

YARWAY INB100 SERIES INVERTED BUCKET STEAM TRAP

DATASHEET

A general purpose steam trap suitable for a wide variety of loads and applications.



INB100 Series

GENERAL APPLICATION

The INB100 Series inverted bucket steam traps utilized in a variety of light condensate load applications such as drip, tracer and small air heaters and unit heaters. These traps are simple and reliable while discharging condensate close to the saturation curve.

TECHNICAL DATA

Technology:	Mechanical, Inverted Bucket
Available Sizes:	NPS ½, ¾, 1, 1 ¼, 1 ½, 2, 2 ½ (DN15, 20, 25, 32, 40, 50, 60)
End Connections:	NPT, SWE, BSPT
Maximum Temperature Rating:	Cast iron: 450°F (232°C) Carbon steel: 662°F (350°C)
Maximum Operating Pressure:	See Tables 3 and 4
Capacity:	Up to 20,000 lb/hr (9072 kg/hr)
Materials:	Cast iron or WCB carbon steel construction with hardened Chrome steel valve and seat

FEATURES

- Suitable for wide variety of loads and applications
- Resists Dirt and Scale – the valve and orifice are positioned on top of traps
- Chrome steel valve and orifice – Long life and maximum corrosion resistance
- Top-entry, In-line repairable

TABLE 1. INB100 SERIES TECHNICAL DATA

Type	Material	Sizes	MAXIMUM ALLOWABLE PRESSURE		Strainer
			psig	bar	
INB111	Cast iron	NPS ½, ¾ (DN 15, 20)	250	17.5	Integral strainer
INB112	Cast iron	NPS ½, ¾, 1 (DN 15, 20, 25)	250	17.5	
INB113	Cast iron	NPS ½, ¾, 1 (DN 15, 20, 25)	250	17.5	
INB114	Cast iron	NPS ¾, 1, 1 ¼ (DN 20, 25, 32)	250	17.5	
INB115	Cast iron	NPS 1, 1 ¼ (DN 25, 32)	250	17.5	Requires external strainer
INB116	Cast iron	NPS 1, 1 ¼, 1 ½, 2 (DN 25, 32, 40, 50)	250	17.5	
INB117	Cast iron	NPS 2, 2 ½ (DN 50, 65)	250	17.5	
INB132	Carbon steel	NPS ½, ¾, 1 (DN 15, 20, 25)	465	32	Integral strainer
INB133	Carbon steel	NPS ½, ¾, 1 (DN 15, 20, 25)	465	32	
INB134	Carbon steel	NPS ¾, 1, 1 ¼ (DN 20, 25, 32)	465	32	
INB135	Carbon steel	NPS 1, 1 ¼ (DN 25, 32)	465	32	Requires external strainer
INB136	Carbon steel	NPS 1, 1 ¼, 1 ½, 2 (DN 25, 32, 40, 50)	465	32	
INB137	Carbon steel	NPS 2, 2 ½ (DN 50, 65)	465	32	

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PRINCIPLE OF OPERATION

The INB100 Series steam trap operates using the density difference between steam and condensate. Its upside-down bucket becomes buoyant when filled with steam and sinks when filled with condensate.

Steam and condensate are directed into the bucket which is submerged in condensate. If the inlet of the INB100 Series is full of steam, this steam will fill the bucket causing the bucket to float upwards and close the valve. As the steam condenses or escapes from the bleed hole, the bucket will sink, opening the valve to allow condensate to flow under the bucket and exit the trap. Once the inlet pipe runs out of condensate, steam will again fill the bucket causing it to float and close the valve.

A small hole at the top of the bucket allows non-condensable gases such as air to discharge. A unique consideration with inverted buckets is the bucket must be submerged in condensate or it will fail in the open position. This can require additional steps during start-up to ensure the bucket is submerged.

INSTALLATION

Install the INB100 Series steam trap upright and in a horizontal line with the arrow on the body pointing in the direction of flow. When choosing a location, avoid long lengths of horizontal piping upstream of the steam trap and install close to the equipment being drained. Ensure a strainer, such as the Yarway 921, is installed upstream of the Types INB115, INB116, INB117, INB135, INB136 and INB137.

FIGURE 1
INB100 Series Inverted Bucket Steam Trap Dimensions

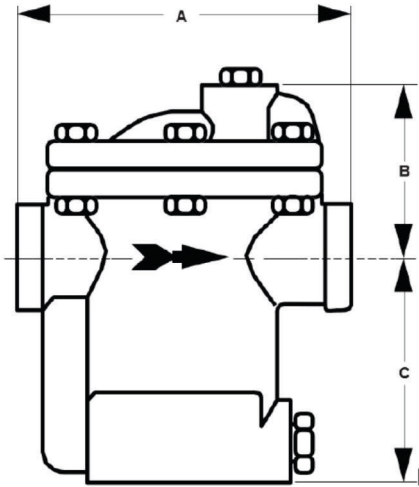
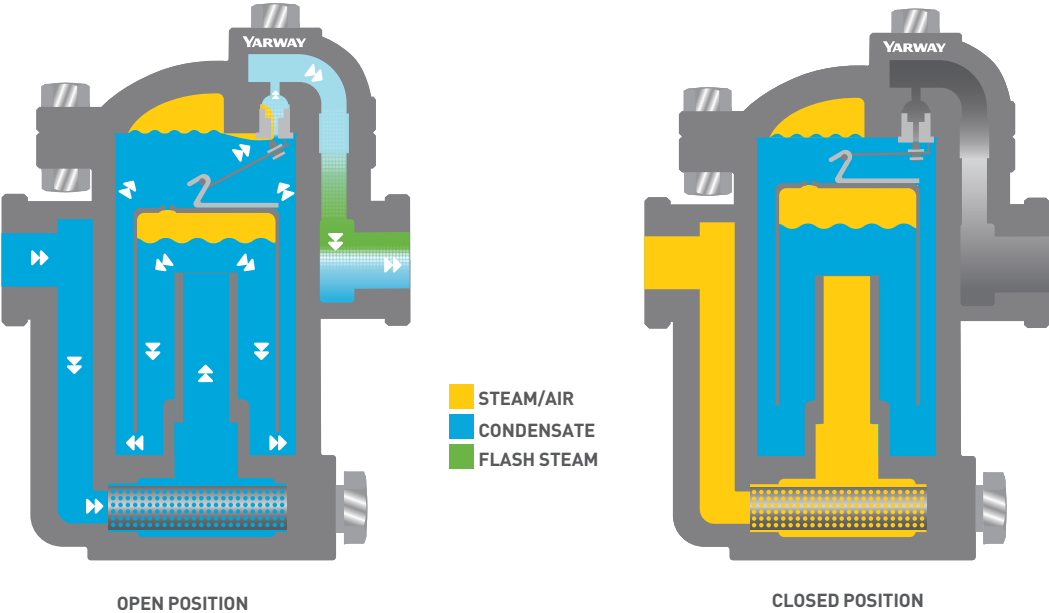


TABLE 2. INB100 SERIES DIMENSIONS AND WEIGHTS

Type	A		B		C		WEIGHT	
	In.	mm	In.	mm	In.	mm	lbs	kg
INB111	5.1	128	2.7	69	3.5	89	7.0	3.2
INB112, INB132	5.1	128	2.7	69	4.4	113	8.0	3.6
INB113, INB133	6.9	174	3.9	98	5.4	138	22	10.0
INB114, INB134	8.1	210	5.0	127	7.6	192	32	14.5
INB115, INB135	9.0	229	5.9	149	7.8	200	48	21.8
INB116, INB136	10.3	260	7.8	200	8.4	213	75	34
INB117, INB137	13	330	9.8	250	11	279	140	63.5

FIGURE 2
INB100 Series Schematic



YARWAY INB100 SERIES INVERTED BUCKET STEAM TRAP

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TABLE 3. MAXIMUM CAPACITY - lbs/hr

Type	Orifice, In.	Max. Δp, psig	DIFFERENTIAL PRESSURE, psig																			
			1	5	10	15	20	25	30	40	60	70	80	100	125	150	180	200	225	250	300	450
INB111	3/16	20	270	450	560	640	690	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1/8	80	110	200	300	360	420	460	500	540	620	660	690	----	----	----	----	----	----	----	----	----
	7/64	125	55	90	145	195	260	305	345	400	485	525	565	640	680	----	----	----	----	----	----	----
	3/32	150	----	70	110	150	200	240	270	310	380	410	440	480	540	570	----	----	----	----	----	----
INB112	1/4	15	450	830	950	1060	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	3/16	30	300	540	670	770	880	950	1000	----	----	----	----	----	----	----	----	----	----	----	----	----
	5/32	70	165	180	430	495	585	655	710	770	900	950	----	----	----	----	----	----	----	----	----	
	1/8	125	130	220	340	390	460	515	560	610	710	760	800	860	950	----	----	----	----	----	----	----
INB132	7/64	200	65	150	230	275	335	375	405	455	545	580	610	665	735	810	850	860	----	----	----	----
	3/32	300 ^[1]	----	100	150	190	240	270	290	340	420	450	470	520	575	620	670	700	730	760	850 ^[1]	----
INB113	5/16	15	850	1600	1900	2100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1/4	30	500	950	1380	1630	1800	1900	2050	----	----	----	----	----	----	----	----	----	----	----	----	----
	3/16	70	420	785	950	1120	1260	1395	1500	1700	2000	2200	----	----	----	----	----	----	----	----	----	----
	5/32	125	300	560	680	800	900	995	1070	1220	1440	1550	1650	1800	2000	----	----	----	----	----	----	----
INB133	1/8	200	180	325	465	505	575	650	710	805	980	1050	1105	1225	1375	1500	1560	1600	----	----	----	----
	7/64	250	130	240	340	370	420	480	520	590	720	770	810	900	1010	1100	1170	1230	1280	1300	----	----
	3/32	300 ^[2]	110	200	300	360	420	460	500	540	620	660	690	800	900	950	1050	1100	1150	1200	1300	----
INB114	1/2	15	1880	2900	3500	3900	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	3/8	30	1400	2300	2700	3300	3500	3800	4000	----	----	----	----	----	----	----	----	----	----	----	----	----
	5/16	60	940	1730	2045	2510	2825	2995	3135	3800	4400	----	----	----	----	----	----	----	----	----	----	----
	9/32	80	735	1350	1595	1960	2205	2340	2450	2880	3490	3800	4000	----	----	----	----	----	----	----	----	----
INB134	1/4	125	600	1100	1300	1600	1800	1910	2000	2350	2850	3100	3300	3600	3900	----	----	----	----	----	----	----
	7/32	180	490	860	1165	1350	1595	1865	2085	2205	2510	2695	2820	3065	3185	3500	3700	----	----	----	----	----
	3/16	250	400	700	950	1100	1300	1520	1700	1800	2050	2200	2300	2500	2600	2800	3020	3200	3400	3500	----	----
	5/32	450 ^[2]	300	560	680	800	900	1000	1070	1220	1440	1550	1650	1800	2000	2100	2250	2400	2450	2550	2700	3070
INB115	5/8	15	2920	4720	5810	6560	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1/2	30	2220	3760	4720	5390	5930	6380	6770	----	----	----	----	----	----	----	----	----	----	----	----	----
	3/8	60	1600	2830	3610	4170	4620	5000	5340	5910	6820	----	----	----	----	----	----	----	----	----	----	----
	11/32	80	1280	2310	2980	3450	3830	4160	4440	4940	5720	6060	6360	----	----	----	----	----	----	----	----	----
INB135	5/16	125	1150	2050	2630	3040	3380	3660	3910	4340	5020	5310	5570	6040	6550	----	----	----	----	----	----	----
	9/32	180	860	1560	2020	2350	2610	2840	3040	3380	3940	4170	4380	4760	5170	5540	5930	----	----	----	----	----
	1/4	250	620	1180	1560	1840	2070	2270	2440	2740	3230	3440	3630	3980	4350	4680	5040	5260	5520	5760	----	----
	3/4	15	4170	7060	8840	10090	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
INB116	9/16	30	3070	5310	6720	7720	8510	9180	9770	----	----	----	----	----	----	----	----	----	----	----	----	----
	7/16	60	2180	3900	5010	5800	6430	6980	7450	8270	9570	----	----	----	----	----	----	----	----	----	----	----
	3/8	100	1770	3290	4290	5010	5600	6100	6540	7310	8540	9060	9540	10,390	----	----	----	----	----	----	----	
	11/32	130	1580	2990	3940	4630	5190	5670	6090	6830	8020	8530	8990	9830	10,740	----	----	----	----	----	----	----
INB136	5/16	180	1180	2290	3050	3610	4070	4460	4810	5420	6410	6830	7220	7910	8680	9360	10,090	----	----	----	----	----
	9/32	225	990	1960	2630	3120	3520	3870	4170	4710	5590	5970	6320	6940	7630	8240	8890	9300	9770	----	----	----
	1/4	350 ^[1]	670	1320	1760	2090	2360	2600	2800	3160	3750	4010	4240	4650	5110	5520	5960	6230	6550	6850	7400 ^[1]	----
	7/32	465 ^[2]	530	1060	1420	1690	1910	2100	2270	2570	3060	3270	3460	3800	4180	4520	4890	5110	5370	5620	6080	7220
INB117	1 1/16	15	8520	13,990	17,310	19,610	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	7/8	25	7040	11,930	14,970	17,090	18,780	20,210	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	3/4	40	5760	9970	12,630	14,510	16,000	17,270	18,380	20,270	----	----	----	----	----	----	----	----	----	----	----	----
	5/8	60	4700	8300	10,600	12,230	13,540	14,650	15,620	17,290	19,950	----	----	----	----	----	----	----	----	----	----	----
INB137	9/16	80	3930	7050	9070	10,510	11,660	12,650	13,510	15,000	17,380	18,390	19,300	----	----	----	----	----	----	----	----	----
	1/2	125	3310	6030	7800	9070	10,100	10,970	11,740	13,070	15,200	16,090	16,910	18,380	19,970	----	----	----	----	----	----	----
	7/16	180	2750	5080	6610	7720	8610	9380	10,050	11,220	13,090	13,880	14,610	15,910	17,320	18,560	19,900	----	----	----	----	----
	3/8	250	2110	4020	5290	6220	6980	7630	8210	9200	10,820	11,510	12,140	13,270	14,500	15,590	16,770	17,490	18,330	19,120	----	----
INB137	11/32	375 ^[2]	1130	2380	3280	3960	4520	5020	5460	6240	7530	8090	8600	9540	10,580	11,510	12,520	13,150	13,890	14,580	15,870	----
	5/16	465 ^[2]	940	1940	2640	3160	3600	3970	4310	4900	5870	6290	6680	7380	8150	8840	9590	10,050	10,590	11,100	12,040	14,430

NOTES

1. Cast iron constructions are rated to 250 psi.
2. Steel constructions only.

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TABLE 4. MAXIMUM CAPACITY - kg/hr

Type	Orifice, mm	Max. Δp, bar	DIFFERENTIAL PRESSURE, bar																			
			0.07	0.34	0.69	1.03	1.38	1.72	2.07	2.76	4.14	4.83	5.52	6.90	8.62	10.3	12.4	13.8	15.5	17.2	20.7	31.0
INB111	4.8	1.4	122	204	254	290	313	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	3.2	5.5	50	91	136	163	191	209	227	245	281	299	313	----	----	----	----	----	----	----	----	----
	2.8	8.6	25	41	66	88	118	138	156	181	220	238	256	290	308	----	----	----	----	----	----	----
	2.4	10.3	0	32	50	68	91	109	122	141	172	186	200	218	245	259	----	----	----	----	----	----
INB112	6.4	1.0	204	376	431	481	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	4.8	2.1	136	245	304	349	399	431	454	----	----	----	----	----	----	----	----	----	----	----	----	----
	4.0	4.8	75	82	195	225	265	297	322	349	408	431	----	----	----	----	----	----	----	----	----	----
	3.2	8.6	59	100	154	177	209	234	254	277	322	345	363	390	431	----	----	----	----	----	----	----
INB132	2.8	13.8	29	68	104	125	152	170	184	206	247	263	277	302	333	367	386	390	----	----	----	----
	2.4	20.7 ^[1]	0	45	68	86	109	122	132	154	191	204	213	236	261	281	304	318	331	345	385 ^[1]	----
	7.9	1	386	726	862	953	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	6.4	2.1	227	431	626	739	816	862	930	----	----	----	----	----	----	----	----	----	----	----	----	----
INB113	4.8	4.8	191	356	431	508	572	633	680	771	907	998	----	----	----	----	----	----	----	----	----	----
	4.0	8.6	136	254	308	363	408	451	485	553	653	703	748	816	907	----	----	----	----	----	----	----
	3.2	13.8	82	147	211	229	261	295	322	365	445	476	501	556	624	680	708	726	----	----	----	----
	2.8	17.2	59	109	154	168	191	218	236	268	327	349	367	408	458	499	531	558	581	590	----	----
INB133	2.4	20.7 ^[2]	50	91	136	163	191	209	227	245	281	299	313	363	408	431	476	499	522	544	590	----
	13	1.0	853	1315	1588	1769	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	9.5	2.1	635	1043	1225	1497	1588	1724	1814	----	----	----	----	----	----	----	----	----	----	----	----	----
	7.9	4.1	426	785	928	1139	1281	1359	1422	1724	1996	----	----	----	----	----	----	----	----	----	----	----
INB134	7.1	5.5	333	612	723	889	1000	1061	1111	1306	1583	1724	1814	----	----	----	----	----	----	----	----	----
	6.4	8.6	272	499	590	726	816	866	907	1066	1293	1406	1497	1633	1769	----	----	----	----	----	----	----
	5.5	12.4	222	390	528	612	723	846	946	1000	1139	1222	1279	1390	1445	1588	1678	----	----	----	----	----
	4.8	17.2	181	318	431	499	590	689	771	816	930	998	1043	1134	1179	1270	1370	1452	1542	1588	----	----
INB114	4.0	31.0 ^[2]	136	254	308	363	408	451	485	553	653	703	748	816	907	953	1021	1089	1111	1157	1225	1393
	16	1.0	1320	2140	2640	2980	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	13	2.1	1010	1710	2140	2440	2690	2890	3070	----	----	----	----	----	----	----	----	----	----	----	----	----
	9.5	4.1	730	1280	1640	1890	2100	2270	2420	2680	3090	----	----	----	----	----	----	----	----	----	----	----
INB135	8.7	5.5	580	1050	1350	1560	1740	1890	2010	2240	2590	2750	2880	----	----	----	----	----	----	----	----	----
	7.9	8.6	520	930	1190	1380	1530	1660	1770	1970	2280	2410	2530	2740	2970	----	----	----	----	----	----	----
	7.1	12.4	390	710	920	1070	1180	1290	1380	1530	1790	1890	1990	2160	2350	2510	2690	----	----	----	----	----
	6.4	17.2	280	540	710	830	940	1030	1110	1240	1470	1560	1650	1810	1970	2120	2290	2390	2500	2610	----	----
INB116	19	1.0	1890	3200	4010	4580	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	14	2.1	1390	2410	3050	3500	3860	4160	4430	----	----	----	----	----	----	----	----	----	----	----	----	----
	11	4.1	990	1770	2270	2630	2920	3170	3380	3750	4340	----	----	----	----	----	----	----	----	----	----	----
	9.5	6.9	800	1490	1950	2270	2540	2770	2970	3320	3870	4110	4330	4710	----	----	----	----	----	----	----	----
INB136	8.7	9.0	720	1360	1790	2100	2350	2570	2760	3100	3640	3870	4080	4460	4870	----	----	----	----	----	----	----
	7.9	12.4	540	1040	1380	1640	1850	2020	2180	2460	2910	3100	3270	3590	3940	4250	4580	----	----	----	----	----
	7.1	15.5	450	890	1190	1420	1600	1760	1890	2140	2540	2710	2870	3150	3460	3740	4030	4220	4430	----	----	----
	6.4	24.1 ^[1]	300	600	800	950	1070	1180	1270	1430	1700	1820	1920	2110	2320	2500	2700	2830	2970	3110	3357 ^[1]	----
INB117	5.5	32.0 ^[2]	240	480	644	766	866	952	1030	1165	1388	1483	1569	1723	1896	2050	2218	2318	2436	2549	2758	3275
	27	1.0	3860	6350	7850	8890	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	22	1.7	3190	5410	6790	7750	8520	9170	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	19	2.8	2610	4520	5730	6580	7260	7830	8340	9190	----	----	----	----	----	----	----	----	----	----	----	----
INB137	16	4.1	2130	3760	4810	5550	6140	6650	7090	7840	9050	----	----	----	----	----	----	----	----	----	----	----
	14	5.5	1780	3200	4110	4770	5290	5740	6130	6800	7880	8340	8750	----	----	----	----	----	----	----	----	----
	13	8.6	1500	2740	3540	4110	4580	4980	5330	5930	6890	7300	7670	8340	9060	----	----	----	----	----	----	----
	11	12.4	1250	2300	3000	3500	3910	4250	4560	5090	5940	6300	6630	7220	7860	8420	9030	----	----	----	----	----
INB137	9.5	17.2	960	1820	2400	2820	3170	3460	3720	4170	4910	5220	5510	6020	6580	7070	7610	7930	8310	8670	----	----
	8.7	25.8 ^[2]	512	1079	1487	1796	2050	2277	2476	2830	3415	3669	3900	4327	4799	5220	5679	5964	6296	6613	7176	----
	7.9	32.0 ^[2]	426	880	1197	1433	1633	1800	1955	2223	2662	2853	3030	3347	3697	4009	4350	4558	4803	5035	5461	6545

NOTES

1. Cast iron constructions are rated to 17.2 bar.
2. Steel constructions only.

YARWAY INB100 SERIES INVERTED BUCKET STEAM TRAP

DATASHEET

ORDERING GUIDE

Available Configurations (Select One)

- ☐ INB111-20
- ☐ INB111-80
- ☐ INB111-125
- ☐ INB111-150

- ☐ INB112-15
- ☐ INB112-30
- ☐ INB112-70
- ☐ INB112-125
- ☐ INB112-200
- ☐ INB112-250

- ☐ INB113-15
- ☐ INB113-30
- ☐ INB113-70
- ☐ INB113-125
- ☐ INB113-200
- ☐ INB113-250

- ☐ INB114-15
- ☐ INB114-30
- ☐ INB114-60
- ☐ INB114-80
- ☐ INB114-125
- ☐ INB114-180
- ☐ INB114-250

- ☐ INB115-15
- ☐ INB115-30
- ☐ INB115-60
- ☐ INB115-80
- ☐ INB115-125
- ☐ INB115-180
- ☐ INB115-250

- ☐ INB116-15
- ☐ INB116-30
- ☐ INB116-60
- ☐ INB116-100
- ☐ INB116-130
- ☐ INB116-180
- ☐ INB116-225
- ☐ INB116-250

- ☐ INB117-15
- ☐ INB117-25
- ☐ INB117-40
- ☐ INB117-60
- ☐ INB117-80
- ☐ INB117-125
- ☐ INB117-180
- ☐ INB117-250

Available Configurations

(Select One) (continued)

- ☐ INB132-15
- ☐ INB132-30
- ☐ INB132-70
- ☐ INB132-125
- ☐ INB132-200
- ☐ INB132-300

- ☐ INB133-15
- ☐ INB133-30
- ☐ INB133-70
- ☐ INB133-125
- ☐ INB133-200
- ☐ INB133-250
- ☐ INB133-300

- ☐ INB134-15
- ☐ INB134-30
- ☐ INB134-60
- ☐ INB134-80
- ☐ INB134-125
- ☐ INB134-180
- ☐ INB134-250
- ☐ INB134-450

- ☐ INB135-15
- ☐ INB135-30
- ☐ INB135-60
- ☐ INB135-80
- ☐ INB135-125
- ☐ INB135-180
- ☐ INB135-250

- ☐ INB136-15
- ☐ INB136-30
- ☐ INB136-60
- ☐ INB136-100
- ☐ INB136-130
- ☐ INB136-180
- ☐ INB136-225
- ☐ INB136-350
- ☐ INB136-465

- ☐ INB137-15
- ☐ INB137-25
- ☐ INB137-40
- ☐ INB137-60
- ☐ INB137-80
- ☐ INB137-125
- ☐ INB137-180
- ☐ INB137-250
- ☐ INB137-375
- ☐ INB137-465

Body Sizes (Select One)

- ☐ NPS ½ (DN 15)
- ☐ NPS ¾ (DN 20)
- ☐ NPS 1 (DN 25)
- ☐ NPS 1¼ (DN 32)
- ☐ NPS 1½ (DN 40)
- ☐ NPS 2 (DN 50)
- ☐ NPS 2½ (DN 65)

End Connection Style (Select One)

- ☐ BSPT
- ☐ NPT
- ☐ SWE

Trap Station Accessories

- ☐ Stop Valve - Inlet
- ☐ Strainer
- ☐ Check Valve
- ☐ Stop Valve - Test
- ☐ Stop Valve - Outlet
- ☐ Stop Valve - Drip Pocket
- ☐ Stop Valve - Bypass

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