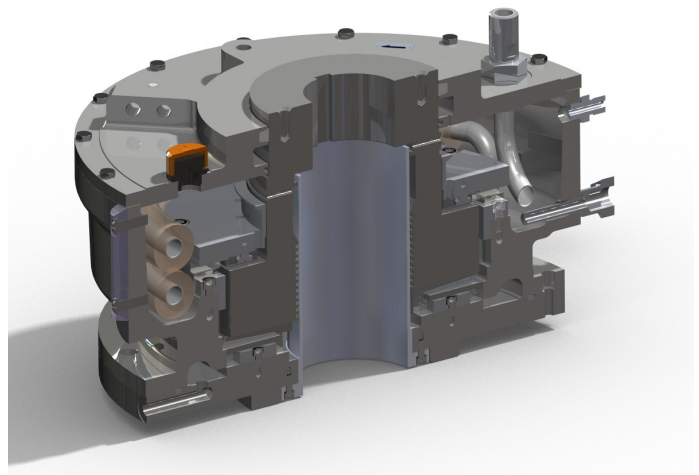
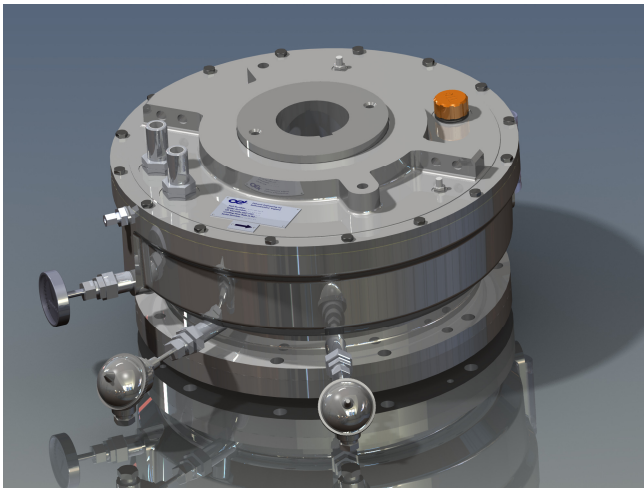




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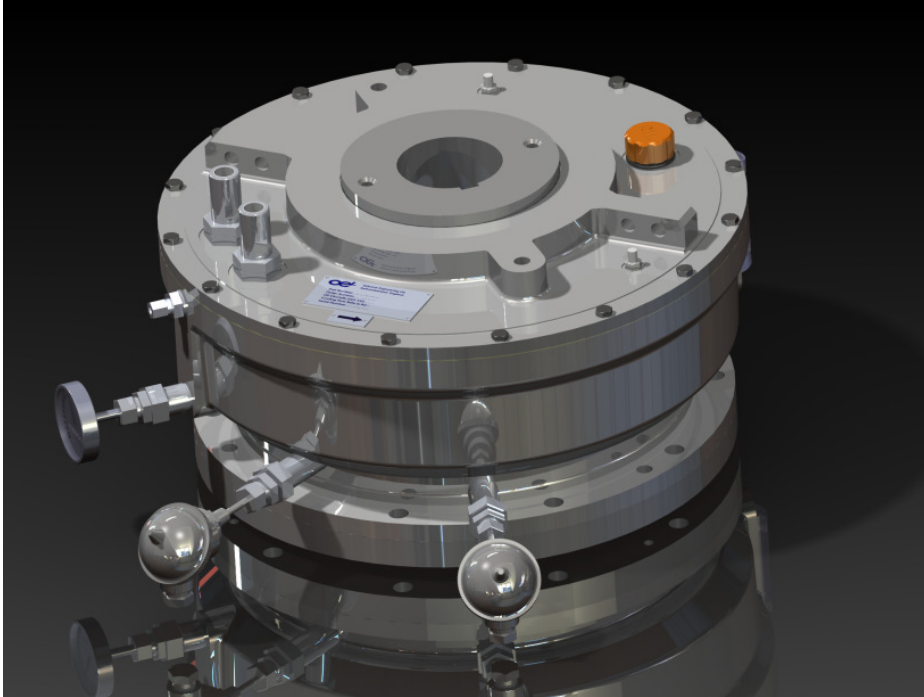
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total shaft solutions



OEV VERTICAL BEARING

OSBORNE VERTICAL BEARING



General Description

The Osborne Vertical Bearing is a comprehensive self contained assembly comprising a thrust collar, thrust and journal bearing pads, cooling mechanism and outer casing. Additional monitoring and ancillary features are incorporated to meet customer requirements.

Radial and axial loads are transmitted through the thrust collar to the corresponding thrust and journal pads which support the load by generating and sustaining a hydrodynamic oil film. Preloaded journal pads are provided as standard to offer increased stability together with handed thrust pads to maximise on load carrying capacity.

The internal components operate within an oil flooded chamber facilitating operation in demanding and otherwise corrosive environments. The outer casing is coated for weather resistance. Customer specific paint requirements can also be accommodated.

OSBORNE VERTICAL BEARING

Lubrication Methods

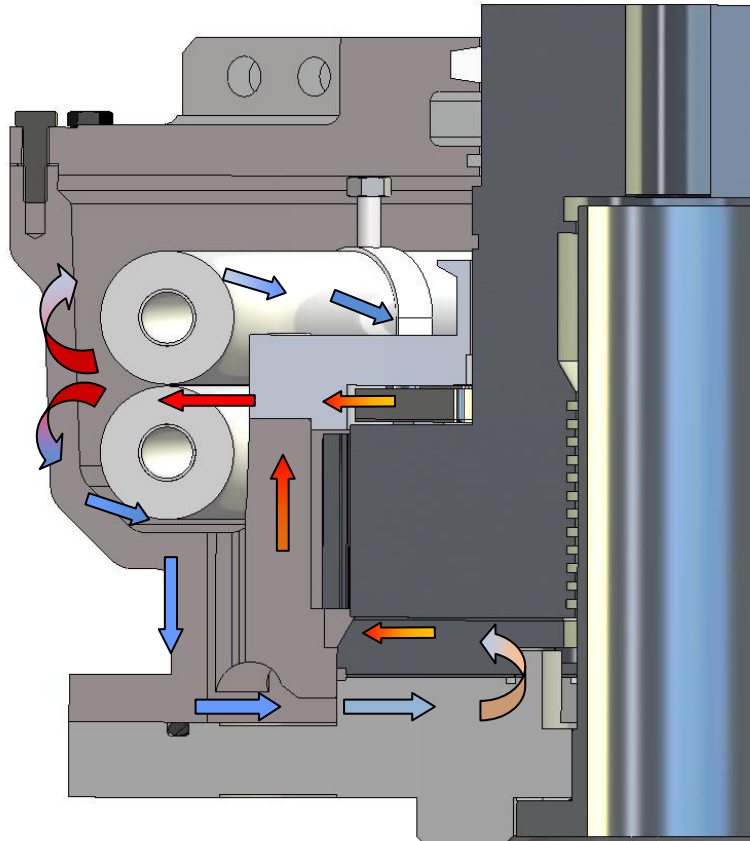


Figure 2 - Oil circulation path within bearing assembly during operation.

Osborne's standard range of Vertical Bearing is designed for two types of cooling method; water cooled or circulating oil cooled. Water cooling is provided using our standard Cupro-Nickel two turn extended surface cooling tube, other materials can also be used depending upon the type and quality of cooling water. Circulated oil cooling is utilised when cooling water is not available or cooling tube are not acceptable.

Temperature Measurement

Temperature measurement is the preferred condition monitoring tool for most bearing assemblies. Osborne Vertical Bearings can be supplied with RTD's for accurate measurement of the thrust pad, journal pad & oil bath temperatures. Local dial thermometers can also be added for simple temperature reading.

All of these instruments can be fitted with thermowells allowing removal without the need to drain oil from the bearing. Customer preferred instruments can be incorporated into our designs or details of our preferred standard instruments can be provided upon request.

OSBORNE VERTICAL BEARING

GENERAL DETAILS

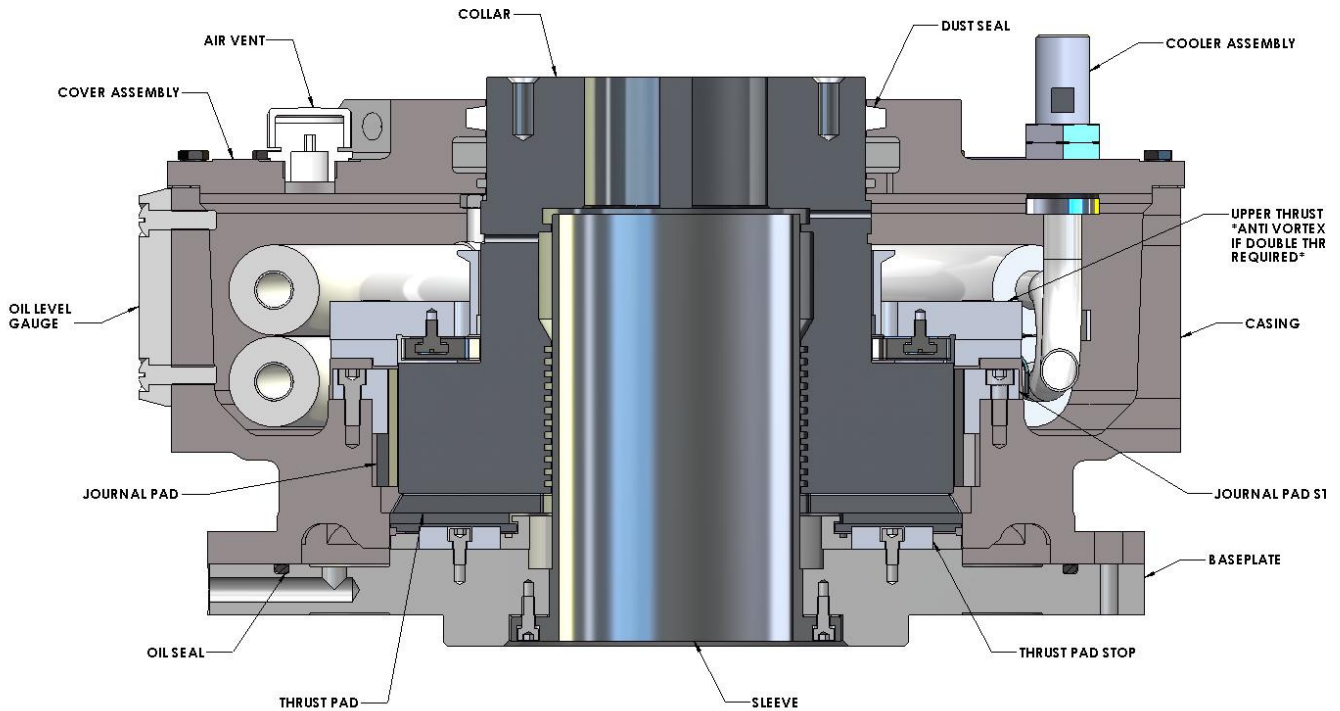


Figure 3 - Vertical bearing cross section; identification of components.

	MAXIMUM SHAFT DIA THROUGH BEARING (MM)			MAXIMUM DOWNWARD STARTING LOAD (KN)			MAXIMUM DOWNWARD RUNNING LOAD (KN)			MAXIMUM UPWARD STARTING LOAD (KN)	MAXIMUM UPWARD RUNNING LOAD (KN)	APPROX MAXIMUM RADIAL LOAD (KN)
	SMALL SHAFT	MEDIUM SHAFT	LARGE SHAFT	SMALL SHAFT	MEDIUM SHAFT	LARGE SHAFT	SMALL SHAFT	MEDIUM SHAFT	LARGE SHAFT			
OEV 6	68	89	105	29	23	17	42	33	20	16	19	5.5
OEV 7	78	107	126	43	32	25	62	47	29	20	29	7.4
OEV 8	90	131	153	62	45	35	97	56	40	32	47	9.8
OEV 9	115	160	187	89	66	51	155	115	89	45	77	15.6
OEV 10	142	190	222	123	93	72	215	163	126	55	95	21.7
OEV 11	165	225	263	174	131	101	309	229	177	87	149	29.3
OEV 12	192	256	300	224	171	132	392	299	230	108	185	39.5
OEV 13	216	293	343	296	224	172	518	391	302	143	246	48.2
OEV 14	256	352	411	422	315	243	739	552	426	173	298	73

Table 1 - Vertical bearing selection guide

Note. H.P Jacking is not required within the maximum start-up load.

OSBORNE VERTICAL BEARING

GENERAL PROPORTIONS

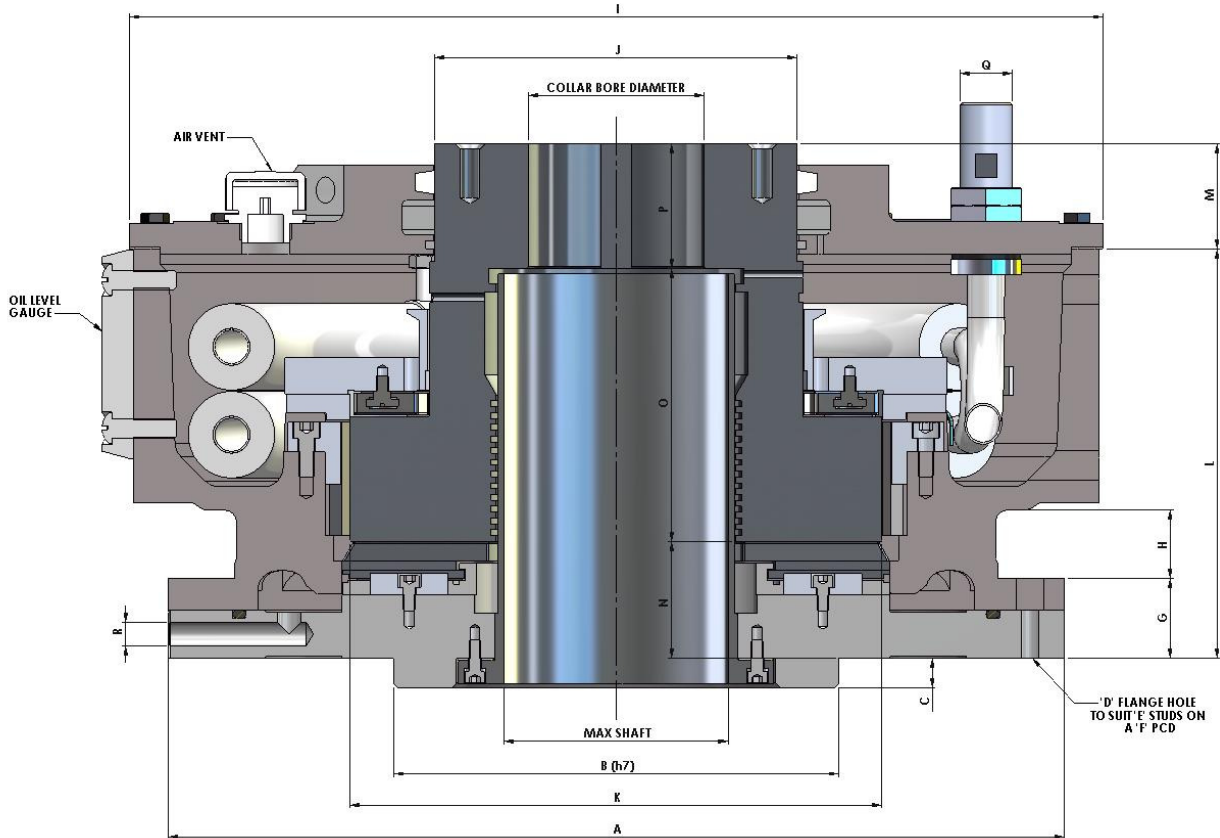
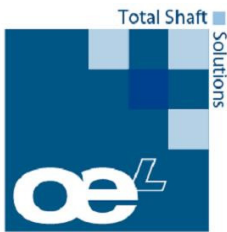


Figure 4 – Vertical bearing cross section; key dimensions

	BASE PLATE O/DIA	SMALL SHAFT SPIGOT	MEDIUM & LARGE VARIANT SHAFT SPIGOT	SPIGOT HEIGHT	NUMBER OF HOLES	STUD SIZE	HOLE PCD	STUD THK	STUD HEAD CLEAR.	CASING O/DIA	COLLAR O/DIA SMALL SHAFT	COLLAR O/DIA MEDIUM & LARGE SHAFT
	A	B		C	D	E	F	G	H	I	J	
OEV 6	310	140	169	12	8	M12	279.5	30	28	355	105	133
OEV 7	358	165.1	191	12	10	M16	324	35	34	375	133	159
OEV 8	418	190.5	220	12	10	M16	380	38	34	435	137	183
OEV 9	460	228.6	256	15	10	M16	425.5	41	34	500	186	227
OEV 10	552	279.4	309.9	15	12	M20	508	50	40	575	235	261
OEV 11	610	330	355.9	15	12	M20	568	60	40	630	268	310
OEV 12	698	368	398.9	15	12	M20	654	65	40	718	315	356
OEV 13	813	400	457.7	15	12	M24	770	70	50	825	360	407
OEV 14	914	440	532.7	15	12	M24	864	75	50	938	457	485

Table 2 – Vertical bearing standard dimensions

Please contact Osborne Engineering for alternative dimensional requirements.



OSBORNE VERTICAL BEARING

GENERAL PROPORTIONS

	JOURNAL DIA	CASING HEIGHT	EXTENDED CASING HEIGHT (FOR 2 POLE SPEEDS)	COLLAR HEIGHT FROM CASING	THRUST FACE HEIGHT	COLLAR STEP HEIGHT FROM BASEPLATE	COLLAR STEP HEIGHT FROM BASEPLATE FOR 2 POLE SPEEDS	COLLAR BORE LENGTH	WATER CONNECTION	OIL DRAIN HOLE
	K	L		M	N	O		P	Q	R
OEV 6	161	141	174	42	43	93	126	47	G1/2"	G1/4"
OEV 7	191	157	196	45	49	104	143	49	G1/2"	G1/4"
OEV 8	217	182	228	50	52	125	171	55	G1/2"	G1/4"
OEV 9	273	210	-	54	60	140	-	64	G3/4"	G1/4"
OEV 10	324	245	-	70	70	165	-	80	G3/4"	G3/8"
OEV 11	382	280	-	85	85	180	-	100	G3/4"	G3/8"
OEV 12	437	305	-	100	95	200	-	110	G3/4"	G3/8"
OEV 13	501	345	-	105	105	235	-	110	G3/4"	G1/2"
OEV 14	595	380	-	115	115	260	-	120	G3/4"	G1/2"

Table 3 – External and machine facing dimensions

COLLAR LOCKING KEYWAYS

SHAFT DIA. (mm)	KEY (mm)
10 - 22	2 X 2
22 - 44	5 X 5
44 - 65	10 X 8
65 - 95	16 X 10
95 - 150	22 X 14
150 - 230	32 X 18
230 - 350	45 X 25
330 - 500	63 X 32

TRANSPORTATION WEIGHTS (KG)

SIZE	6	7	8	9	10	11	12	13	14
SMALL	60	85	128	168	305	448	630	924	1342
MEDIUM	56	79	115	165	280	405	575	830	1190
LARGE	53	75	108	148	250	355	504	733	1008

OIL SUMP CAPACITY (LITRE)

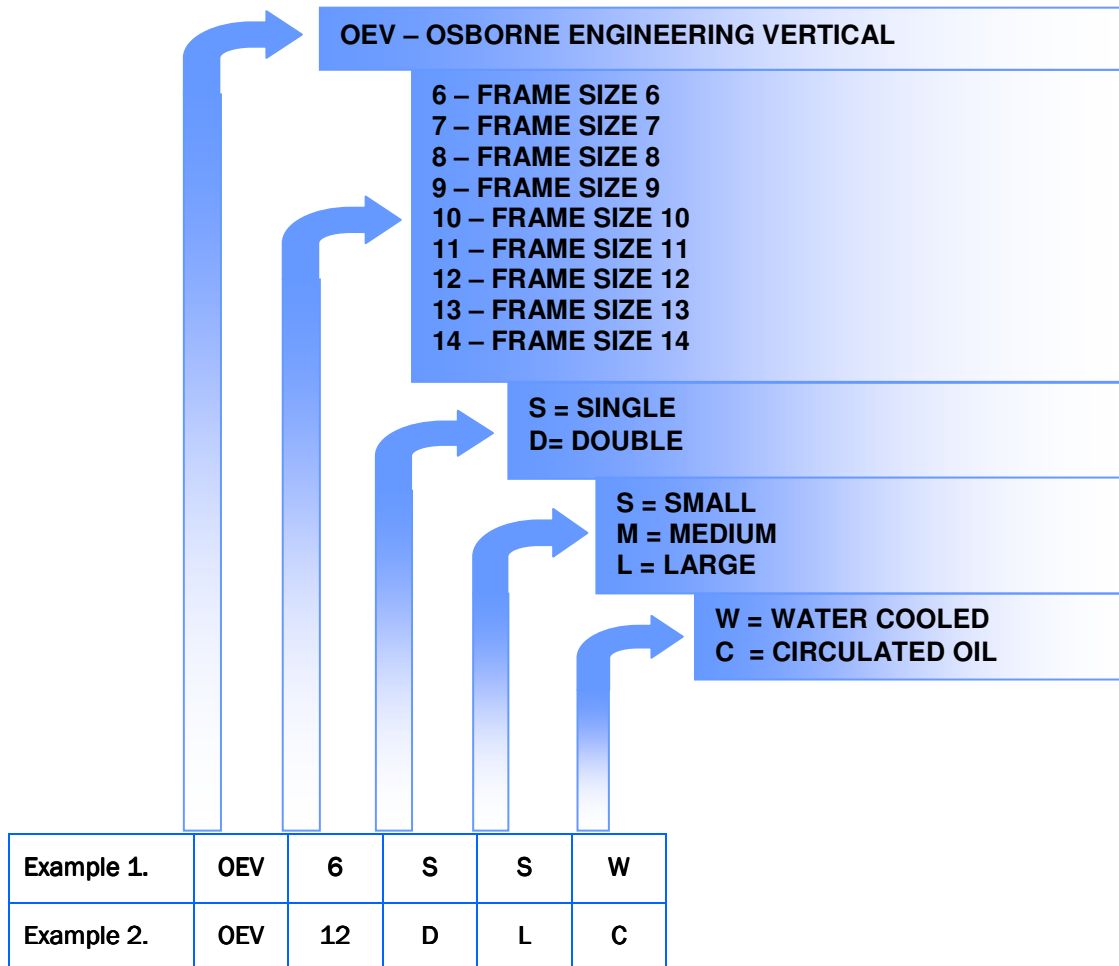
SIZE	6	7	8	9	10	11	12	13	14
SMALL	2.3	4.5	6.5	8	13.5	17.8	26	43	57

OIL GRADE REQUIRED WILL BE DISPLAYED ON EACH BEARING ARRANGEMENT DRAWING. OIL CHANGE PERIOD AND OIL DATA WILL BE PROVIDED IN SUPPLIED OPERATING AND INSTALLATION INSTRUCTION MANUAL.



OSBORNE VERTICAL BEARING

ORDERING CODE



To successfully select and model bearing performance Osborne Engineering require the following design inputs:

- Application
- Maximum shaft diameter through bearing & collar bore
- Shaft speed and direction of rotation
- Thrust load upwards / downwards- full details (normal, starting and maximum etc)
- Radial load
- Oil properties
- Any special requirements i.e. Instrumentation, paint, corrosive environment conditions, etc.



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