Pneumatic/ Manual Combo Brass Ball Valves

2-Way, Lead Free Brass, Full Port
1/4" to 3" NPT

SERIES
5453
5454

Features

- Pneumatic actuator with integral manual override
- Lead Free Brass Ball Valve with ISO5211 direct mounting
- Full port design for unrestricted flow
- Ball and stem 316 stainless steel
- Energized PTFE ball seats for lower torque and longer life
- Triple PTFE/FKM stem seal packing design
- Valve Certified NSF372 & NSF61 for potable/drinking water
- Rack and pinion quarter turn (90°) rotation
- Spring Return or Double Acting Actuators
- Type IP67 weatherproof actuator
- Variable open/close stroke setting
- ATEX approved
- Highly visible valve position indicator
- Actuator factory lubricated for normal lifetime

Applications

Pneumatic/manual actuated brass ball valves for control of water, air, oil and other media compatible with the materials of construction. The de-clutch option can be used for manual operation or to set a stop limit for opening or closing. Cycle times approx. 1 to 4 seconds per 90° rotation. Valves can be mounted in any orientation. Suitable for steam service up to 25 PSI with optional high temperature mounting kit and vacuum service to 29"Hg.

Operation

Double acting actuators require air pressure to open and air pressure to close. Spring return actuators require air pressure to open and utilize springs to close for failsafe operation. Pulling the handwheel détente pin allows manual operation of the valve via the handwheel. Re-engaging the détente pin mid-stroke creates a partial stroke position, ie the automatic stroke begins/ends at the locked handwheel position. Rotating the handwheel counterclockwise rotates the output drive counterclockwise when viewed from the top.

Pilot Air should be filtered, dry or lubricated.

Construction

Valve Body	Lead Free Brass C69300
Ball/Stem	316 stainless steel
Ball Seats	PTFE (Teflon) energized with FKM (Viton)
Stem Seals	PTFE (Teflon) with dual FKM (Viton) seals
Actuator Seals	NBR (Buna-N)
Actuator Body	Extruded aluminium– 35 micron anodizing, 40 micron polyester coated end covers
Position Indicator	Glass filled Polyamide
Fasteners	Stainless Steel

Description

Valworx heavy duty pneumatic/manual combination actuator features hard anodized aluminum enclosure, type IP67. Actuators are available in double acting and spring return models. Full port lead free brass ball valve direct mounts to the actuator and has unrestricted flow. These automated ball valves incorporate a 316 stainless steel ball and stem rather than your typical plated brass. Ball seats are energized PTFE for low torque and extended life. Unique leak free triple stem seal design with PTFE and dual Viton seals for the perfect stem seal design. Standard Namur mounting pads for optional accessory confirmation switches, pilot valves and valve positioners. Rotation adjustment +5° at the 0° and 90° positions. The integral handwheel is used for manual operation and setting a limit stop.

Approvals

Actuators

- CE Declaration of conformity
- EN ISO 12100:2010
- EN ISO 4414:2010
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting
- ATEX

Valves

- IAPMO RT certified to:
  - NSF/ANSI 372 - 2011 Drinking Water
  - NSF/ANSI 61 - 2015
  - California Health & Safety 116875
  - Section 1417 of Safe Drinking Water Act
  - Weighted average lead content < =0.25%
- Meets design MSS-SP-110

Construction Features

Heavy duty rugged rack and pinion design

Visual valve position indicator

Standard Namur top mounting for optional switches and positioners

Integral handwheel for manual operation

Anodized aluminum alloy covers with 40 micron polyester powder coating

Hard anodized aluminum body, Type IP67

Spring return models use multiple pre-compressed spring cartridges with polyester coating

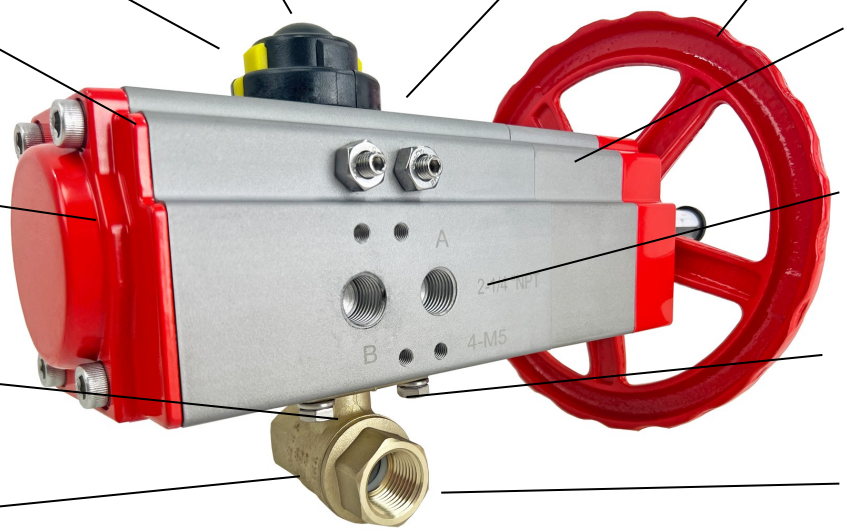
NPT pilot air ports and additional Namur VDI/VDE-3845 solenoid mounting pad

316 stainless steel stem with triple PTFE/FKM leak free stem seal design

Ball valve direct mounted to actuator, no brackets required

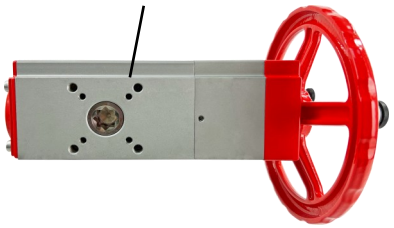
316 stainless steel ball with energized PTFE seats for reduced torque and extended cycle life

Full Port lead free brass ball valve, certified for use with potable/drinking water



***Inline option shown below-**
A5453/A5454 Accessory

International standard ISO5211 valve mounting pad



Pressure Rating

Valve Pressure Rating: 600 PSI (41 Bar)* non-shock, 1-4" to 2" NPT sizes
300 PSI (21 Bar)* non-shock, 2-1/2" & 3" NPT sizes
25 PSI saturated steam with high temp kit
29" Hg vacuum

*See P/T chart

Pilot Air Pressure– Double Acting: 29-120 PSI (2-8 Bar)

Pilot Air Pressure– Spring Return: 87-120 PSI (6-8 Bar)

Temperature Rating

Ball Valve Temperature Rating: -4 to 366° F (-20 to 186° C)

Actuator Temperature Rating: -4 to 176° F (-20 to 80° C)

*See P/T chart

Optional Accessories

DMS: Direct Mount Solenoid
- pilot to electrically operate the ball valve
VPS: Valve Position Switches
- limit switches to confirm valve position
PVP: Pneumatic Valve Positioner
- position the ball with 4-20mA
HTB: High Temperature Bracket
- increases media working temperature
Lock out/Tag out device
Inline mounting

Specifications (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Air Volume/90° (cubic inches)	Cycle Time/90° (open-close)	Pilot Air Port (NPT)
LEAD FREE BRASS BALL VALVE WITH PNEUMATIC/ MANUAL SPRING RETURN ACTUATOR							
521440	1/4	0.39	6	600	18.3	1-1	1/4
521441	3/8	0.50	10	600	18.3	1-1	1/4
521442	1/2	0.59	15	600	18.3	1-1	1/4
521443	3/4	0.75	30	600	18.3	1-1	1/4
521444	1	1.00	60	600	24.4	1-1	1/4
521445	1-1/4	1.22	89	600	42.7	1-1	1/4
521446	1-1/2	1.50	125	600	42.7	1-1	1/4
521447	2	2.00	240	600	54.9	1-1	1/4
521448	2-1/2	2.50	320	300	91.5	2-1	1/4
521449	3	3.00	551	300	128.1	2-1	1/4
LEAD FREE BRASS BALL VALVE WITH PNEUMATIC/ MANUAL DOUBLE ACTING ACTUATOR							
521402	1/4	0.39	6	600	18.3	1-1	1/4
521403	3/8	0.50	10	600	18.3	1-1	1/4
521404	1/2	0.59	15	600	18.3	1-1	1/4
521406	3/4	0.75	30	600	18.3	1-1	1/4
521408	1	1.00	60	600	18.3	1-1	1/4
521410	1-1/4	1.22	89	600	18.3	1-1	1/4
521412	1-1/2	1.50	125	600	18.3	1-1	1/4
521416	2	2.00	240	600	24.4	1-1	1/4
521420	2-1/2	2.50	320	300	42.7	1-1	1/4
521424	3	3.00	551	300	54.9	1-1	1/4

Cv is the GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

* Pressure at 176° F (reduced pressure with higher temperatures- see P/T chart)

Pressure/Temperature Chart (PSI/°F)

P/T Chart						
PSI	600	600	600	600	550	400
°F	0	50	100	176	200	266

Specifications (Metric units)

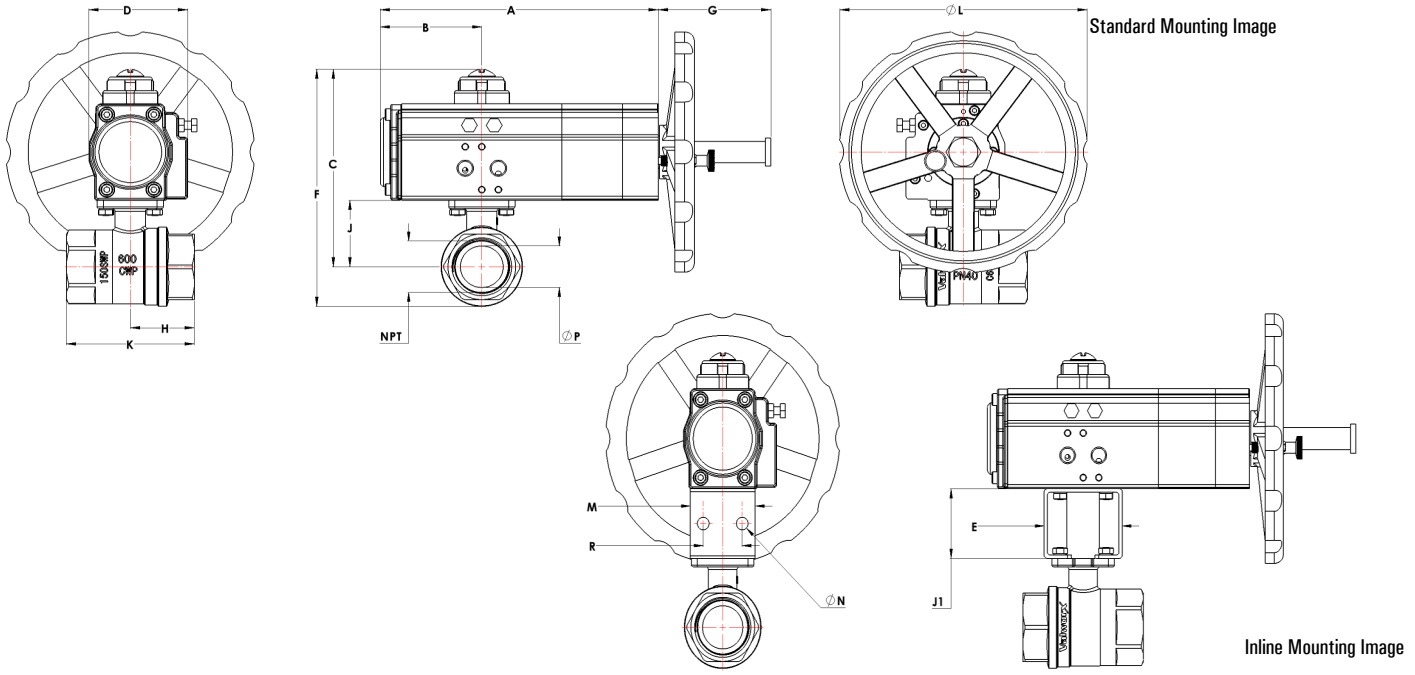
Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Pressure Max.(Bar)*	Air Volume/90° (cubic liters)	Cycle Time/90° (open-close)	Pilot Air Port (NPT)
LEAD FREE BRASS BALL VALVE WITH PNEUMATIC/ MANUAL SPRING RETURN ACTUATOR							
521440	1/4	10	5	40	0.3	1-1	1/4
521441	3/8	12.7	8.6	40	0.3	1-1	1/4
521442	1/2	15	13	40	0.3	1-1	1/4
521443	3/4	19	26	40	0.3	1-1	1/4
521444	1	25	52	40	0.4	1-1	1/4
521445	1-1/4	31	76	40	0.7	1-1	1/4
521446	1-1/2	38	107	40	0.7	1-1	1/4
521447	2	50	206	40	0.9	1-1	1/4
521448	2-1/2	63	275	21	1.5	2-1	1/4
521449	3	76	474	21	2.1	2-1	1/4
LEAD FREE BRASS BALL VALVE WITH PNEUMATIC/ MANUAL DOUBLE ACTING ACTUATOR							
521402	1/4	10	5	40	0.3	1-1	1/4
521403	3/8	12.7	8.6	40	0.3	1-1	1/4
521404	1/2	15	13	40	0.3	1-1	1/4
521406	3/4	19	26	40	0.3	1-1	1/4
521408	1	25	52	40	0.3	1-1	1/4
521410	1-1/4	31	76	40	0.3	1-1	1/4
521412	1-1/2	38	107	40	0.3	1-1	1/4
521416	2	50	206	40	0.4	1-1	1/4
521420	2-1/2	63	275	21	0.7	1-1	1/4
521424	3	76	474	21	0.9	1-1	1/4

* Pressure at 80° C (reduced pressure at higher temperatures - see P/T chart)

Pressure/Temperature Chart (Bar/°C)

P/T Chart						
Bar	41	41	41	41	38	27
°C	-18	10	38	80	93	130

Dimensions: Spring Return

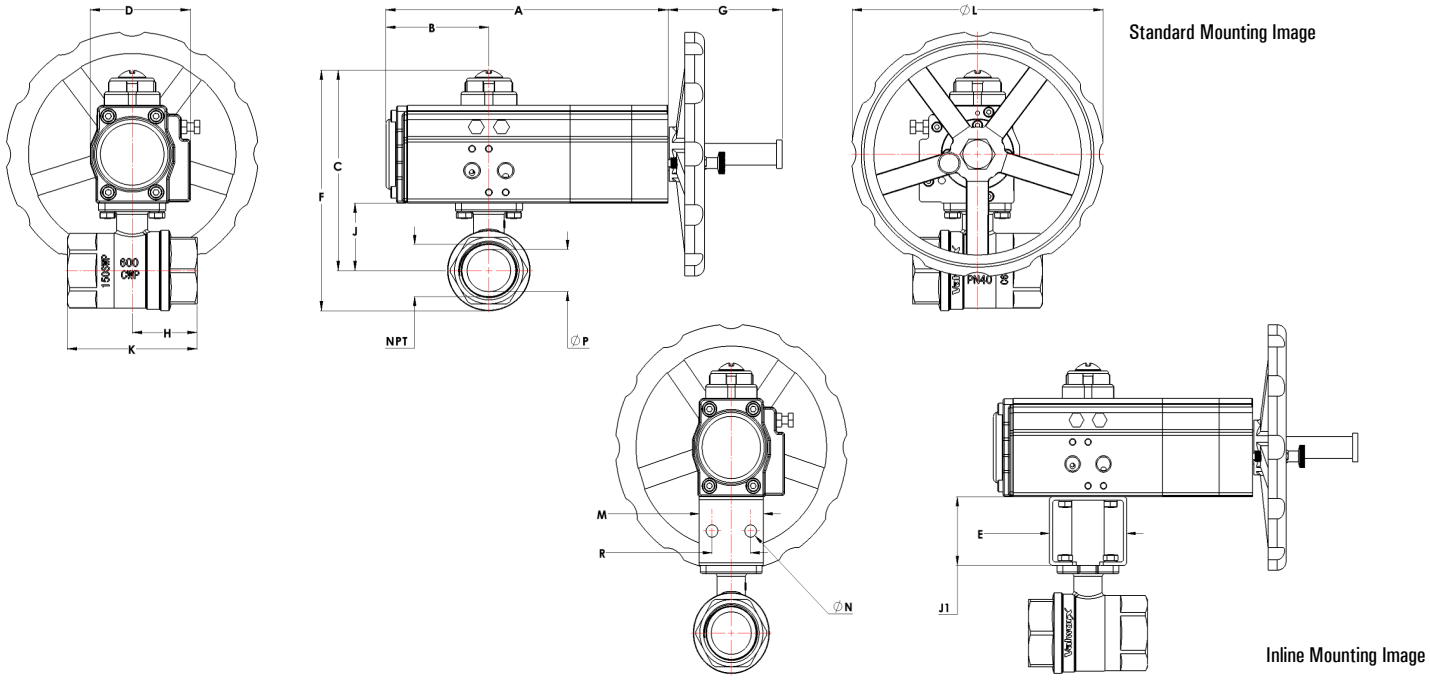


Standard Mounting Image

Inline Mounting Image

Pipe Size (NPT)		A	B	C	D	E	F	G	H	J	J1	K	L	M	N	P	R	Weight
1/4	inch	8.3	3.1	4.5	2.6	2.4	5.0	2.9	0.9	0.9	1.9	1.9	7.1	2.0	0.3	0.4	1.2	6.8 lb
	mm	211.0	78.7	114.3	65.0	60.0	127.0	74.0	23.8	22.0	50.0	47.6	180.0	50.0	9.0	10.0	30.0	3.1 kg
3/8	inch	8.3	3.1	4.6	2.6	2.4	5.2	2.9	1.0	1.0	1.9	2.0	7.1	2.0	0.3	0.5	1.2	6.8 lb
	mm	211.0	78.7	116.8	65.0	60.0	132.1	74.0	25.7	26.5	50.0	51.4	180.0	50.0	9.0	12.7	30.0	3.1 kg
1/2	inch	8.3	3.1	4.9	2.6	2.4	5.5	2.9	1.3	1.3	1.96	2.5	7.1	2.0	0.3	0.6	1.2	7.3 lb
	mm	211.0	78.7	124.5	65.0	60.0	139.7	74.0	31.8	32.0	50.0	63.6	180.0	50.0	9.0	15.0	30.0	3.3 kg
3/4	inch	8.3	3.1	5.0	2.6	2.4	5.8	2.9	1.4	1.4	1.9	2.7	7.1	2.0	0.3	0.8	1.2	7.5 lb
	mm	211.0	78.7	127.0	65.0	60.0	147.3	74.0	34.5	34.8	50.0	69	180.0	50.0	9.0	19.0	30.0	3.4 kg
1	inch	9.2	3.3	6.1	2.8	2.4	7.0	3.3	1.7	1.8	1.9	3.3	7.7	2.0	0.3	1.0	1.2	8.0 lb
	mm	233.0	83.8	154.9	72.0	60.0	177.8	85.0	42.2	44.5	50.0	84.4	195.0	50.0	9.0	25.0	30.0	3.6 kg
1-1/4	inch	9.6	3.6	6.6	3.1	2.4	7.8	3.5	1.8	1.9	1.9	3.7	7.1	2.0	0.3	1.2	1.2	8.7 lb
	mm	244.0	91.4	167.6	80.0	60.0	198.1	89.0	46.3	49.5	50.0	92.7	180.0	50.0	9.0	31.0	30.0	4.0 kg
1-1/2	inch	9.6	3.6	7.1	3.1	2.4	8.5	3.5	2.1	2.4	1.9	4.1	7.1	2.0	0.3	1.5	1.2	9.7 lb
	mm	244.0	91.4	180.3	80.0	60.0	215.9	89.0	52.1	60.5	50.0	104.0	180.0	50.0	9.0	38.0	30.0	4.4 kg
2	inch	10.7	4.2	7.9	3.6	2.4	9.7	4.0	2.4	2.8	1.9	4.8	7.7	2.0	0.3	2.0	1.2	14.9 lb
	mm	272.0	106.7	200.7	92.0	60.0	246.4	101.0	60.6	72	50.0	121.0	195.0	50.0	9.0	50.0	30.0	6.8 kg
2-1/2	inch	13.4	5.2	8.8	3.9	3.1	11.0	4.3	3.0	3.4	1.9	6.1	9.8	2.8	0.3	2.5	1.4	19.8 lb
	mm	341.0	132.1	223.5	98.0	80.0	279.4	109.0	77.1	86	50.0	154.0	250.0	70.0	9.0	63.0	35.0	9.0 kg
3	inch	13.6	5.3	9.8	4.3	4.7	12.5	4.9	3.5	3.8	1.9	6.9	9.8	4.0	0.4	3.0	2.0	25.9 lb
	mm	346.0	134.6	248.9	110.0	120.0	317.5	124.0	87.6	97	50.0	175.0	250.0	102.0	11.0	76.0	50.0	11.8 kg

Dimensions: Double Acting



Pipe Size		A	B	C	D	E	F	G	H	J	J1	K	L	M	N	P	R	Weight
1/4	inch	8.3	3.1	4.5	2.6	2.4	5.0	2.9	0.9	0.9	1.9	1.9	7.1	2.0	0.3	0.4	1.2	6.8 lb
	mm	211.0	78.7	114.3	65.0	60.0	127.0	74.0	23.8	22.0	50.0	47.6	180.0	50.0	9.0	10.0	30.0	3.1 kg
3/8	inch	8.3	3.1	4.6	2.6	2.4	5.2	2.9	1.0	1.0	1.9	2.0	7.1	2.0	0.3	0.5	1.2	6.8 lb
	mm	211.0	78.7	116.8	65.0	60.0	132.1	74.0	25.7	26.5	50.0	51.4	180.0	50.0	9.0	12.7	30.0	3.1 kg
1/2	inch	8.3	3.1	4.9	2.6	2.4	5.5	2.9	1.3	1.3	1.96	2.5	7.1	2.0	0.3	0.6	1.2	7.3 lb
	mm	211.0	78.7	124.5	65.0	60.0	139.7	74.0	31.8	32.0	50.0	63.6	180.0	50.0	9.0	15.0	30.0	3.3 kg
3/4	inch	8.3	3.1	5.0	2.6	2.4	5.8	2.9	1.4	1.4	1.9	2.7	7.1	2.0	0.3	0.8	1.2	7.5 lb
	mm	211.0	78.7	127.0	65.0	60.0	147.3	74.0	34.5	34.8	50.0	69	180.0	50.0	9.0	19.0	30.0	3.4 kg
1	inch	8.3	3.1	5.4	2.6	2.4	6.3	2.9	1.7	1.8	1.9	3.3	7.1	2.0	0.3	1.0	1.2	11.9 lb
	mm	211.0	78.7	137.2	65.0	60.0	160.0	74.0	42.2	44.5	50.0	84.4	180.0	50.0	9.0	25.0	30.0	5.4 kg
1-1/4	inch	8.3	3.1	5.5	2.6	2.4	6.7	2.9	1.8	1.9	1.9	3.7	7.1	2.0	0.3	1.2	1.2	14.2 lb
	mm	211.0	78.7	139.7	65.0	60.0	170.2	74.0	46.3	49.5	50.0	92.7	180.0	50.0	9.0	31.0	30.0	6.5 kg
1-1/2	inch	8.3	3.1	6.0	2.6	2.4	7.4	2.9	2.1	2.4	1.9	4.1	7.1	2.0	0.3	1.5	1.2	15.1 lb
	mm	211.0	78.7	152.4	65.0	60.0	188.0	74.0	52.1	60.5	50.0	104.0	180.0	50.0	9.0	38.0	30.0	6.9 kg
2	inch	9.2	3.3	7.1	2.8	2.4	8.9	3.3	2.4	2.8	1.9	4.8	7.7	2.0	0.3	2.0	1.2	19.1 lb
	mm	233.0	83.8	180.3	72.0	60.0	226.1	85.0	60.6	72	50.0	121.0	195.0	50.0	9.0	50.0	30.0	8.7 kg
2-1/2	inch	9.6	3.6	8.1	3.1	3.1	9.6	3.5	3.0	3.4	1.9	6.1	7.1	2.8	0.3	2.5	1.4	31.3 lb
	mm	244.0	91.4	205.7	80.0	80.0	243.8	89.0	77.1	86	50.0	154.0	180.0	70.0	9.0	63.0	35.0	14.2 kg
3	inch	10.7	4.2	8.9	3.6	3.1	11.6	4.0	3.5	3.8	1.9	6.9	7.7	2.8	0.3	3.0	1.4	39.2 lb
	mm	272.0	106.7	226.1	92.0	80.0	294.6	101.0	87.6	97	50.0	175.0	195.0	70.0	9.0	76.0	35.0	17.8 kg