VĨNH HƯNG®

Vietnam Value

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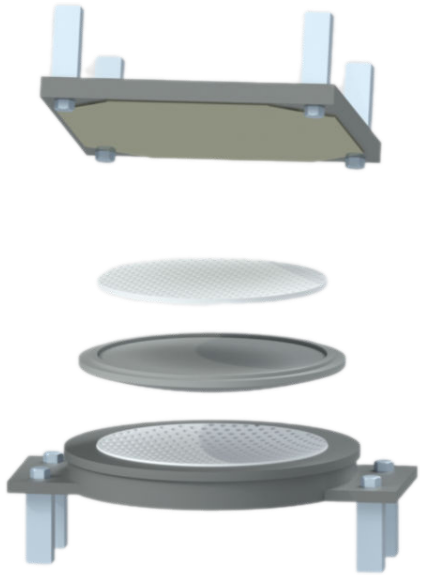
VINH HUNG TRADING, CONSULTING
AND CONSTRUCTION JOIN STOCK COMPANY

VHC
SPHERICAL BEARING



CERTIFIED
ISO 9001

VHC SPHERICAL BEARING

CERTIFIED ISO 9001

1. PRODUCT OVERVIEW

VHC spherical bearing manufactured by Vinh Hung Investment and Production Company Limited (Vinh Hung IP) is capable of withstand- ing high loads and movements suitable for structures requiring the rotary angle equal to or bigger than 0.015 rad in all directions. VHC spherical bearing is designed and manufactured according to current standards such as: **AASHTO LRFD, TCVN 11823:2017, TCVN 13861:2023, TCVN 13594-8, ASTM D5977, EN 1337, IRC:83 - Part 3,...**

2. PRODUCT CHARACTERISTICS

VHC spherical bearing has a bottom plate (6) on which is a UHMWPE curved surfaced sliding plate (4). A convex calotte (5) is placed on top of this UHMWPE surface and with hard chrome-plated or clad with stainless steel bottom surface, it can easily slide with low friction,thus facilitating rotations about every axis. A second sliding plate of UHMWPE (4) is recessed into the upper surface of the calotte.

Together with the top plate (2) above it, this accommodates to longitudinal and/or transversally sliding movements of the superstructure, if required. To reduce sliding friction to a minimum, the lower surface of the top plate has a polished stainless steel sheet. In the case of guided bearing, the direction of movement is controlled by guided bars (3).

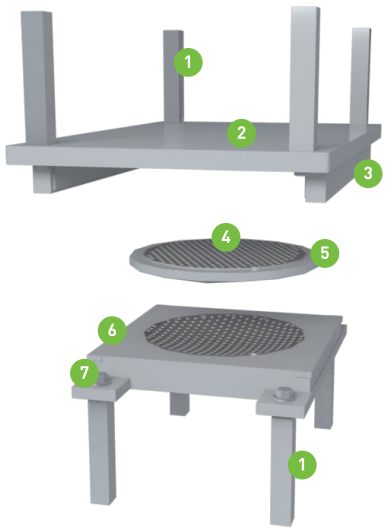
The bearing is connected to the superstructure and the substructure by means of anchor dowels (1) (depending on design), or alternatively by means of separate anchor plates with shear studs.

Depending on each type of spherical bearing (fixed, guided or free sliding type), the upper parts are designed accordingly to meet the movement requirements of the bearing.

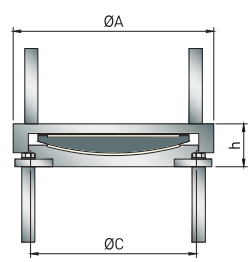
Spherical bearing transmits tension through vortex calotte surface and evenly distribute the load, including the corresponding force inside concrete structure.

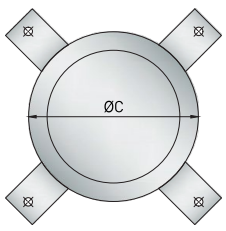
To ensure the long-life durability, VHC spherical bearing is protected against corrosion by methods such as:
coating with two-component epoxy, PU-based painting (Polyurethane), hot dip galvanization according to ASTM A123 standard and especially the Al – Mg spray coating method (at the ratio of 95% Al and 5% Mg) which ensure anti-corrosion durability of up to 100 years, proven by the salt-spraying test in 6000 hours (8-hour dry-wet cycle repetition) according to ASTM B117.

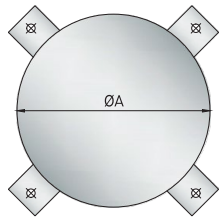
3. PRODUCT INFORMATION



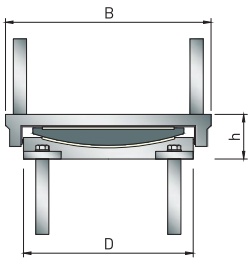
1. Dowel anchor and bolt
2. Top plate
3. Guided bar (for guided spherical bearing)
4. Sliding plate (UHMWPE)
5. Convex calotte
6. Bottom plate
7. Anchor bolt

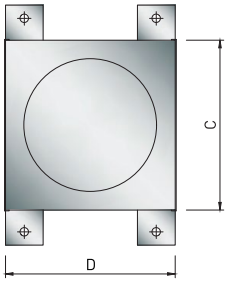


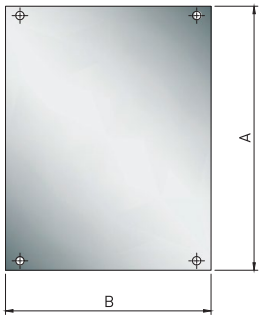




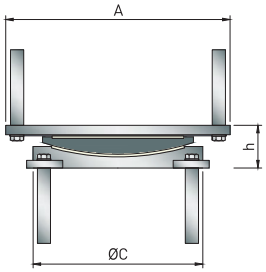
Fixed spherical bearing

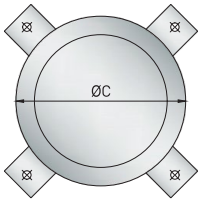


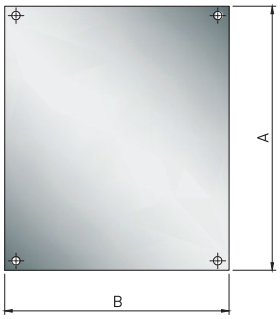




Guided sliding spherical bearing







Free sliding spherical bearing

Note:

A: Dimensions of top plate on longitudinal direction
B: Dimensions of top plate on transverse direction
C: Dimensions of bottom plate on longitudinal direction
D: Dimensions of bottom plate on transverse direction
H: Total height of bearings

4. TECHNICAL PARAMETERS

Table 1 – Main parameters of VHC - FX fixed spherical bearing

Model	Vertical load at service limit state (KN)	Horizontal load at service limit state (KN)	Rotation (Rad)
VHC-1 FX	1000	100	0.02
VHC-1.5 FX	1500	150	0.02
VHC-2 FX	2000	200	0.02
VHC-2.5 FX	2500	250	0.02
VHC-3 FX	3000	300	0.02
VHC-4 FX	4000	400	0.02
VHC-5 FX	5000	500	0.02
VHC-6 FX	6000	600	0.02
VHC-7 FX	7000	700	0.02
VHC-8 FX	8000	800	0.02
VHC-9 FX	9000	900	0.02
VHC-10 FX	10000	1000	0.02
VHC-12.5 FX	12500	1250	0.02
VHC-15 FX	15000	1500	0.02
VHC-17.5 FX	17500	1750	0.02
VHC-20 FX	20000	2000	0.02

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements

Model	Dimensions			
	A	C	H	Bolt
VHC - 1 FX	340	290	85	M16
VHC - 1.5 FX	400	340	97	M20
VHC - 2 FX	460	400	109	M20
VHC - 2.5 FX	520	450	117	M24
VHC - 3 FX	570	490	124	M24
VHC - 4 FX	630	550	138	M30
VHC - 5 FX	690	600	160	M36
VHC - 6 FX	740	640	208	M36
VHC - 7 FX	760	690	232	M36
VHC - 8 FX	830	740	253	M36
VHC - 9 FX	890	790	260	M36
VHC - 10 FX	930	840	278	M36
VHC - 12.5 FX	1030	890	305	M36
VHC - 15 FX	1120	940	337	M36
VHC - 17.5 FX	1190	990	357	M36
VHC - 20 FX	1250	1050	363	M36

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements
- Unit: mm

Table 2 - Main parameters of VHC - GS guided sliding spherical bearing

Model	Vertical load at service limit state (KN)	Horizontal load at service limit state	Rotation (Rad)	Longitudinal movement (mm)			Transverse movement (mm)
				Type 1	Type 2	Type 3	
VHC - 1GS	1000	100	0.02	± 50	± 100	± 150	± 10
VHC - 1.5GS	1500	150	0.02	± 50	± 100	± 150	± 10
VHC - 2GS	2000	200	0.02	± 50	± 100	± 150	± 10
VHC - 2.5GS	2500	250	0.02	± 50	± 100	± 150	± 10
VHC - 3GS	3000	300	0.02	± 50	± 100	± 150	± 10
VHC - 4GS	4000	400	0.02	± 50	± 100	± 150	± 10
VHC - 5GS	5000	500	0.02	± 50	± 100	± 150	± 10
VHC - 6GS	6000	600	0.02	± 100	± 150	± 200	± 40
VHC - 7GS	7000	700	0.02	± 100	± 150	± 200	± 40
VHC - 8GS	8000	800	0.02	± 100	± 150	± 200	± 40
VHC - 9GS	9000	900	0.02	± 100	± 150	± 200	± 40
VHC - 10GS	10000	1000	0.02	± 100	± 150	± 200	± 40
VHC - 12.5GS	12500	1250	0.02	± 150	± 200	± 250	± 40
VHC - 15GS	15000	1500	0.02	± 150	± 200	± 250	± 40
VHC - 17.5GS	17500	1750	0.02	± 150	± 200	± 250	± 40
VHC - 20GS	20000	2000	0.02	± 150	± 200	± 250	± 40

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements

Model	Dimensions						
	A			B	C	H	Bolt
	Type 1	Type 2	Type 3				
VHC - 1GS	410	460	510	360	290	85	M16
VHC - 1.5GS	460	510	560	420	340	97	M20
VHC - 2GS	520	570	620	490	400	109	M20
VHC - 2.5GS	570	620	670	540	450	117	M24
VHC - 3GS	620	670	720	590	500	122	M24
VHC - 4GS	670	720	770	650	550	138	M30
VHC - 5GS	720	770	820	710	600	156	M36
VHC - 6GS	900	950	1000	780	650	214	M36
VHC - 7GS	950	1000	1050	840	700	232	M36
VHC - 8GS	1000	1050	1100	910	750	253	M36
VHC - 9GS	1050	1100	1150	950	800	260	M36
VHC - 10GS	1100	1150	1200	990	850	278	M36
VHC - 12.5GS	1170	1220	1270	1100	950	312	M36
VHC - 15GS	1250	1300	1350	1190	1040	333	M36
VHC - 17.5GS	1350	1400	1450	1300	1120	365	M36
VHC - 20GS	1450	1500	1550	1360	1180	382	M36

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements
- Unit: mm

Table 3 - Main parameters of VHC - FS free sliding spherical bearing

Model	Vertical load at service limit state (KN)	Rotation (Rad)	Longitudinal movement (mm)			Transverse movement (mm)
			Type 1	Type 2	Type 3	
VHC - 1FS	1000	0.02	± 50	± 100	± 150	± 10
VHC - 1.5FS	1500	0.02	± 50	± 100	± 150	± 10
VHC - 2FS	2000	0.02	± 50	± 100	± 150	± 10
VHC - 2.5FS	2500	0.02	± 50	± 100	± 150	± 10
VHC - 3FS	3000	0.02	± 50	± 100	± 150	± 10
VHC - 4FS	4000	0.02	± 50	± 100	± 150	± 10
VHC - 5FS	5000	0.02	± 50	± 100	± 150	± 10
VHC - 6FS	6000	0.02	± 100	± 150	± 200	± 40
VHC - 7FS	7000	0.02	± 100	± 150	± 200	± 40
VHC - 8FS	8000	0.02	± 100	± 150	± 200	± 40
VHC - 9FS	9000	0.02	± 100	± 150	± 200	± 40
VHC - 10FS	10000	0.02	± 100	± 150	± 200	± 40
VHC - 12.5FS	12500	0.02	± 150	± 200	± 250	± 40
VHC - 15FS	15000	0.02	± 150	± 200	± 250	± 40
VHC - 17.5FS	17500	0.02	± 150	± 200	± 250	± 40
VHC - 20FS	20000	0.02	± 150	± 200	± 250	± 40

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements

Model	Dimensions						
	A			B	C	H	Bolt
	Type 1	Type 2	Type 3				
VHC - 1FS	370	420	470	290	290	85	M16
VHC - 1.5FS	420	470	520	340	340	92	M16
VHC - 2FS	460	510	560	400	400	101	M16
VHC - 2.5FS	500	550	600	450	450	111	M20
VHC - 3FS	530	580	630	500	500	117	M20
VHC - 4FS	590	640	690	550	550	131	M24
VHC - 5FS	640	690	740	600	600	147	M24
VHC - 6FS	870	920	970	740	650	208	M24
VHC - 7FS	920	970	1020	790	700	219	M30
VHC - 8FS	970	1020	1070	820	750	234	M30
VHC - 9FS	1050	1100	1150	870	800	255	M30
VHC - 10FS	1100	1150	1200	925	850	260	M36
VHC - 12.5FS	1250	1300	1350	1030	950	305	M36
VHC - 15FS	1350	1400	1450	1100	1050	314	M36
VHC - 17.5FS	1450	1500	1550	1220	1150	347	M36
VHC - 20FS	1550	1600	1650	1270	1200	369	M36

Note: - The above dimensions are for reference only. Actual dimensions can be adjusted according to project requirements
- Unit: mm

5. INSTALLATION

Survey

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Roughen the surface

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Cleaning ←

↓

Locate bearing place

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Install support system; adjust bearing level and flatness

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Check

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Install the formwork

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Pour the non-shrink mortar

↓

Cure

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Remove the formwork

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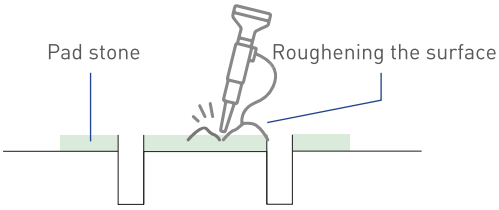
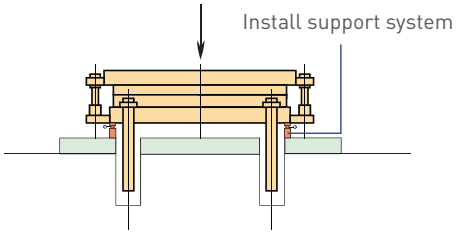
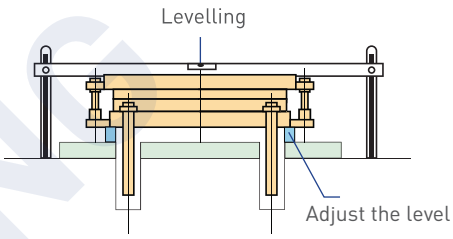
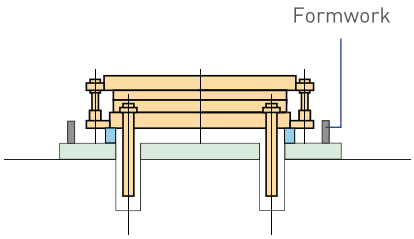
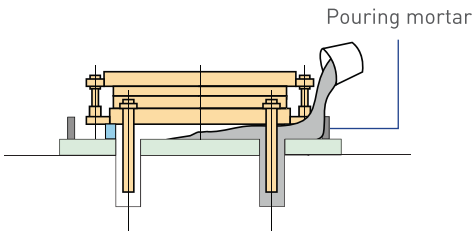
Finish

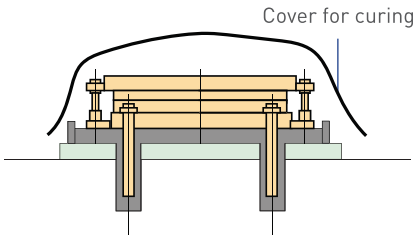












Video: Pot bearing installation instructions (Scan QR code to watch video)

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