

VNB-I4 MK2 Balance Assembly Bottom Loading Arm

Velvet Touch MK2 Balance Assembly for use in bottom loading arms in petrochemical distribution depots.

OPERATION - A horizontal plane swivel allows 360° rotation of bottom loading arm to easily cover the width of standard API envelope. A vertical plane swivel allows movement 15° above and below horizontal to achieve various coupler height requirements and in conjunction with twin lift-o-mat struts the effort required to position the API coupler is minimised.

Key Features

- The balance assembly bolts onto the flange terminating the product inlet pipework found at loading depots.
- A horizontal spool is bolted onto the outlet flange of the balance assembly followed by other loading arm components.
- Precise balancing of the arm is achieved by repositioning the bottom of the struts for coarse adjustment and a worm-drive screw at the top of the struts for fine tuning.
- An adjustable up/down stop is integrated into the balance assembly to ensure the struts do not reach their limit or to keep arm movement clear of obstructions such as roofing.



Dismantle

Detach struts, remove up/down stop components and unbolt drop leg bracket from swivel elbow. Remove retainer plug and rotate the swivel with the hole pointing downwards until all ball-bearings have dropped out. The male of the swivel can then be removed complete with the needle bearings and seals. Repeat for other swivel.

Adjustment

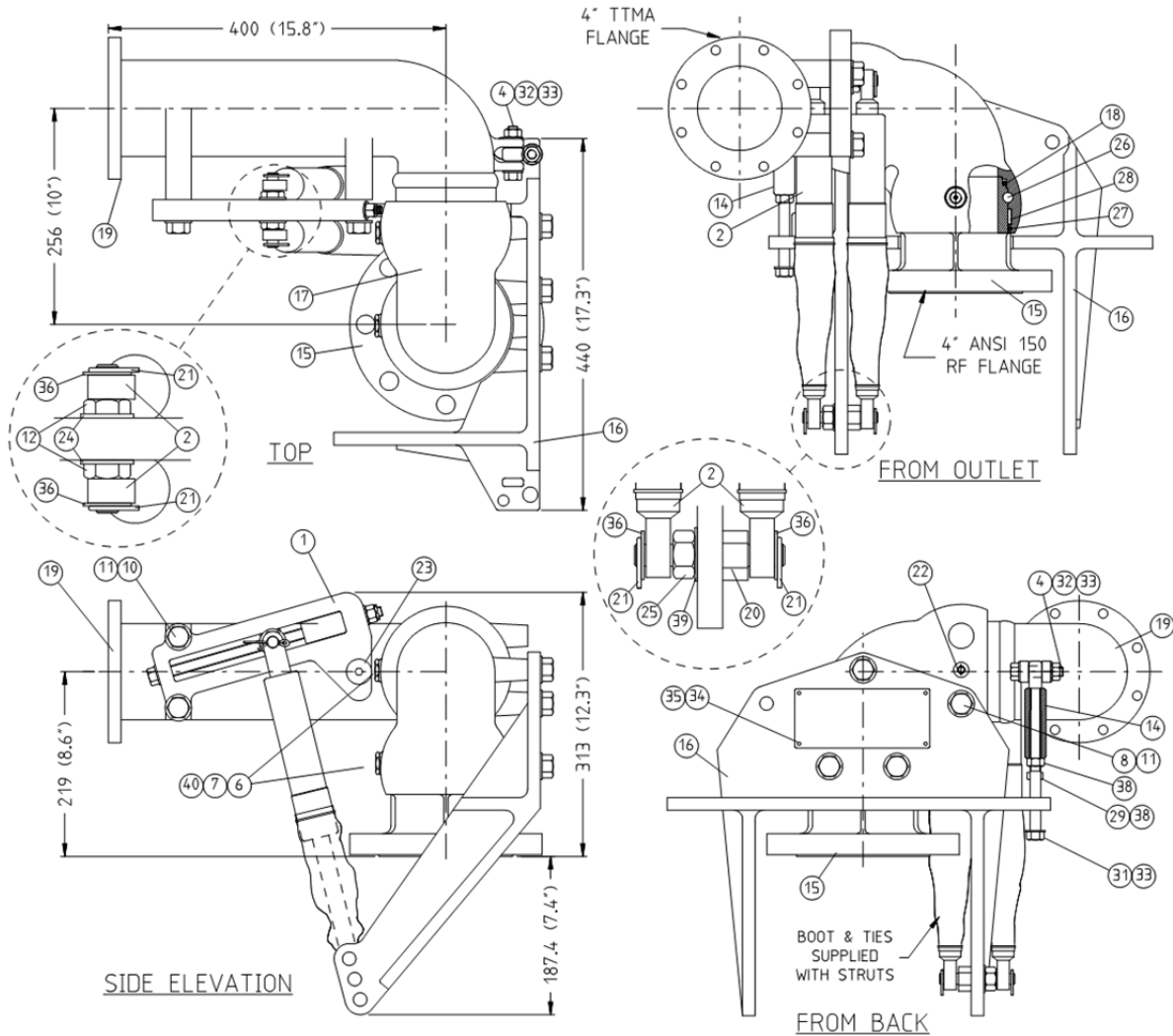
- Balancing the arm is achieved by changing strut positions – see manual for more detail.
- Up/down stop is adjustable by changing position of the stop bolts – see manual.
- Grease at three-monthly intervals with recommended grease.
- See Installation and Maintenance Manual for full details.

Specifications

Mounting	Base flange is 4" ANSI 150 raised face flange. Outlet flange is 100mm (4") TTMA pattern.
Technical Data	<ul style="list-style-type: none"> • Cast steel construction. • Ball and needle rolling elements for optimum axial and radial load bearing with minimum friction. • Grease nipple one side of each swivel with relief valve mounted opposite for efficient removal of old grease and debris. • Dual o-rings for product seal and dust seal respectively. • Viton B70 grade o-rings (* Teflon or other special seals available on request). • Brass ball retainer.
Working pressure	1,000 kPa (145 PSI)
Test pressure	1,500 kPa (218 PSI)
Weight	60 kg (132lb)
Operating temperature	-20° to +80°C (-4° to +176°F) for EPDM & Viton B70 grade -40° to +60°C (-40° to +140°F) for Viton GFLT grade
Associated Equipment	See Velvet Touch loading arm systems.

*** Note:** The nature of Teflon is that it is unyielding but easily scratched; therefore the slightest damage can lead to weeps particularly where clamping force is provided by a spring which is necessarily limited in force. However the use of Teflon cannot be avoided because of its outstanding chemical resistance. Liquip guarantee the sealing of all new products and test all production prior to dispatch. Following installation of the equipment by the Purchaser it is essential that the valve be kept perfectly clean, any test liquids be perfectly clean and no tools be allowed to touch the Teflon seals. It is not uncommon for valves to exhibit small weeps once in service with commercial-quality liquids.

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RIGHT HAND ORIENTATION OF BALANCE ASSEMBLY SHOWN, LEFT HAND IS MIRROR IMAGE

ITEM	PART NO	DESCRIPTION	MATERIAL	QTY	ITEM	PART NO	DESCRIPTION	MATERIAL	QTY
1	LAN400-25	BRACKET ADJUSTING SUB-ASSEMBLY	-	1	20	LAN400-11	PIVOT SUPPORT STRUT BOTTOM	Z/P M/S	1
*2	4416	LIFT-O-MAT STRUT (2800N) C/W BLACK BOOT	STEEL	NOTE 1	21	4871	SPLIT PIN	ST STEEL	4
	3008	LIFT-O-MAT STRUT (5200N) C/W GREEN BOOT	STEEL	NOTE 1	22	1525	VALVE RELIEF	BRASS	2
3	4782	INSTRUCTIONS - FITTING & MAINTENANCE	PAPER	1	23	55039	CAPSCREW COUNTERSUNK	Z/P HT STL	1
4	0152	NUT NYLOC	Z/P M/S	2	24	LAN400-20	WASHER SPECIAL	Z/P M/S	2
5					25	0848	NUT NYLOC	STEEL	1
6	0481	NIPPLE GREASE STRAIGHT	Z/P M/S	2	26	2334	BALL BEARING	STEEL	64
7	LAN400-9	PLUG BALL RETAINING	BRASS	2	27	6080	"O" RING	VITON B70	2
8	55034	BOLT HEX HD	Z/P M/S	4	28	4531	ROLLER HARDENED	STEEL	200
9					29	4828	SETSCREW	Z/P M/S	1
10	55040	SETSCREW HEX HD	Z/P M/S	2	30				
11	5359	WASHER SPRING HVY	Z/P M/S	6	31	55043	SET SCREW 1/2" BSW x 8" LONG	Z/P M/S	1
12	4386	NUT HALF	Z/P M/S	2	32	0081	BOLT	Z/P M/S	1
13					33	0104	WASHER FLAT	Z/P M/S	2
14	LAN400-19	ADJUSTMENT BLOCK OVERRUN	SG IRON	1	34	4711	NAMEPLATE	ALUMINIUM	1
15	LAN400-1	MALE STRAIGHT TO ANSI 150	STEEL	1	35	0005	RIVET	ALUMINIUM	4
16	LAN400-21	BRACKET DROP LEG SUPPORT	SG IRON	1	36	4359	WASHER FLAT	Z/P M/S	4
17	LAN400-2	ELBOW FEMALE FEMALE	STEEL	1	37	5736	INSTRUCTIONS - ADJUSTING LIMITS	PAPER	1
*18	0126	"O" RING	VITON B70	2	38	0132	NUT	Z/P M/S	2
	0126VG	"O" RING	VITON GFLT	NOTE 2	39	0105	WASHER FLAT	Z/P M/S	1
	4641	SEAL SPRING LOADED TEFLON	TEFLON	NOTE 2	40	0885	WASHER FIBRE	FIBRE	2
19	LAN400-3	ELBOW 90° EXTENDED	SG IRON	1					