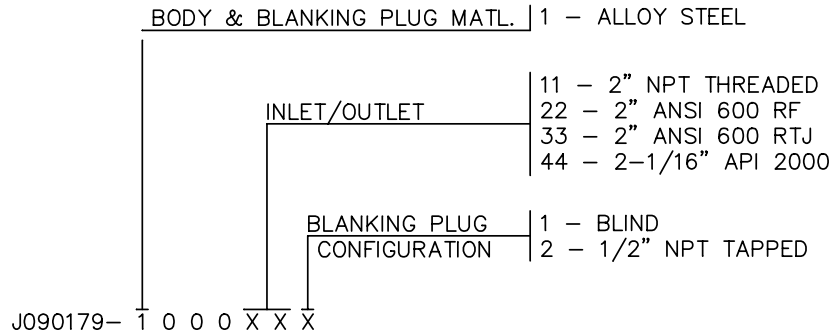
T-71
7-16-99
SHEET 1

NOTE:
ASSEMBLY SHOWN WITH
OPTIONAL 1/2" NPT TAPPED
BLANKING PLUG IN PLACE.



FLANGED END OPTION:
 2" ANSI 600 RF
 2" ANSI 600 RTJ
 2-1/16" API 2000
 FLANGE O.D.: 6.50
 STUD SIZE: .63
 QUANTITY: 8
 RING NUMBER (API 2000): R-23

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J090179	
1	1	BODY - 2" NPT THREADED - 2" ANSI 600 RF - 2" ANSI 600 RTJ - 2-1/16" API 2000	J090158-001 J090157-001 J090182-001 J091779-001	ALLOY STEEL
3	1	NUT MEMBER	J090160	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-28060	STEEL
15	1	SEAL RING	J090167-001	BRONZE
16	1	BLEEDER PLUG	J090017	STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT	2709000-05-01	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090180 J090181	ALLOY STEEL
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-042	STEEL

FLOW BEANS

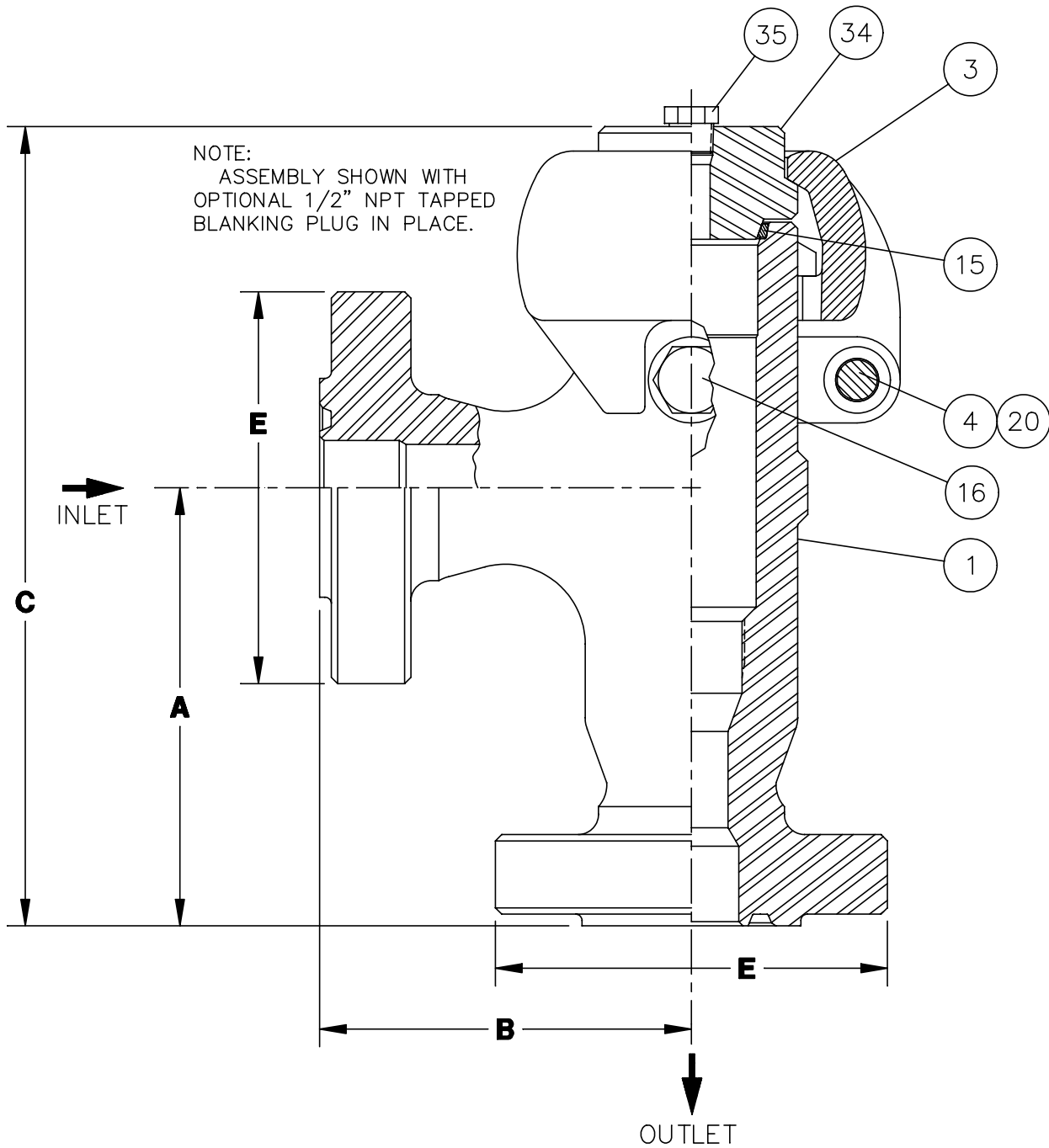
(Ordered separately)

Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
7/8" MAX. BORE	J090537-0XX	STEEL
	J090538-0XX	STAINLESS STEEL
5/8" MAX. BORE	J092333-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN f/"X" BEAN INSERT	J090567-00X	-001 STEEL, -002 STAINLESS STEEL
BEAN GASKET	J090173-002	MONEL

**THORNHILL CRAVER
2" UNIBOLT POSITIVE CHOKE
10,000 WP API FLANGED INLET & OUTLET
WITH TAPER TYPE SEAL**

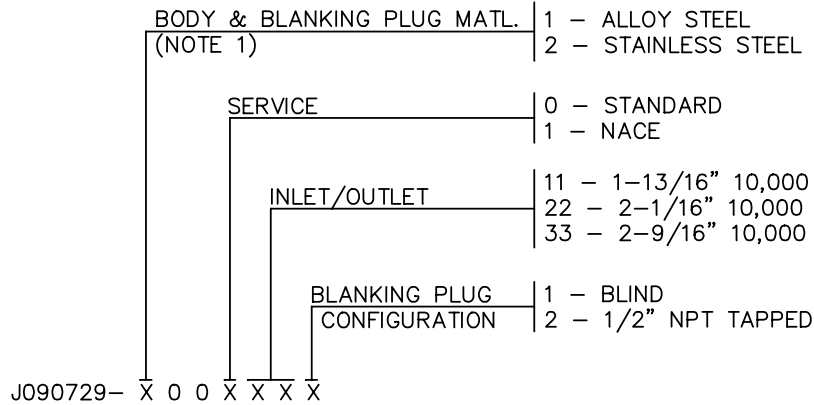
T-72
7-16-99
SHEET 1



DIMENSIONS

FLG SIZE	1-13/16"	2-1/16"	2-9/16"
DIMENSION			
A - OUTLET	8.25	11.12	11.12
B - INLET	7.00	9.00	9.00
C	15.06	17.94	17.94
E - FLANGE O.D.	7.38	7.88	9.12
STUD SIZE (QTY)	.75 (8)	.75 (8)	.88 (8)
RING NUMBER	BX-151	BX-152	BX-153

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J090729	
1	1	BODY - 1-13/16" 10,000 - 2-1/16" 10,000 - 2-9/16" 10,000	J090304-X0X J090713-X0X J090714-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090306	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-34084	STEEL
15	1	SEAL RING	J090168-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG w/GASKET	J090294	STAINLESS STEEL/MONEL
20	1	NUT - T-HEAD BOLT	2709000-08-01	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090740-X0X J090741-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

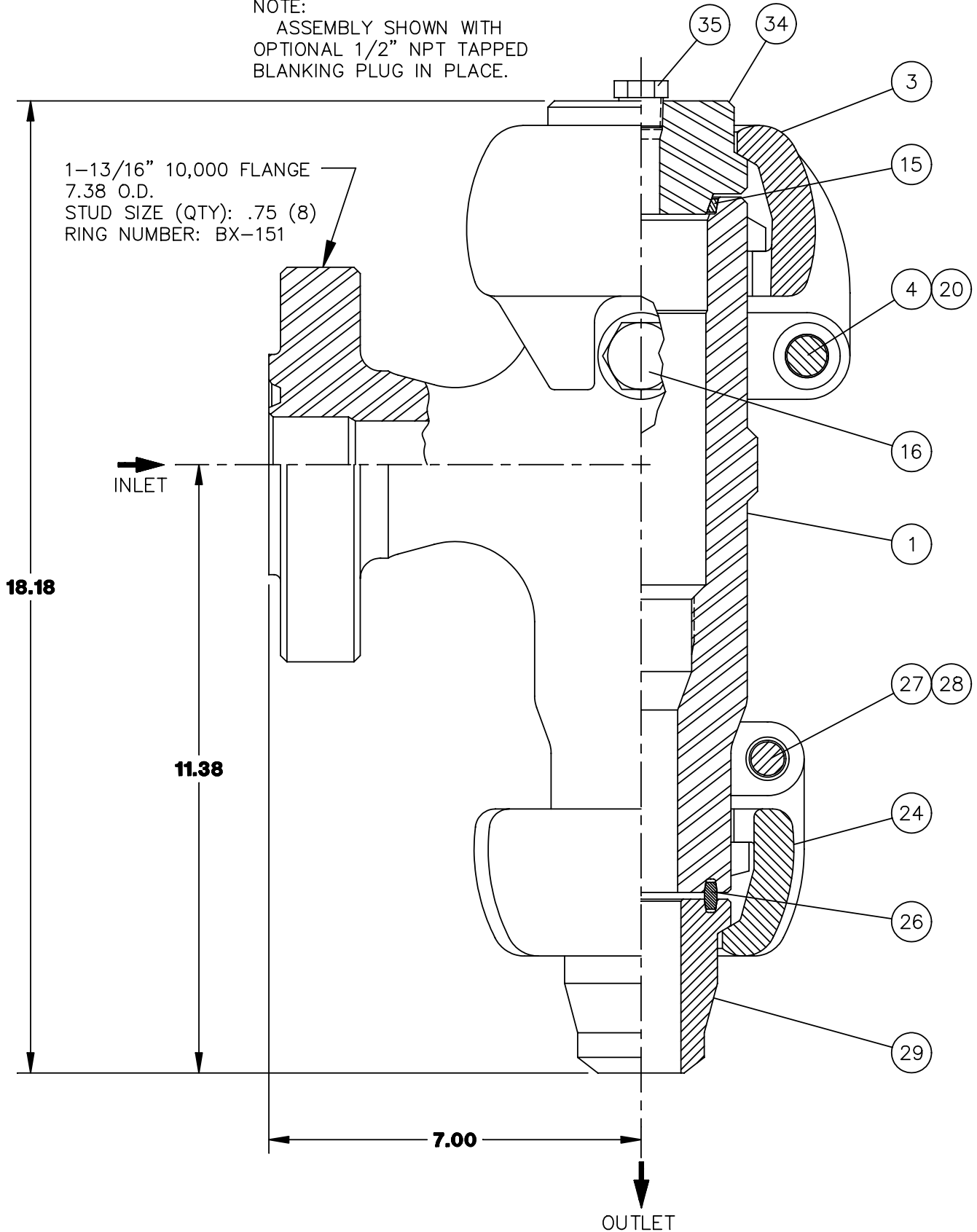
Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
1" MAX. BORE	J090654-0XX	STEEL
	J090655-0XX	STAINLESS STEEL
3/4" MAX. BORE	J092334-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
	J090659-0XX	STEEL W/CERAMIC LINER
O-RING	J005521-220	VITON

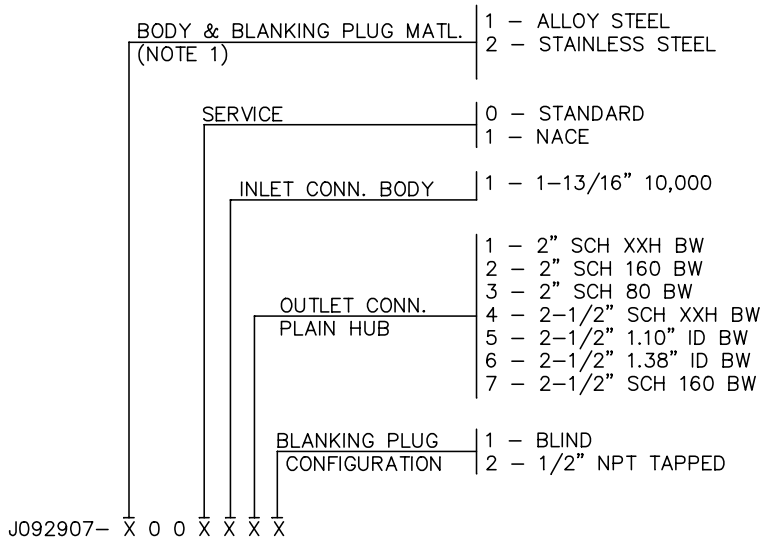
THORNHILL CRAVER 2" UNIBOLT POSITIVE CHOKE 10,000 WP API FLANGED INLET & UNIBOLT OUTLET WITH TAPER TYPE SEAL

T-73
7-16-99
SHEET 1

NOTE:
ASSEMBLY SHOWN WITH
OPTIONAL 1/2" NPT TAPPED
BLANKING PLUG IN PLACE.



ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J092907	
1	1	BODY - 1-13/16" 10,000	J090310-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090306	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-34084	STEEL
15	1	SEAL RING	J090168-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG w/GASKET	J090294	STAINLESS STEEL/MONEL
20	1	NUT - T-HEAD BOLT	2709000-08-01	STEEL
24	1	NUT MEMBER - OUTLET	J090123	ALLOY STEEL
26	1	SEAL RING - OUTLET	J090129-00X	-001 BRONZE, -002 STAINLESS STEEL
27	1	T-HEAD BOLT - OUTLET	J090064-32068	STEEL
28	1	NUT - T-HEAD BOLT - OUTLET	2709000-07-01	STEEL
29	1	PLAIN HUB - OUTLET - 2" SCH XXH BW - 2" SCH 160 BW - 2" SCH 80 BW - 2-1/2" SCH XXH BW - 2-1/2" 1.10" ID BW BW - 2-1/2" 1.38" ID BW BW - 2-1/2" SCH 160 BW	J090149-001 J090150-001 J090151-001 J090152-001 J090153-001 J090154-001 J090155-001	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090740-X0X J090741-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

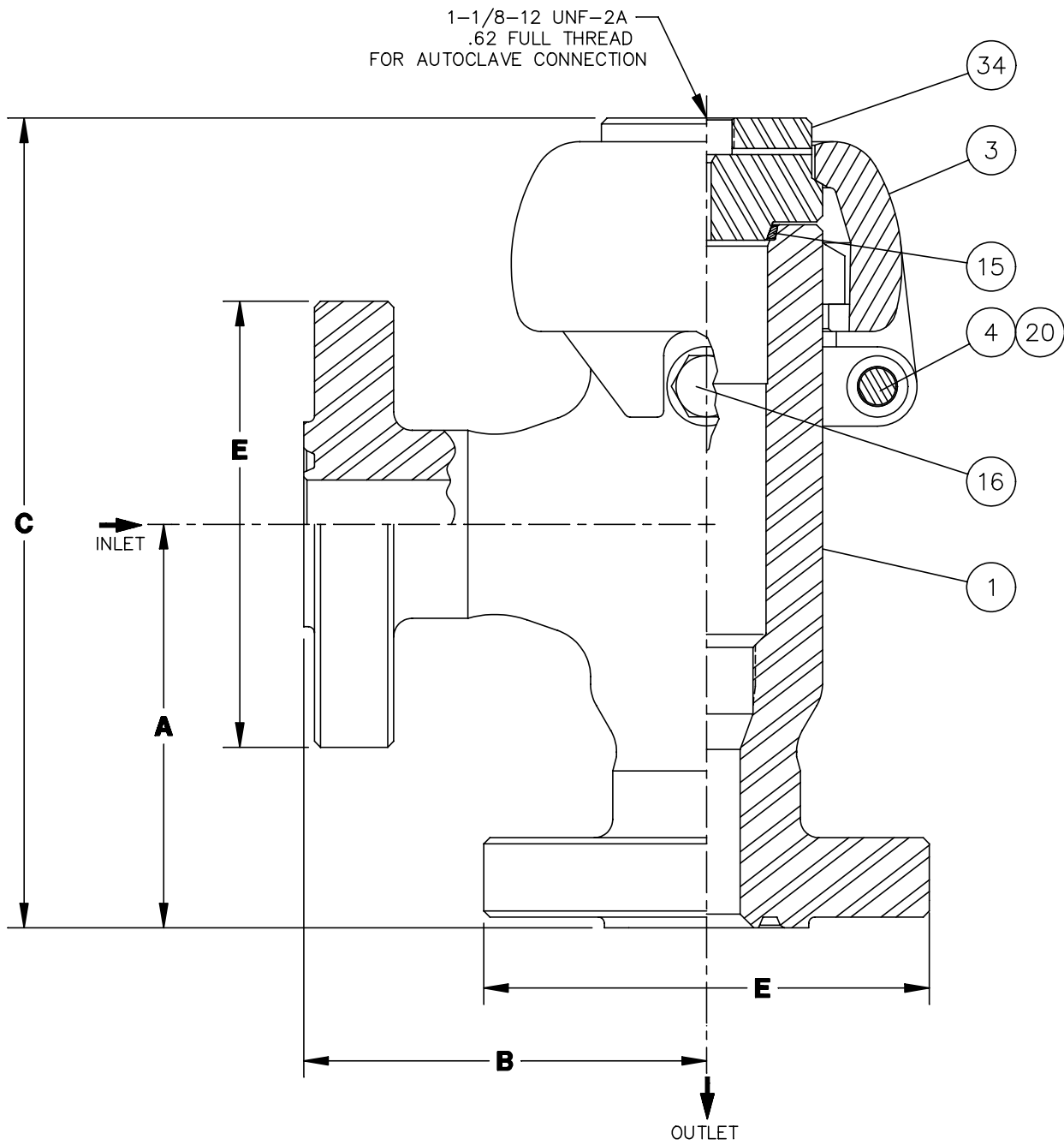
Nominal bore diameter in 1/64 of an inch

(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
1" MAX. BORE	J090654-0XX	STEEL
	J090655-0XX	STAINLESS STEEL
3/4" MAX. BORE	J092334-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
	J090659-0XX	STEEL W/CERAMIC LINER
O-RING	J005521-220	VITON

**THORNHILL CRAVER
2" UNIBOLT POSITIVE CHOKE
15,000 WP API FLANGED INLET & OUTLET
WITH TAPER TYPE SEAL**

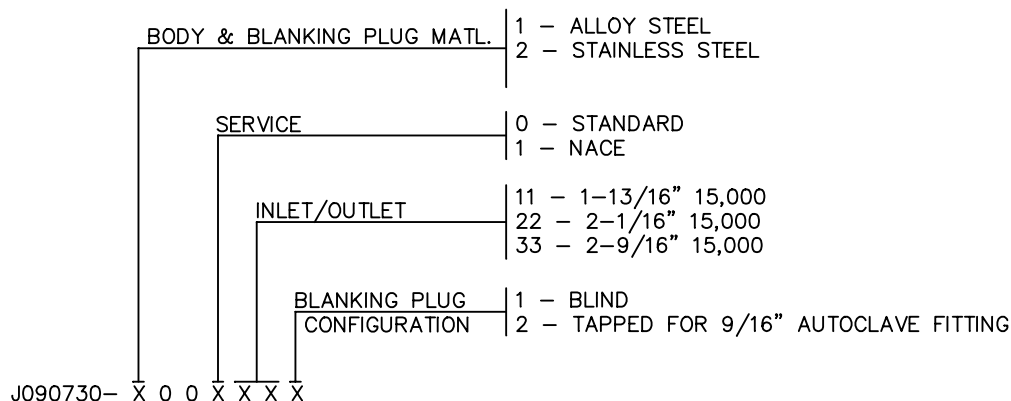
T-74
7-16-99
SHEET 1



DIMENSIONS

FLG SIZE	1-13/16"	2-1/16"	2-9/16"
DIMENSION			
A - OUTLET	8.25	8.25	9.88
B - INLET	8.25	8.25	8.88
C	16.56	16.56	18.19
E - FLANGE O.D.	8.19	8.75	10.00
STUD SIZE (QTY)	.88 (8)	.88 (8)	1.00 (8)
RING NUMBER	BX-151	BX-152	BX-153

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J090730	
1	1	BODY - 1-13/16" 15,000 - 2-1/16" 15,000 - 2-9/16" 15,000	J090272-XOX J090274-XOX J091786-XOX	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090275	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-34092	STEEL
15	1	SEAL RING	J090168-002	STAINLESS STEEL
16	1	BLEEDER PLUG w/GASKET	J090294	STAINLESS STEEL/MONEL
20	1	NUT - T-HEAD BOLT	2709000-08-01	STEEL
34	1	BLANKING PLUG - BLIND - TAPPED f/AUTOCLAVE FITTING	J090742 J090743	STAINLESS STEEL
35	1	AUTOCLAVE FITTING - TAPPED BLANKING PLUG	J093113	STAINLESS STEEL

FLOW BEANS

(Ordered separately)

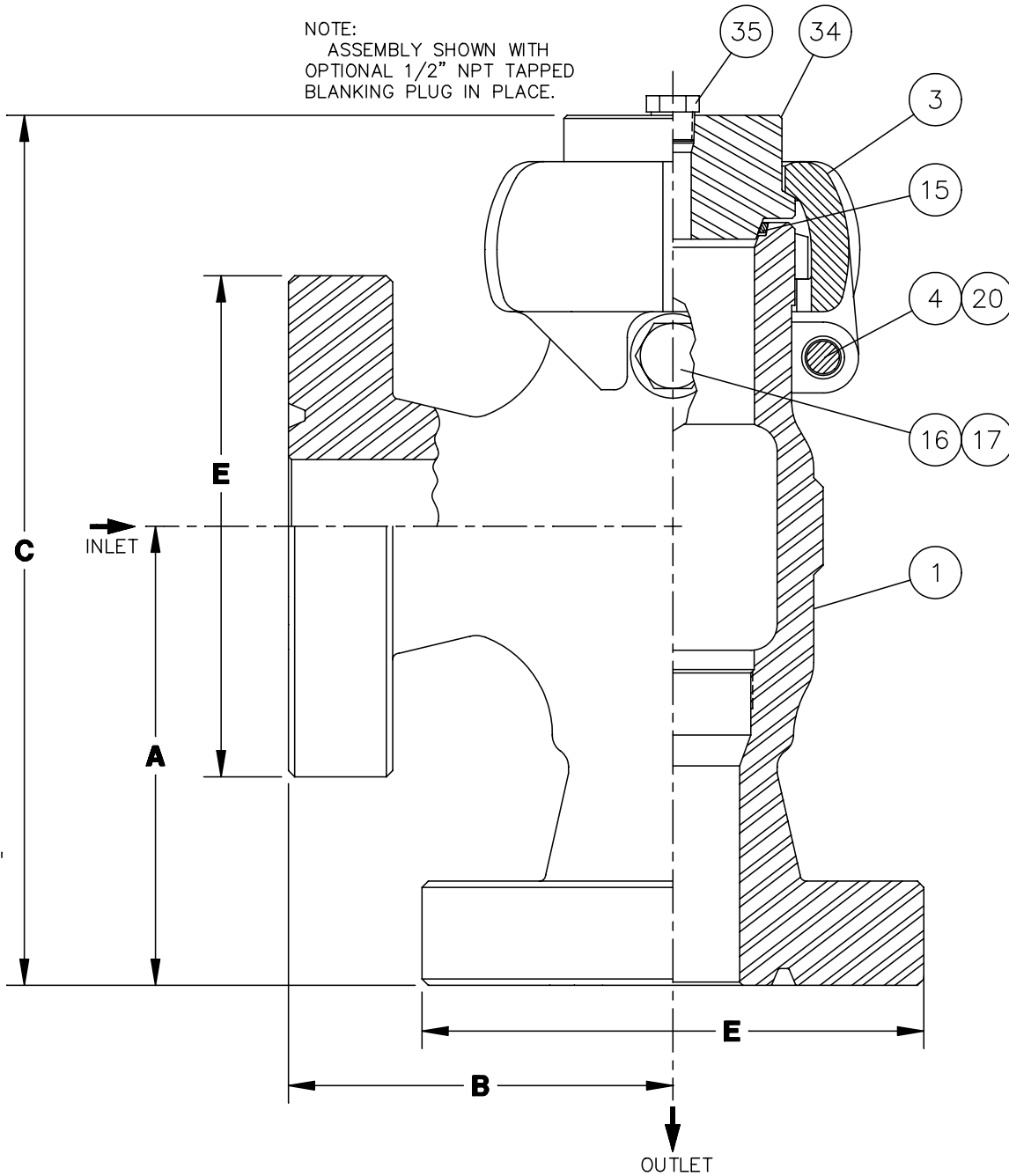
Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
1" MAX. BORE	J090654-0XX	STEEL
	J090655-0XX	STAINLESS STEEL
3/4" MAX. BORE	J090659-0XX	STEEL w/CERAMIC LINER
	J092334-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005521-220	VITON

THORNHILL CRAVER 3" UNIBOLT POSITIVE CHOKE API FLANGED INLET & OUTLET WITH TAPER TYPE SEAL

T-75
7-16-99
SHEET 1

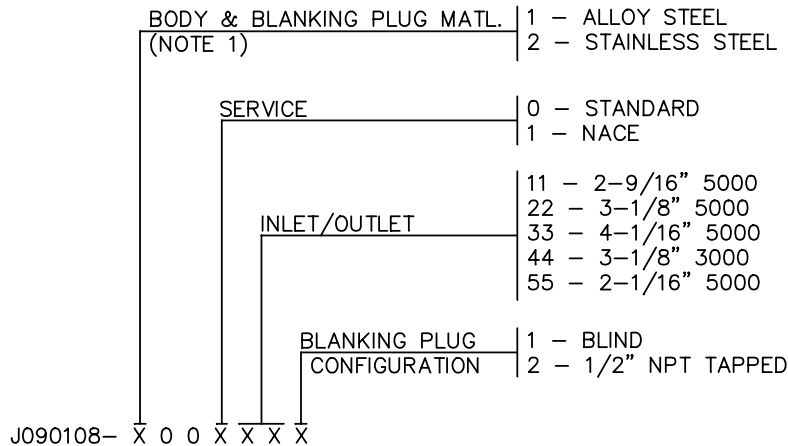
NOTE:
ASSEMBLY SHOWN WITH
OPTIONAL 1/2" NPT TAPPED
BLANKING PLUG IN PLACE.



DIMENSIONS

FLG SIZE	2-1/16"	2-9/16"	3-1/8"		4-1/16"
DIMENSION	5000	5000	3000	5000	5000
A - OUTLET	8.88	8.75	9.00	9.25	10.44
B - INLET	8.88	7.81	8.63	9.25	9.50
C	16.77	16.64	16.89	17.14	18.33
E - FLANGE O.D.	8.50	9.62	9.50	10.50	12.25
STUD SIZE (QTY)	.88(8)	1.00(8)	.88(8)	1.12(8)	1.25(8)
RING NUMBER	R-24	R-27	R-31	R-35	R-39

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J090108	
1	1	BODY - 2-9/16" 5000	J090396-X0X	-001 ALLOY STEEL (STANDARD SERVICE)
		- 3-1/8" 5000	J090079-X0X	-101 ALLOY STEEL (NACE SERVICE)
		- 4-1/16" 5000	J091804-X0X	-002 STAINLESS STEEL (STANDARD SERVICE)
		- 3-1/8" 3000	J091805-X0X	-102 STAINLESS STEEL (NACE SERVICE)
		- 2-1/16" 5000	J091807-X0X	
3	1	NUT MEMBER	J090084	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-32076	STEEL
15	1	SEAL RING	J090097-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG - STD.	J090017	STAINLESS STEEL
		- NACE	J090764	STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT	2709000-07-01	STEEL
34	1	BLANKING PLUG - BLIND	J090109-X0X	-001 ALLOY STEEL (STANDARD SERVICE)
		- 1/2" NPT TAPPED	J090110-X0X	-101 ALLOY STEEL (NACE SERVICE)
				-002 STAINLESS STEEL (STANDARD SERVICE)
				-102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

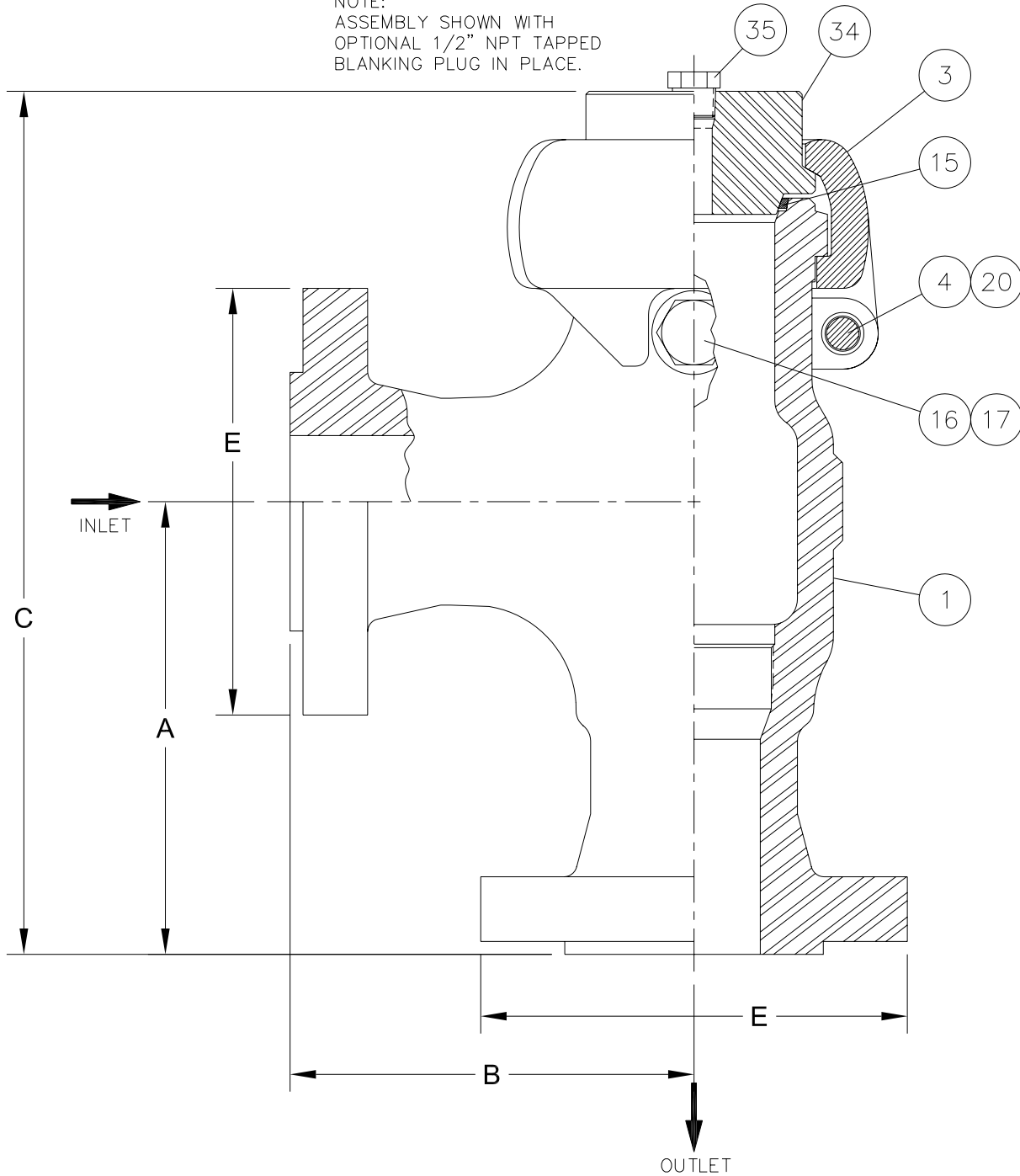
(Ordered separately)

Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/64" TO 128/64" BORE	J090111-0XX	STEEL
	J090112-0XX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-0XX	STEEL
	J090032-0XX	STAINLESS STEEL
	J092332-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-0XX	STEEL W/CERAMIC LINER
	J090587-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N

THORNHILL CRAVER
3" UNIBOLT POSITIVE CHOKE
ANSI RF INLET & OUTLET
WITH TAPER TYPE SEAL

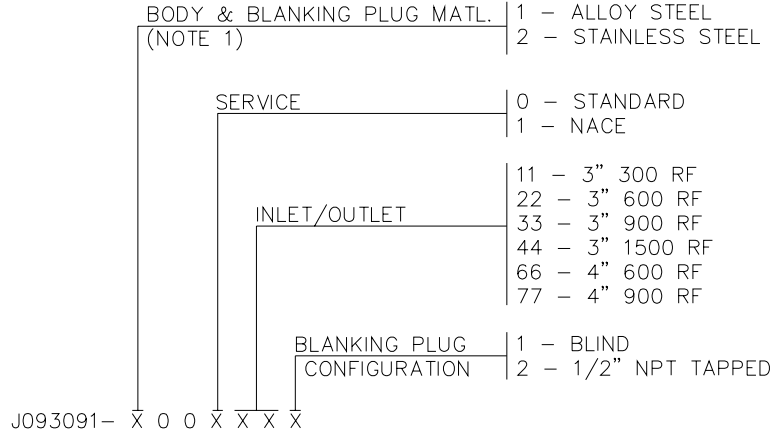
NOTE:
 ASSEMBLY SHOWN WITH
 OPTIONAL 1/2" NPT TAPPED
 BLANKING PLUG IN PLACE.



DIMENSIONS

DIMENSION \ FLG SIZE	3"				4"	
	300	600	900	1500	600	900
A - OUTLET	8.38	8.75	9.00	9.25	9.56	11.44
B - INLET	7.44	7.81	8.63	9.25	8.64	8.69
C	15.38	16.69	16.94	17.19	17.50	19.38
E - FLANGE O.D.	8.25	8.25	9.50	10.50	10.75	11.50
STUD SIZE (QTY)	.75(8)	.75(8)	.88(8)	1.12(8)	.88(8)	1.12(8)

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J093091	
1	1	BODY - 3" 300 RF	J091789-XOX	-001 ALLOY STEEL (STANDARD SERVICE)
		- 3" 600 RF	J091803-XOX	-101 ALLOY STEEL (NACE SERVICE)
		- 3" 900 RF	J091798-XOX	-002 STAINLESS STEEL (STANDARD SERVICE)
		- 3" 1500 RF	J093315-XOX	-102 STAINLESS STEEL (NACE SERVICE)
		- 4" 600 RF	J091800-XOX	
		- 4" 900 RF	J093411-XOX	
3	1	NUT MEMBER	J090084	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-32076	STEEL
15	1	SEAL RING	J090097-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG - STD.	J090017	STAINLESS STEEL
		- NACE	J090764	STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT	2709000-07-01	STEEL
34	1	BLANKING PLUG - BLIND	J090109-XOX	-001 ALLOY STEEL (STANDARD SERVICE)
		- 1/2" NPT TAPPED	J090110-XOX	-101 ALLOY STEEL (NACE SERVICE)
				-002 STAINLESS STEEL (STANDARD SERVICE)
				-102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

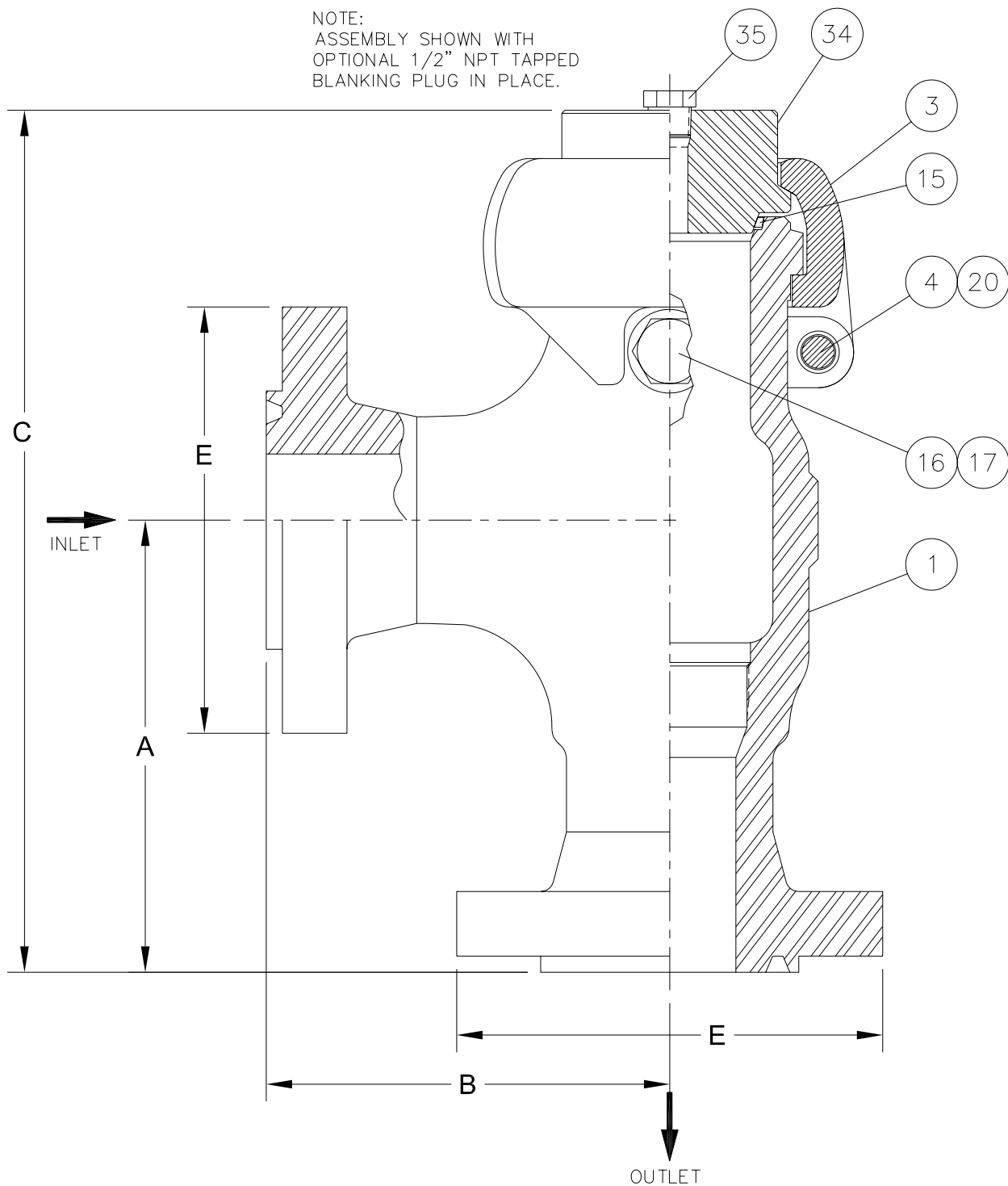
Nominal bore diameter in 1/64 of an inch

(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/674" TO 128/64" BORE	J090111-OXX	STEEL
	J090112-OXX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-OXX	STEEL
	J090032-OXX	STAINLESS STEEL
	J092332-OXX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-OXX	STEEL w/CERAMIC LINER
	J090587-OXX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N

**THORNHILL CRAVER
3" UNIBOLT POSITIVE CHOKE
ANSI RTJ INLET & OUTLET
WITH TAPER TYPE SEAL**

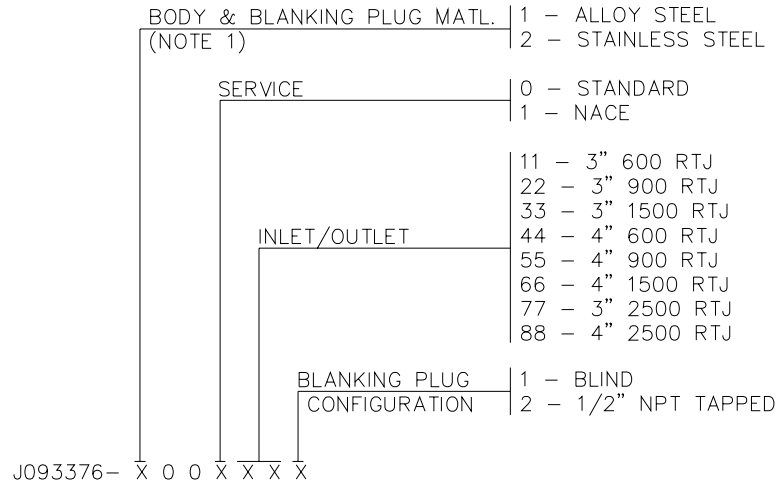
NOTE:
ASSEMBLY SHOWN WITH
OPTIONAL 1/2" NPT TAPPED
BLANKING PLUG IN PLACE.



DIMENSIONS

DIMENSION	3"				4"		
	600	900	1500	2500	600	900	2500
A - OUTLET	8.75	9.62	9.25	10.19	9.63	11.50	12.04
B - INLET	7.62	8.69	7.25	9.88	8.70	8.75	12.04
C	16.69	17.56	17.19	18.12	17.56	19.44	19.97
E - FLANGE O.D.	8.25	9.50	10.50	12.00	10.75	11.50	14.00
STUD SIZE (QTY)	.75(8)	.88(8)	1.12(8)	1.25(8)	.88(8)	1.12(8)	1.50(8)
RING NUMBER	R-31	R-31	R-35	R-32	R-37	R-37	R-38

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J093376	
1	1	BODY - 3" 600 RTJ - 3" 1500 RTJ - 4" 900 RTJ	J091806-X0X J093361-X0X J093314-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090084	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-32076	STEEL
15	1	SEAL RING	J090097-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG - STD. - NACE	J090017 J090764	STAINLESS STEEL STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT	2709000-07-01	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090109-X0X J090110-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

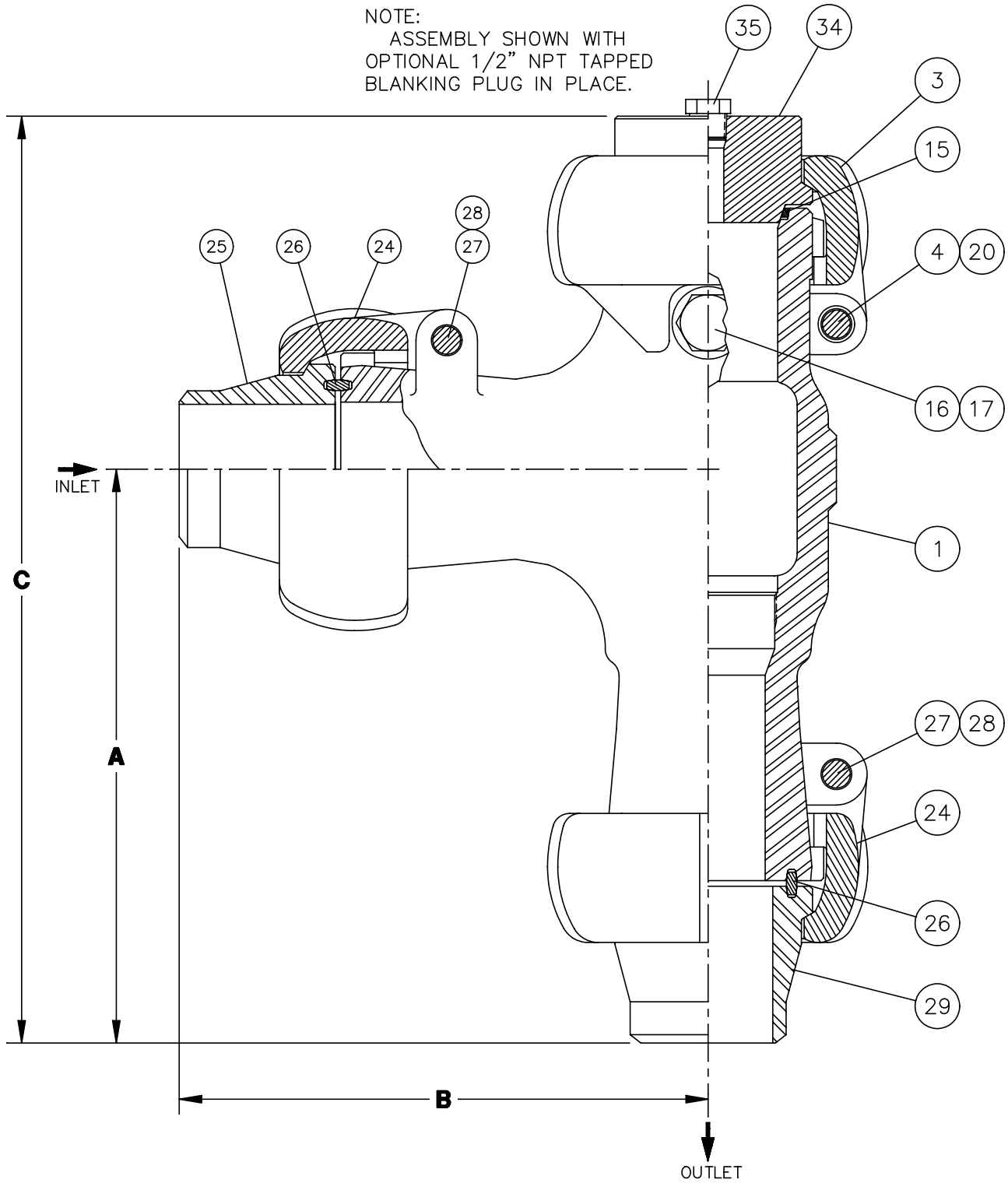
Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/64" TO 128/64" BORE	J090111-0XX	STEEL
	J090112-0XX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-0XX	STEEL
	J090032-0XX	STAINLESS STEEL
	J092332-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-0XX	STEEL w/CERAMIC LINER
	J090587-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N

THORNHILL CRAVER
3" UNIBOLT POSITIVE CHOKE
3" UNIBOLT INLET & OUTLET
WITH TAPER TYPE SEAL
5000 CWP MAX.

T-78
 7-16-99
 SHEET 1

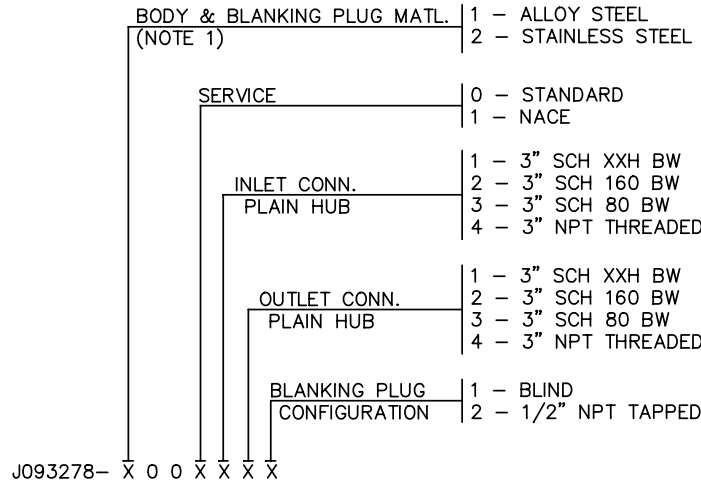
NOTE:
 ASSEMBLY SHOWN WITH
 OPTIONAL 1/2" NPT TAPPED
 BLANKING PLUG IN PLACE.



DIMENSIONS

DIMENSION	INLET/OUTLET	
	WELD END	3" THREADED END
A - OUTLET	12.81	12.31
B - INLET	11.88	11.38
C	20.69	20.19

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J093278	
1	1	BODY	J091808-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090084	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-32076	STEEL
15	1	SEAL RING	J090097-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG - STD. - NACE	J090017 J090764	STAINLESS STEEL STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT - T-HEAD BOLT	2709000-07-01	STEEL
24	2	NUT MEMBER - INLET/OUTLET	2139576-01	ALLOY STEEL
25	1	PLAIN HUB - INLET - SCH XXH BW - SCH 160 BW - SCH 80 BW - NPT THREADED	J090243-001 J090244-001 J090245-001 J090760-001	STEEL
26	2	SEAL RING - INLET/OUTLET	J090045-00X	-001 BRONZE, -002 STAINLESS STEEL
27	2	T-HEAD BOLT - INLET/OUTLET	J090064-32076	STEEL
28	2	NUT - T-HEAD BOLT - INLET/OUTLET	2709000-07-01	STEEL
29	1	PLAIN HUB - OUTLET - SCH XXH BW - SCH 160 BW - SCH 80 BW - NPT THREADED	J090243-001 J090244-001 J090245-001 J090760-001	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090109-X0X J090110-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

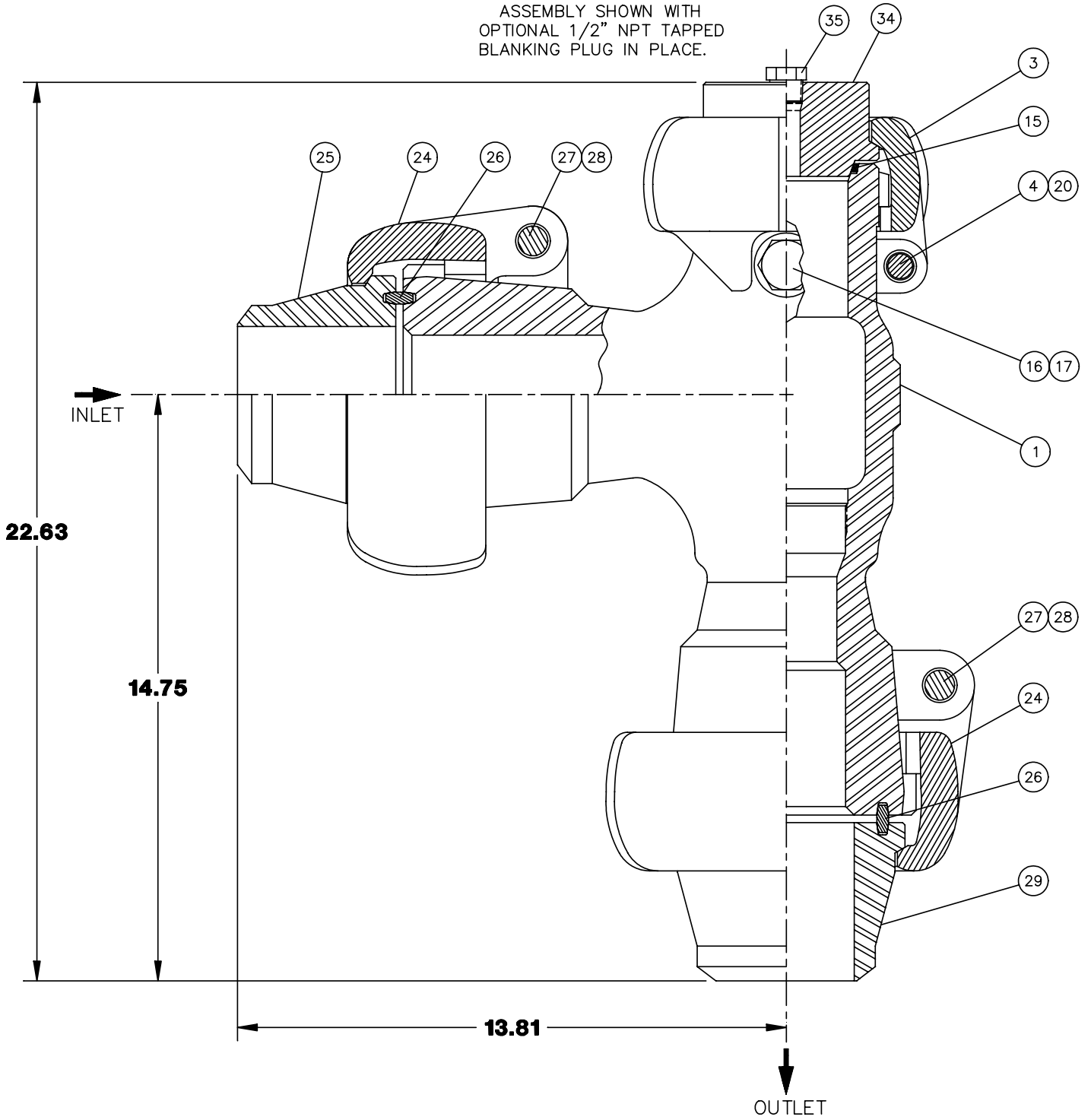
Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/674" TO 128/64" BORE	J090111-0XX	STEEL
	J090112-0XX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-0XX	STEEL
	J090032-0XX	STAINLESS STEEL
	J092332-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-0XX	STEEL W/CERAMIC LINER
	J090587-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N

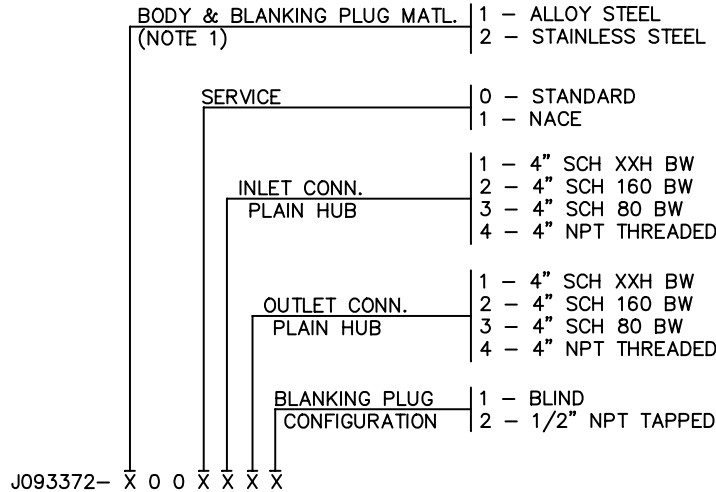
THORNHILL CRAVER
 3" UNIBOLT POSITIVE CHOKE
 4" UNIBOLT INLET & OUTLET
 WITH TAPER TYPE SEAL
 5000 CWP MAX.

T-79
 7-16-99
 SHEET 1

NOTE:
 ASSEMBLY SHOWN WITH
 OPTIONAL 1/2" NPT TAPPED
 BLANKING PLUG IN PLACE.



ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J093372	
1	1	BODY	J090315-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090084	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-32076	STEEL
15	1	SEAL RING	J090097-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG - STD.	J090017	STAINLESS STEEL
		- NACE	J090764	STAINLESS STEEL
17	1	GASKET - BLEEDER PLUG	J090018	MONEL
20	1	NUT - T-HEAD BOLT	2709000-07-01	STEEL
24	2	NUT MEMBER - INLET/OUTLET	J090325	ALLOY STEEL
25	1	PLAIN HUB - INLET - SCH XXH BW	J090326-001	STEEL
		- SCH 160 BW	J090327-001	
		- SCH 80 BW	J090328-001	
		- NPT THREADED	J092151-001	
26	2	SEAL RING - INLET/OUTLET	J090046-00X	-001 BRONZE, -002 STAINLESS STEEL
27	2	T-HEAD BOLT - INLET/OUTLET	J090064-34084	STEEL
28	2	NUT - T-HEAD BOLT - INLET/OUTLET	2709000-08-01	STEEL
29	1	PLAIN HUB - OUTLET - SCH XXH BW	J090326-001	STEEL
		- SCH 160 BW	J090327-001	
		- SCH 80 BW	J090328-001	
		- NPT THREADED	J092151-001	
34	1	BLANKING PLUG - BLIND	J090109-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE)
		- 1/2" NPT TAPPED	J090110-X0X	-002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

Nominal bore diameter in 1/64 of an inch

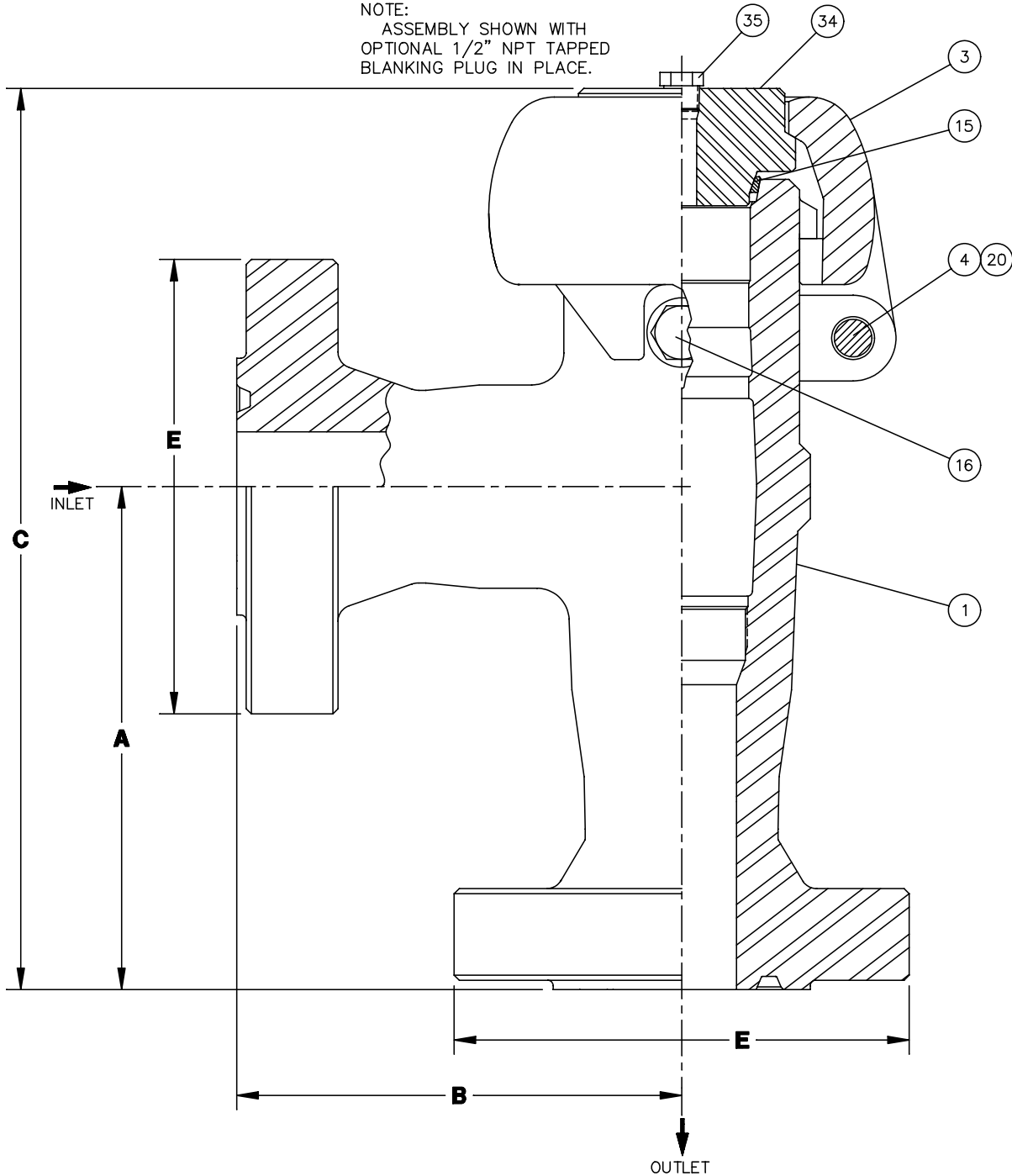
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/674" TO 128/64" BORE	J090111-0XX	STEEL
	J090112-0XX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-0XX	STEEL
	J090032-0XX	STAINLESS STEEL
	J092332-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-0XX	STEEL w/CERAMIC LINER
	J090587-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N

THORNHILL CRAVER 3" UNIBOLT POSITIVE CHOKE 10,000 WP API FLANGED INLET & OUTLET WITH TAPER TYPE SEAL

T-80
7-16-99
SHEET 1

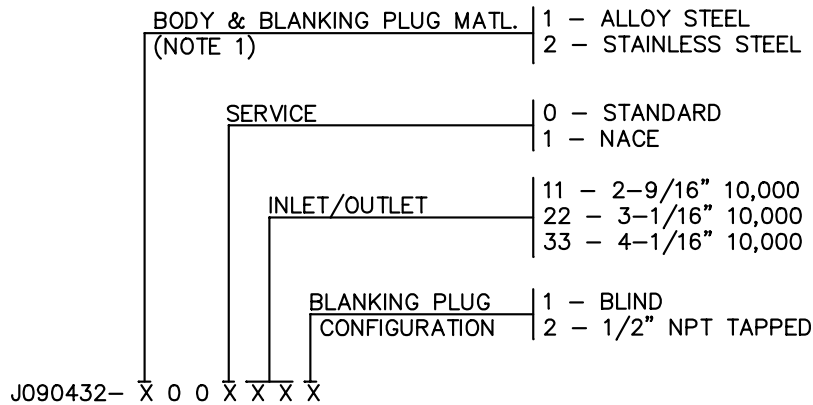
NOTE:
ASSEMBLY SHOWN WITH
OPTIONAL 1/2" NPT TAPPED
BLANKING PLUG IN PLACE.



DIMENSIONS

FLG SIZE	2-9/16"	3-1/16"	4-1/16"
DIMENSION			
A - OUTLET	10.88	11.75	13.25
B - INLET	8.88	10.38	11.25
C	20.19	21.06	22.56
E - FLANGE O.D.	9.12	10.62	12.44
STUD SIZE (QTY)	.88 (8)	1.00 (8)	1.12 (8)
RING NUMBER	BX-153	BX-154	BX-155

ASSEMBLY PART NUMBER



PARTS LIST

INDEX	REQD	DESCRIPTION	PART NO.	MATERIAL
		ASSEMBLY BASE NUMBER	J090432	
1	1	BODY - 2-9/16" 10,000 - 3-1/16" 10,000 - 4-1/16" 10,000	J090417-X0X J090418-X0X J090419-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
3	1	NUT MEMBER	J090428	ALLOY STEEL
4	1	T-HEAD BOLT	J090064-36096	STEEL
15	1	SEAL RING	J090732-00X	-001 BRONZE, -002 STAINLESS STEEL
16	1	BLEEDER PLUG w/GASKET	J090294	STAINLESS STEEL
20	1	NUT - T-HEAD BOLT	2709000-09-01	STEEL
34	1	BLANKING PLUG - BLIND - 1/2" NPT TAPPED	J090433-X0X J090434-X0X	-001 ALLOY STEEL (STANDARD SERVICE) -101 ALLOY STEEL (NACE SERVICE) -002 STAINLESS STEEL (STANDARD SERVICE) -102 STAINLESS STEEL (NACE SERVICE)
35	1	PIPE PLUG - TAPPED BLANKING PLUG	J052231-04X	-042 STEEL, -043 STAINLESS STEEL

NOTE:

1. Body material determines Seal Ring & Pipe Plug material.

FLOW BEANS

(Ordered separately)

Nominal bore diameter in 1/64 of an inch
(Example: J0XXXXX-007 = 7/64" bore)

FLOW BEAN SIZE	PART NO.	MATERIAL
65/674" TO 128/64" BORE	J090111-0XX	STEEL
	J090112-0XX	STAINLESS STEEL
	CONSULT FACTORY	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
MASTER BEAN	J090590-00X	-001 STEEL, -002 STAINLESS STEEL
	J090591-002	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
1" MAX. BORE (Requires Master Bean)	J090031-0XX	STEEL
	J090032-0XX	STAINLESS STEEL
	J092332-0XX	STAINLESS STEEL w/TUNGSTEN CARBIDE LINER
3/4" MAX. BORE (Requires Master Bean)	J090586-0XX	STEEL w/CERAMIC LINER
	J090587-0XX	STAINLESS STEEL w/CERAMIC LINER
O-RING	J005520-230	BUNA-N