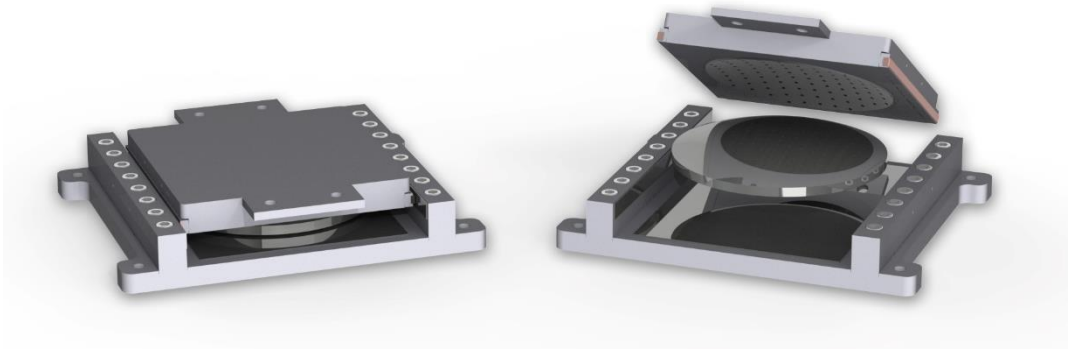
Ideas, Engineering and Manufacture

AGOM®



AGOM R-Max

Spherical bearings with AgomGlide®

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AGOM International: Experience and Quality

Bridges are subjected to movements and rotation caused by traffic, temperature changes, earthquakes, shrinkage, prestressing, creep, etc. Bridge construction requires carefully designed and manufactured bearings, anti-seismic devices, shock absorbers and expansion joints to ensure that such forces are properly dealt with throughout the life of the structure.

AGOM has over 50 years' experience in design and manufacturing bridge bearings, bridge expansion joints, anti-seismic devices and shock absorbers for bridge-building and construction industry. All products comply with the latest European standards and all main international standards.

The quality and durability of these products are ensured by:

- our team of skilled engineers, who can conceptualise and design the most appropriate engineering solutions
- qualified professionals, trained and continually updated in quality production techniques
- virgin raw materials that are quality assessed in our on-site testing laboratory
- ISO 9001:2015 quality standard accreditation
- strict quality control processes
- periodical external inspections by globally recognized bodies such as the TZUS of Prague and Certiquality
- independent international inspection and certification authorities.

General features of spherical bearings

AGOM R-Max spherical bearings are designed to carry combinations of vertical loads, horizontal loads, longitudinal and transversal movements and rotations and they are used in steel and concrete road and railway bridges.

The bearing is composed by steel elements coupled with low friction material (AgomGlide®) surfaces to allow movement and rotations. One side of the internal median plate is machined as a spherical surface to allow tilting movement (rotation) whilst on the other side a flat sliding surface is obtained to allow displacements.

Depending on whether the bearing is fixed, guided sliding or a free sliding, R-Max bearings accommodate vertical loads and corresponding horizontal forces, as well as movements in longitudinal or transversal directions.

Advantages of AgomGlide®

AgomGlide® is a low friction material with very long-term durability and high compression resistance.

It was tested according to the European ETA 23-00493, showing the following properties:

- **Sliding path up to 50000 meters** to ensure long term durability under severe pressure and temperatures; the very low measured friction coefficient ensures the good functioning of the bearings for all their life in extreme working conditions
- **Compression capacity up to 180 MPa**.

AGOM obtained the CE certification for spherical bearings according with ETA 23-00493 that certifies that bearings with this special material can ensure up to 50 years lite time in a very wide temperature range going from –50 °C up to +48 °C.

Additional tests have demonstrated that AgomGlide® can be used with a temperature up to 70 °C, because at that temperature the material still shows a very high compression capacity of 90 MPa. Surely the pressure used in the bearing design is much lower than 90 MPa because of the limitation of the concrete compression resistance, so this sliding material can work very well even at high temperatures.

AGOM R-Max spherical bearings with AgomGlide® are particularly suitable for application with steel decks and/or concrete structure with high concrete resistance because they can have smaller dimensions respect to the bearing with PTFE.

Load Combinations

R-Max spherical bearings can carry very high loads, over 100.000 kN.

The bearings are designed for combined maximum vertical and horizontal loads. The standard range of AGOM spherical bearing is designed to have and horizontal load ≤ 15% of the maximum vertical load with a maximum rotation ±0.02 rad (other load and rotation combinations are provided on request). To define the correct bearing, our engineers take into account the designed load effects, rotations, displacements and type of fixings.

Spherical bearing types

Fixed type R-Max AGSF

Due to the combination of vertical and horizontal loads, the R-Max bearings can be designed in two different arrangements: the “two steel plates” configuration and the “three steel plates” configuration.

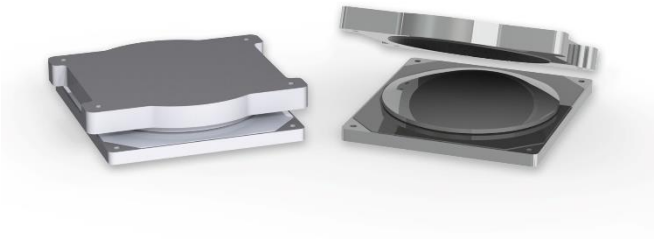
The “two steel plates configuration” bearings are given by the combination of a convex and concave steel plates machined as a spherical surface to realize the hinge for rotation around every axis; the rotational surface is obtained coupling a curved sheet of AgomGlide® and a spherical low roughness sliding surface (according with EN1337-2 code) to minimize friction and maximizing AgomGlide® service life. In this “two plates configuration”, the horizontal load is transmitted through the spherical surface to the base plate, according to design codes (as EN1337-7).

The “three plates configuration” bearings are made up by adding an external steel plate to the “two plates configuration” bearings; in this arrangement the horizontal load is transmitted by the direct contact between the bearing upper steel and the base plate whilst the spherical and AgomGlide® surfaces carry only the vertical loads allowing rotations. The “three plates configuration” bearings allow to transmit higher horizontal loads respect to the two plates bearings.

AGOM R-Max bearings enable rotation in any direction while at the same time the structure is constrained horizontally. The bearing external steel plates are designed to fix the bearing to the structure.

Free sliding R-Max AGSM

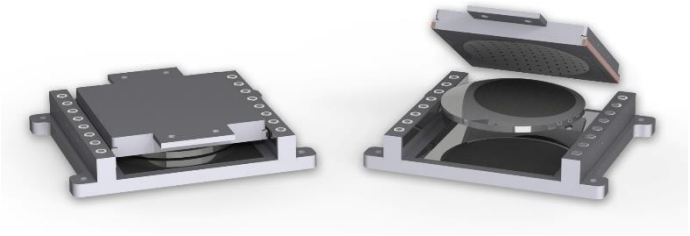
Similar in construction to the fixed bearings, these multi-directional bearings have three plates and two AgomGlide® surfaces, one for rotation and the other for sliding.



The upper AgomGlide® sheet is in direct contact with an austenitic stainless-steel plate, enabling the bearing to slide in all directions.

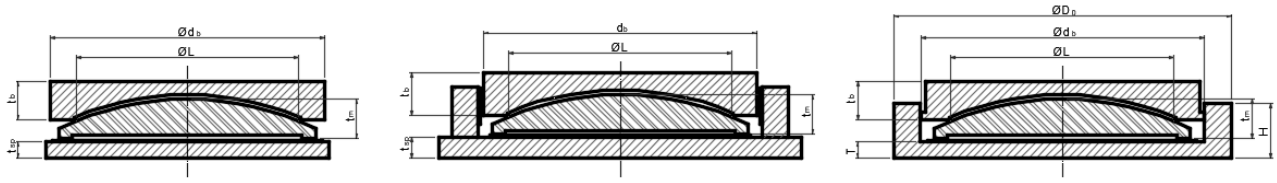
Guided sliding type R-Max AGSL-AGST

Guided sliding devices are similar in construction to free sliding bearings but are generally equipped with one or more guides to limit the bearing's movement to only one direction.

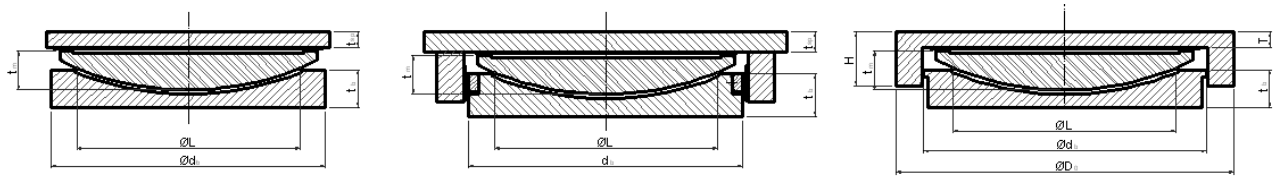


Also, in these devices the horizontal load can be transmitted either by the shape of the spherical surface or by the direct contact between upper steel plates and base steel plate.

Generally, spherical bearings for steel decks are installed with the convex plate facing upwards (as in the following pictures), to limit the eccentricity of vertical load on the above structure.



When the upper structure is made of concrete and so it's less subjected to problems due to eccentricity of vertical load, spherical bearings are generally installed with the convex plate facing downwards.



R-Max bearings with anti-lifting system

AGOM R-Max spherical bearings can be equipped with anti-lifting tool to absorb the negative tensile vertical forces. The anti-lifting tools can be applied to all the R-Max bearings (fixed, guided and free sliding) with different systems depending on the bearing type and tensile load value. It is possible to cover a very wide range of tensile loads by suitable design of anti-lifting tools.

R-Max bearings for incremental bridge launching

AGOM R-Max spherical bearings can be used also as temporary sliding supports for incremental bridge launching. Movable spherical bearings can be temporarily blocked, even maintaining their rotational capacity if requested, and the deck can be pushed above them by sliding on a mirror-polished stainless-steel surface. After launching operations, the deck can be definitely lowered upon the bearings that will be unblocked and start functioning as definitive bearings.

Materials

Structural Steel

The convex plate, the concave plate and, if present, the sliding plate are manufactured from steel material in accordance with EN 10025 standard.

Austenitic steel sheet

The austenitic steel used for sliding surfaces is X5CrNiMo17-12-2 in accordance with EN 10088-2 1.4401 with a minimum thickness of 1.5 mm.

The roughness is $R_{y5i} \leq 1$ µm. The hardness is ≥ 150 HV1 and ≤ 220 HV.

AgomGlide®

This low friction material is used for horizontal sliding surface and for guides sliding surfaces.

The minimum thickness of AgomGlide® is 6.8 mm, the maximum is 10 mm and varies according with the bearings size.

Its compressive characteristic strength is 180 MPa at +35°C, 135 MPa at +48°C and 90 MPa at +70°C.

Friction force is calculated according with ETA 23-00493 and depends on contact pressure and temperature.

Material properties of AgomGlide® are checked with the following standards:

Characteristic	Test method
Young modulus	ISO 527-1/3
Yield strength	ISO 527-1/3
Tensile strength	ISO 527-1/3
Elongation at break	ISO 527-1/3
Ball hardness	EN ISO 2039-1
Mass density	EN ISO 1183
Melting temperature	EN ISO 11357-5

Bearing fixing

Usually, all the R-Max bearings are equipped with suitable anchor bars for anchoring purpose to lower and upper structure.

In case of pre-cast concrete beam, the bearings can be provided with upper pin and top subsidiary plate; in case of steel beams, bearings shall be provided with upper pin and/or connecting bolts.

To adjust the angle of inclination of the superstructure, the bearing's top plate may be manufactured tapered, or a wedge plate can be fixed at the top of the bearing.

In case of horizontal loads < 20% of the simultaneous vertical load, if there is sufficient friction between the bearing and the sub or superstructure, the anchor bolts can be left out and the bearing can be connected to the structure by means of cementitious or epoxy resin (if the local code allow it).

To improve the R-Max bearings replacement with minimal up-lift of the structure, suitable steel counterplates can be provided.

R-Max bearings accessories

Movement gauge

The movement indicator allows monitoring the sliding plate displacements by using a reference arrow fixed to the bearing base and a graduate indicator moving with the sliding plate. The movement gauge allows to check the initial presetting of the bearing (if required) and to verify the bearing movement during the future inspections.

Dust protection

The (removable) dust protection around the sliding plate or covering the stainless-steel surface ensures the cleaning of the sliding surfaces to minimize the friction during sliding movements and guarantees the durability of the AgomGlide® sliding material.

Comprehensive Labelling

All the R-Max bearings are provided with a metal label detailing the proprieties of the bearings:

- bearing type
- maximum vertical and horizontal loads
- movement capacity
- design rotation
- order number
- date of manufacture
- CE Mark (if applicable)

The top face of the bearing gives information on the type of the bearing, the direction of the axis of the bridge, the presetting (if any), the position.

Corrosion protection

Steel components exposed to the elements are protected against corrosion. AGOM adapts the corrosion protection in accordance with the aggressiveness of the environment in which the bearings are to be installed and to each customer's requirements.

The standard corrosion protection according with EN 1337-9 (environment class C4H ISO 12944) is as follows:

- sandblasting grade SA2.5
- two components high thickness epoxy zinc paint (min 250 µm).

The high resistant corrosion protection (environment class CX ISO 12944) is as follows:

- sandblasting de grade SA2.5
- zinc rich epoxy primer, with minimum thickness of dry film 75 µm
- epoxy mastic intermediate, with minimum thickness of dry film 175 µm
- polyurethane topcoat, with minimum thickness of dry film 75 µm.

Standard colour of AGOM bearings is RAL 7001 (silver grey).

Quality and International Standards

AGOM R-Max bearings are designed and manufactured in accordance with the requirements of the European standard ETA 23-00493 and are qualified with the CE mark.

AGOM can also provide spherical bearings in accordance with other standards of a wide range of international standards (American AASHTO, British BS 5400, Canadian CSA,...).

Every single steel component is mechanically worked and assembled by fully qualified and trained workers inside the AGOM factory under strict ISO 9001:2015 accredited quality control standards.

Qualification, approval tests and certifications

All the qualification and approval tests are performed by independent and worldwide recognized laboratories to assure that the R-Max bearings performances comply with the project and with international standard requirements.

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague, SOE

Notified Body 1020

CERTIFICATE
OF CONSTANCY OF PERFORMANCE

No. 1020 – CPR – 090-040326

Structural bearings
variant: Y – Max pot bearings
type: fixed, guided and free sliding bearings

placed on the market under the name or trade mark of
AGOM INTERNATIONAL S.r.l.
No.
address Via Mesero 12, 20090 Cessna (MI) - Italy

and produced in the manufacturing plant:
AGOM INTERNATIONAL S.r.l.
No.
address Via Mesero 12, 20090 Cessna (MI) - Italy

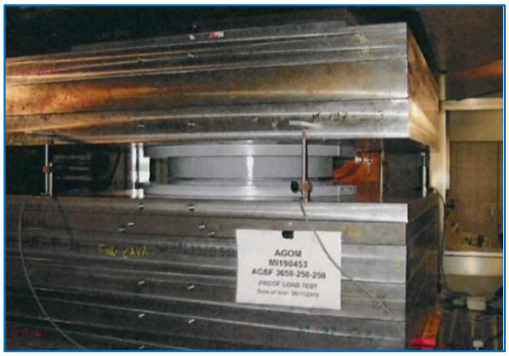
EN 1337-5:2005

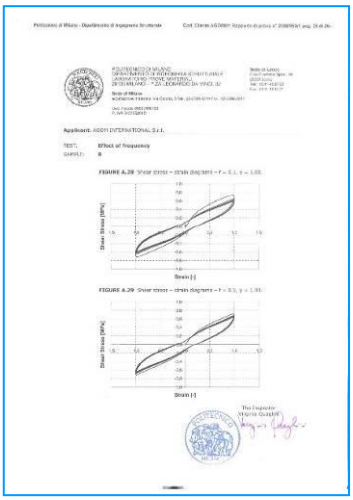
constancy of performance of the construction product.

Prague 21st December 2017

Ing. Jiří Studnička
Deputy Manager of the Notified Body

CE MARK





FRICTION TESTS

Politecnico di Milano – Dipartimento di Ingegneria Strutturale

POLITECNICO DI MILANO
DIPARTIMENTO DI INGEGNERIA STRUTTURALE
LABORATORIO PROVE MATERIALI
PIAZZA LEONARDO DA VINCI, 32 - 20133 MILANO

Codice cliente AGOM01
Codice certificato 2007/1942/1

Spett.le
AGOM INTERNATIONAL S.R.L.
VIA MESERO, 12
20010OSSONA - MI (I)

Certificato di Prova N. 2007/1942 emesso in Milano il 11/07/2007

Richiedente: AGOM INTERNATIONAL S.R.L. - OSSONA

RAPPORTO DI PROVA

TESTING OF AGOM POT BEARINGS - CONTRUCTION OF WAFI CITY BRIDGE

Sulle pagine seguenti sono riportati:
- le date di esecuzione delle prove;
- la descrizione dei campioni e le modalità di prova;
- i risultati ottenuti.

I risultati contenuti si riferiscono esclusivamente agli oggetti provati.
Questo certificato di prova consta di N. 25 pagine.
Tutte le pagine sono individuate dal N. 2007/1942/1.
Il presente certificato di prova può essere riprodotto solo integralmente e deve essere assoggettato a bollo in caso d'uso ai sensi del D.P.R. 642/72.

IL DIRETTORE DEL DIPARTIMENTO
Carlo Urbano

DYNAMIC FATIGUE TESTS

Handling and storage

Care should be taken in storage to prevent contamination and damage to the working surfaces. AGOM bearings should be stored in a controlled environment where they are protected from contamination, misuse and excessive moisture.

Robust transportation devices are fitted to all bearings to ensure that the movable components are maintained in their correct relative positions before and during installation. These temporary fixing devices are normally finished in red paint and shall be removed after installation.

Unless special devices have been specified, they should not be used for slinging or suspending the bearings beneath beams.

Due to unpredictable conditions, which may occur during transportation or handling on site, the alignment and pre-setting (if applicable) of the assembled bearing should be checked against the drawing.

Do not try to rectify any discrepancies on site.

Bearing too heavy to be lifted by hand should be properly slung using lifting equipment.

Pre-setting

If bearing is required to be pre-set, e.g. where once only large movements may occur during stressing operations, this should be specified as a requirement and should only be carried out in AGOM prior to despatch. Do not attempt this operation on site.

Installation

Under control of the Engineer who designed the bridge, bearings must be installed by expert workers, with precision to meet the bridge and bearing design criteria. Inappropriate handling, storage and installation will have an adverse effect on the bearing life, usually estimated in more than 50 years providing right maintenance.

AGOM structural bearings are manufactured to close tolerances by skilled technicians working in clean conditions. To obtain the requisite performance from bearings it is imperative that they are properly handled at the work site and installed with the same care as when they were assembled in the factory.

AGOM bearings are clearly identified and marked on the top plate (if present) to ensure correct installation. The typeface on the cover or sliding plate gives information on the type, size and number of the bearing. Moreover, arrows indicate the movement axis and the pre-setting direction (if applicable).

For all the detailed information about installation procedure and maintenance, see AGOM manual “R-Max Installation & maintenance” that can be download from AGOM web site www.agom.it.

Maintenance

The service life of a spherical bearing with AgomGlide® is more than 50 years, according with ETA 23-00493. The most important thing to assure such a long lifetime is a correct and careful maintenance of the bearing, that is usually installed in a severe environment.

The requested bearing inspection and maintenance program that could be adapted and improved by the Bridge Designer to the specific service conditions of the bridge is fully described in the “R-Max - Inspection and warranty manual” that can be download from AGOM web site www.agom.it.

Guidelines for the design of a structure with AGOM R-Max bearings

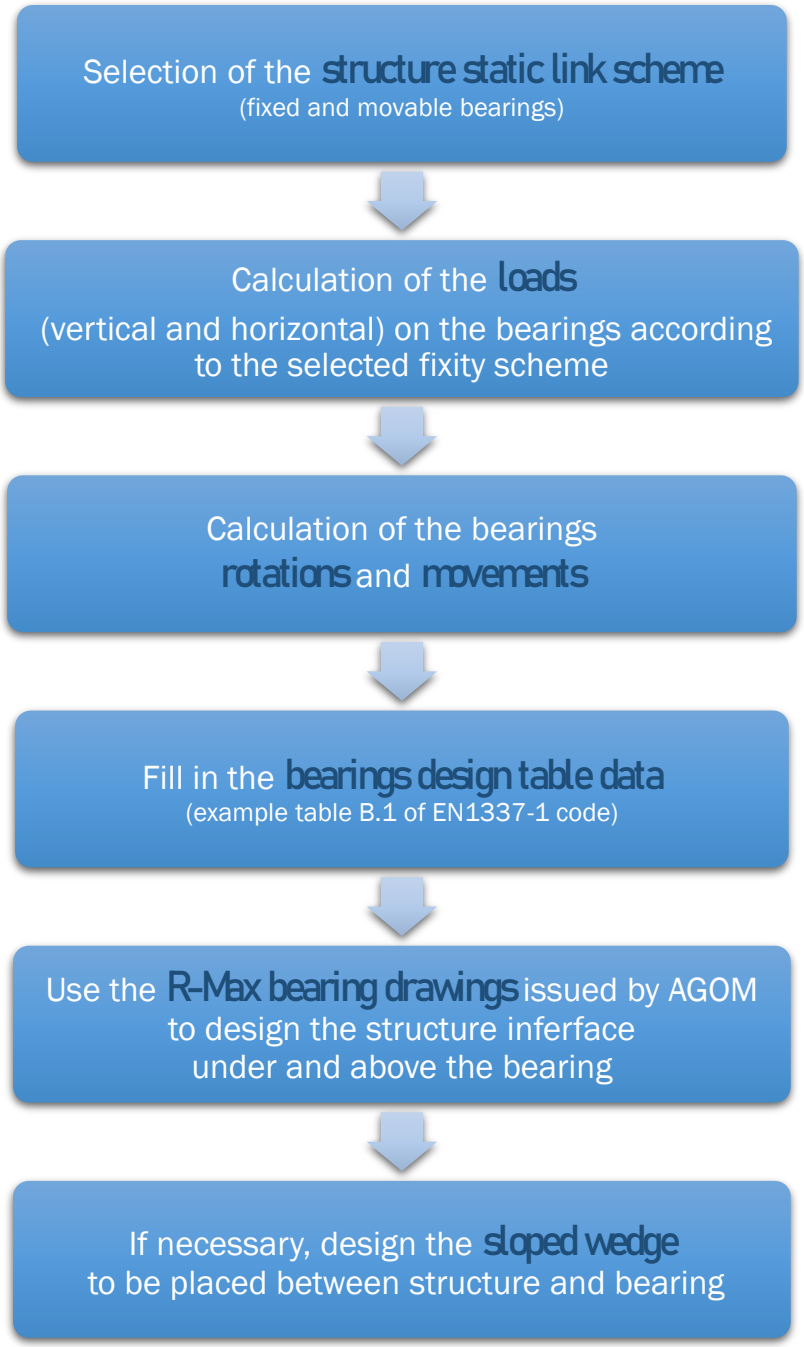
In this section a simple guideline for the design of a structure equipped with AGOM bearing is presented.

The design procedure is summarized in the following steps:

1. Selection of the structure static link scheme (fixed and movable bearings).
2. Calculation of the loads (vertical and horizontal) on the bearings according to the fixing scheme.
3. Calculation of the bearing rotations and movements.
4. Insertion of all the bearing design data into the bearing design table (example table B.1 of the EN1337-1 code attached at the end of the document).
5. Using the bearing drawings provided by AGOM, design of the interface parts between structure and bearings as: bearing lower plinth with adequate position for installing the bearing anchor bars (if required), level of the plinth to fit the vertical space between lower and upper structure, the upper structure interface where the bearing upper plate will be positioned.
6. If necessary, design of the slope compensator to be placed between the bearing and upper structure in order to adjust the permanent slope (longitudinal and transverse slopes of a bridge deck). The deck's slope must be always compensated in order to keep the sliding surface in the horizontal plane (normally the slope is compensated above the bearing between its sliding plate and the upper structure). In any case the whole bearing cannot be installed inclined.

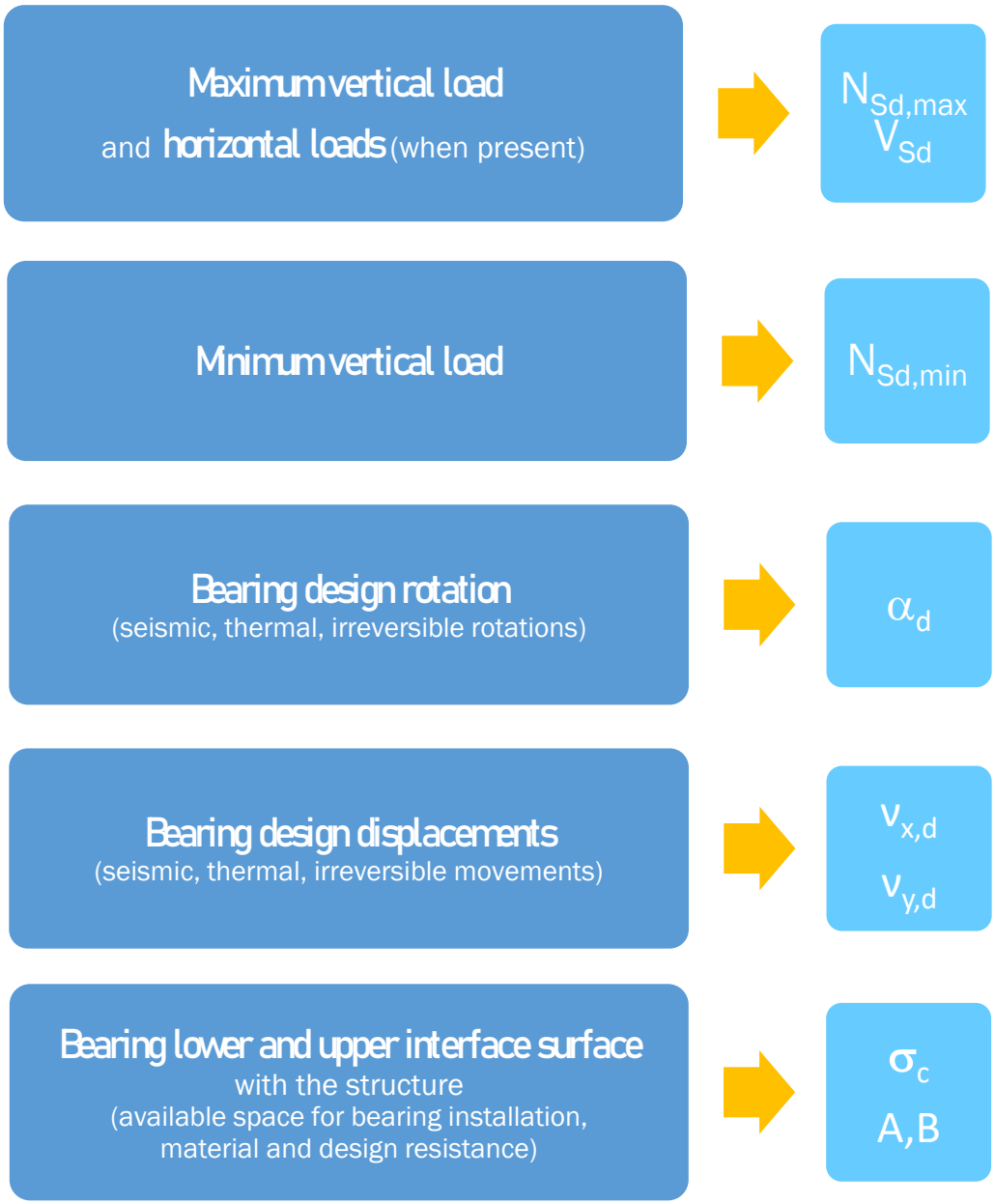
Here below we summarize the main features of the different bearing types in order to direct the choice towards the most convenient type.

	V-MAX **pot** bearing	**R-MAX** **spherical** bearing	**E-LINK** **rubber** bearings
Vertical load	High	High	Medium
Horizontal displacement	No Limits	No Limits	Medium
Rotation	Medium	High	Low-Medium
Dimension	Small-Medium	Small-Medium	High


Selection of the structure static link scheme
(fixed and movable bearings)
Calculation of the loads
(vertical and horizontal) on the bearings according to the selected fixity scheme
Calculation of the bearings rotations and movements
Fill in the bearings design table data
(example table B.1 of EN1337-1 code)
Use the R-Max bearing drawings issued by AGOM to design the structure inferface under and above the bearing
If necessary, design the sloped wedge to be placed between structure and bearing

AGOM R-Max design parameters

Normally the required input parameters that the structural Designer must provide to AGOM Engineers for device design and constructions are the ones shown for example by the table B.1 of EN1337-1 code (see following pages):



Bearing design table according to EN1337-1 code

The purpose of this bridge bearing schedule is to list the information normally required for the design of the bearings for a particular structure. This information should ensure that bearings are designed and manufactured so that, under the influence of all possible actions, unfavourable effects of the bearing on the structure are avoided. A drawing should accompany the schedule showing the layout of the bearings with identification marks, including a typical cross section of the bridge and particular of any special locating requirements. Bearing function should be indicated on the drawing by appropriate symbols.

Every item listed in the "bearing design table" should be considered, but some may not be applicable to a particular bearing. Only relevant information should be given and when an item in the schedule is not applicable this should be stated. Additional information should be added when special conditions exist.

Here above you can find a short explanation of each item listed in the "bearing design table".

BEARING IDENTIFICATION MARK	Bearing with different function or load carrying requirements should be distinguished by a unique reference mark.
NUMBER OFF	The required number for each item.
SEATING MATERIAL	The materials on which each outer bearing plate bears should be stated as it may affect the design and finish of these plates.
AVERAGE DESIGN CONTACT PRESSURE	The pressure of the effective contact area.
DESIGN LOAD AFFECTS	The structure designer should give the worst individual values of the design load effects in the schedule. The most adverse combination of these values is usually sufficient for a satisfactory design of bearing. Only in special cases would greater economy be achieved by considering the actual coexistent values of load effects, in which case these should be given in detail.
DISPLACEMENT	Displacement of the structure at a bearing should be determined and factored. Allowance should be made for any movement of the supporting structures. Transverse and longitudinal movements are normally in a direction perpendicular and parallel to the longitudinal axis of a bridge span, respectively. Where there is any likelihood of ambiguity directions of movement should be clearly indicated on the accompanying drawing.

ROTATION	The irreversible and reversible rotations at the serviceability limit state (SLS), which the bearing is required to accommodate, should be given in radians.
MAXIMUM BEARING DIMENSIONS	The maximum sizes of the bearing that can be accommodated should be stated.
TOLERABLE MOVEMENT OF BEARING UNDER TRANSIENT LOADS	The movement that can be tolerated at the bearing under transient loads, in directions in which the bearing is meant to provide restraint.
ALLOWABLE RESISTANCE TO TRASLATION UNDER SLS [kN] *(if relevant)*	In the design of the structure, reaction to displacement movements may be of significance, in which case the acceptable horizontal force generated by the bearing should be given for the serviceability limit state (SLS). The values to be given are those for slowly applied movements at normal temperatures (any necessary extra allowance for low temperatures and rapidly applied movements should be made by the designer of the structure).
ALLOWABLE RESISTANCE TO ROTATION UNDER SLS [kN*m] *(if relevant)*	In the design of the structure, reaction to rotation may be of significance in which case the acceptable moment of reaction generated by the bearing, when subjected to the critical design load effects, should be given for the serviceability design state.
TYPE OF FIXING REQUIRED	Various means of fixing the bearing to the superstructure and substructure are available, appropriate to different type of bearing. Particular requirements, such as friction, bolts, dowels, keys or other devices, should be stated.

Bearing Design Table

Reference:..... **Date:**.....

Bridge Name: ..... **Table:** ..... **of** .....

BEARING IDENTIFICATION MARK							
NUMBER OFF							
SEATING MATERIAL (e.g. cement, mortar, epoxy mortar, in situ concrete, precast concrete, steel, timber)	Upper surface						
	Lower surface						
AVERAGE DESIGN CONTACT PRESSURE [N/mm²]	Upper face	SLS					
		ULS					
	Lower face	SLS					
		ULS					
DESIGN LOAD EFFECTS [kN]	ULS	vertical	Max				
			Perm.				
			Min.				
		Transverse					
		Longitudinal					
	SLS	Vertical					
		Transverse					
		Longitudinal					
DISPLACEMENT [mm]	ULS	Transverse					
		Longitudinal					
	SLS	Transverse					
		Longitudinal					
ROTATION [mrad]	ULS	Transverse					
		Longitudinal					
MAXIMUM BEARING DIMENSIONS [mm]		Transverse					
		Longitudinal					
		Overall Height					
TOLERABLE MOVEMENT OF BEARING UNDER TRANSIENT LOADS [mm] *(if relevant)*		Vertical					
		Transverse					
		Longitudinal					
ALLOWABLE RESISTANCE TO TRASLATION UNDER SLS [kN] *(if relevant)*		Transverse					
		Longitudinal					
ALLOWABLE RESISTANCE TO ROTATION UNDER SLS [kN·m] *(if relevant)*		Transverse					
		Longitudinal					
TYPE OF FIXING REQUIRED		Upper face					
		Lower face					

AGOM R-Max standard range

AGOM R-Max bearings can cover a very wide range of loads and displacements, they can be designed according to many international standards (European EN 1337, American AASHTO LRFD, British BS5400, etc..).

The bearings dimensions shown in the following tables have been designed according to European codes EN 1337 and ETA 23-00493 with the following criteria:

- EN 1337 part 1 and 7 and relevant European codes for load and displacements calculation. Note that the bearing design loads (shown in the tables) are ultimate limit state loads (ULS);
- EN 1337 part 7 and ETA 23-00493 for sliding surfaces;
- Standard rotation ±0.02 rad;
- Total displacement 100 mm (±50 mm);
- Horizontal load equal to 15% of the maximum vertical one;
- Concrete stress calculated according to EC2 - EN1992-1-1 standard with concrete class C30/37, levelling mortar with minimum compression resistance f_{ck} = 60 N/mm^2 and plinth size at least 200 mm greater that bearing plate.

In any case the dimension can be adjusted to fit the available space on the structure and/or to verify the contact stress on the interface surface (example different concrete class respect to the one used for the bearing standard design, etc..).

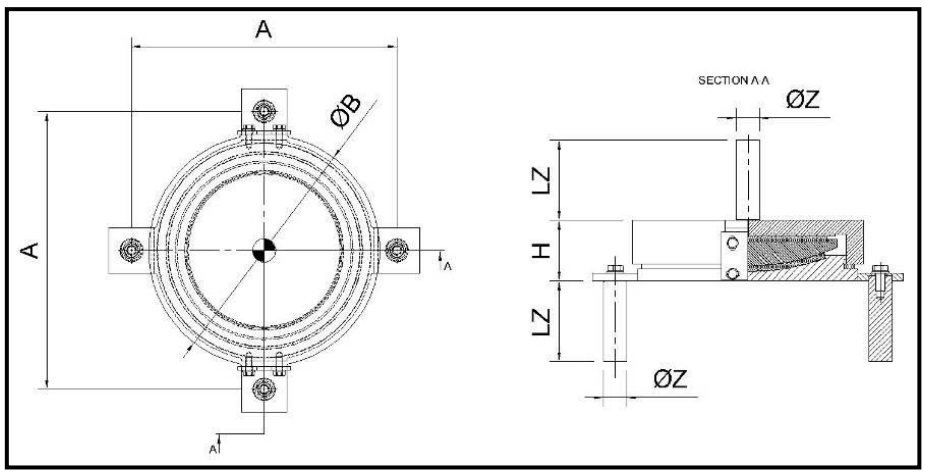
Since the bearings checks depends on the combination of multiple inputs (load, displacement and rotation), AGOM engineers can assist the structural designer for design optimisation.

Agom R-Max Fixed Bearings

Fixed bearing type AGSF (*Vertical load - Horizontal longitudinal load - Horizontal transversal load*).

For example *AGSF 500-75-75* means: Vertical load $N_{,Rd}$ = 500 kN, Horizontal longitudinal load $V_{x,Rd}$ = 75 kN, Horizontal transversal load $V_{y,Rd}$ = 75 kN.

Bearing type	Bearing Dimensions						Weight
	ØB	H	nZ	ØZ	LZ	A	W
	[mm]	[mm]		[mm]	[mm]	[mm]	[kg]
R-Max AGSF 1000-150-150	245	72	2	30	122	325	30
R-Max AGSF 2000-300-300	315	83	2	40	140	415	57
R-Max AGSF 3000-450-450	370	85	4	40	140	332	87
R-Max AGSF 4000-600-600	425	88	4	40	140	371	111
R-Max AGSF 5000-750-750	470	96	4	50	188	417	166
R-Max AGSF 6000-900-900	515	105	4	50	188	449	203
R-Max AGSF 7000-1050-1050	555	103	4	60	235	491	255
R-Max AGSF 8000-1200-1200	600	102	4	60	235	523	287
R-Max AGSF 9000-1350-1350	630	120	4	60	235	544	352
R-Max AGSF 10000-1500-1500	660	109	4	60	235	580	363
R-Max AGSF 12000-1800-1800	740	116	4	70	282	636	501
R-Max AGSF 15000-2250-2250	800	135	4	80	330	850	705
R-Max AGSF 18000-2700-2700	890	141	4	80	330	940	839
R-Max AGSF 20000-3000-3000	930	157	4	90	375	980	1077
R-Max AGSF 25000-3750-3750	1050	170	4	100	420	1100	1465
R-Max AGSF 30000-4500-4500	1160	165	6	90	375	1210	1781
R-Max AGSF 35000-5250-5250	1250	180	6	100	420	1300	2307
R-Max AGSF 40000-6000-6000	1330	196	6	100	420	1380	2709
R-Max AGSF 45000-6750-6750	1410	203	8	100	420	1460	3442
R-Max AGSF 50000-7500-7500	1470	218	8	100	420	1520	3871

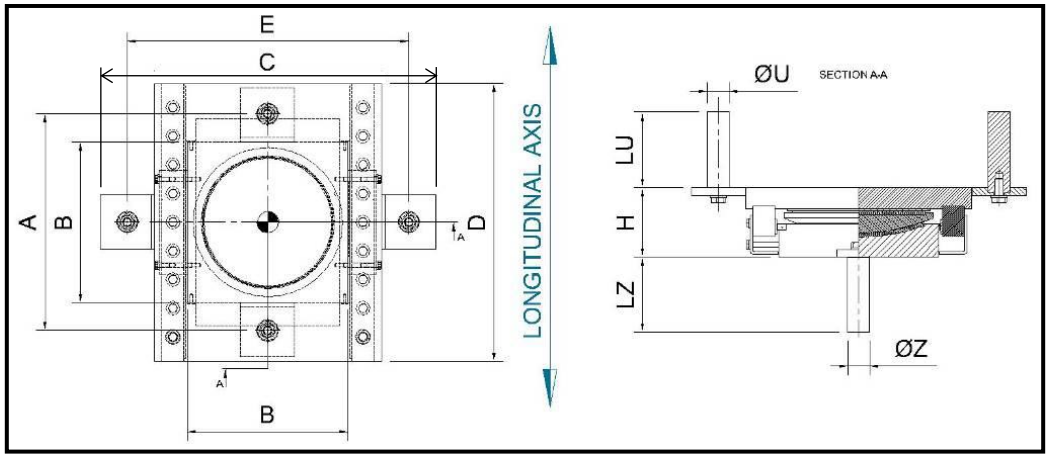


Agom R-Max Guided Bearings

Guided bearing type AGSL (*Vertical load / Horizontal longitudinal movement - Horizontal transversal load*).

For example: *AGSL 500/100-75* means: Vertical load $N_{,Rd}$ = 500 kN, horizontal longitudinal movement $v_{x,d}$ = 100 (±50) mm, horizontal transversal load $V_{y,Rd}$ = 75 kN. In case of AGST bearings, the movement is along transversal axis and the horizontal load along the longitudinal one.

Bearing type	Bearing dimensions												Weight
	B	H	nZ	ØZ	LZ	A	C	D	nU	ØU	LU	E	W
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[kg]
R-Max AGSL 1000/100-150	200	108	2	30	122	280	410	320	2	30	122	350	66
R-Max AGSL 2000/100-300	270	114	2	40	140	370	510	390	2	40	140	430	114
R-Max AGSL 3000/100-450	320	118	4	40	140	420	560	440	4	40	140	480	162
R-Max AGSL 4000/100-600	360	135	4	40	140	460	610	490	4	40	140	530	221
R-Max AGSL 5000/100-750	390	133	4	50	188	510	670	520	4	50	188	570	270
R-Max AGSL 6000/100-900	430	145	4	50	188	550	720	560	4	50	188	620	344
R-Max AGSL 7000/100-1050	460	151	4	60	235	600	770	590	4	60	235	650	433
R-Max AGSL 8000/100-1200	490	160	4	60	235	630	810	630	4	60	235	690	498
R-Max AGSL 9000/100-1350	520	167	4	60	235	660	850	660	4	60	235	730	569
R-Max AGSL 10000/100-1500	540	173	4	60	235	680	870	680	4	60	235	750	636
R-Max AGSL 12000/100-1800	590	180	4	70	282	750	950	730	4	70	282	810	793
R-Max AGSL 15000/100-2250	650	194	4	80	330	700	1050	800	4	80	330	890	1042
R-Max AGSL 18000/100-2700	710	199	4	80	330	760	1110	860	4	80	330	950	1196
R-Max AGSL 20000/100-3000	750	214	4	90	375	800	1180	900	4	90	375	1000	1492
R-Max AGSL 25000/100-3750	840	237	4	100	420	890	1320	1000	4	100	420	1120	2056
R-Max AGSL 30000/100-4500	920	250	6	90	375	970	1370	1080	6	90	375	1190	2516
R-Max AGSL 35000/100-5250	990	264	6	100	420	1040	1490	1160	6	100	420	1290	3180
R-Max AGSL 40000/100-6000	1060	288	6	100	420	1110	1580	1230	6	100	420	1380	3803
R-Max AGSL 45000/100-6750	1120	303	8	100	420	1170	1660	1300	8	100	420	1460	4666
R-Max AGSL 50000/100-7500	1200	328	8	100	420	1250	1760	1380	8	100	420	1560	5535

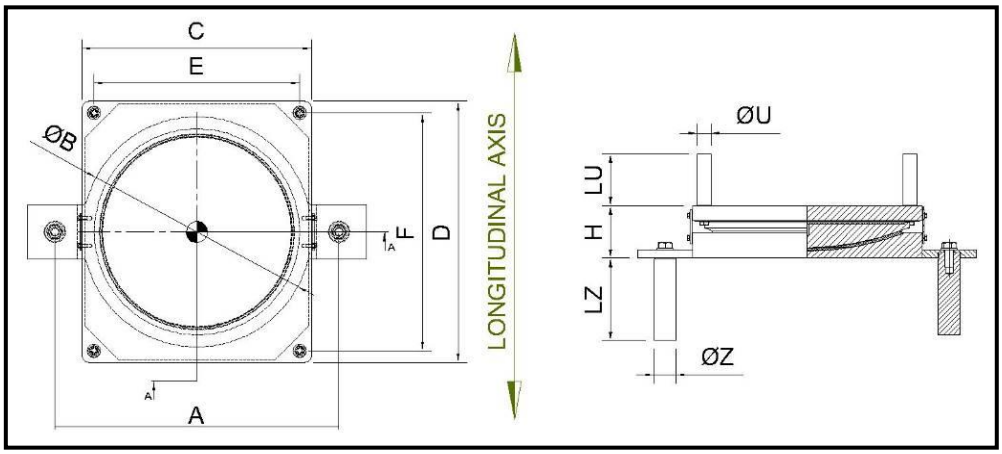


Agom R-Max Free Sliding Bearings

Free sliding bearing type AGSM (*Vertical load / Horizontal longitudinal movement / Horizontal transversal movement*).

For example: AGSM 500/100/20 means: Vertical load $N_{,Rd}$ = 500 kN, Horizontal longitudinal movement $v_{x,d}$ = 100 (±50) mm , Horizontal transversal movement $v_{y,d}$ = 50 (±25) mm.

Bearing type	Bearing Dimensions													Weight
	ØB	H	nZ	ØZ	LZ	A	C	D	nU	ØU	LU	E	F	W
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[kg]
R-Max AGSM 1000/100/50	220	75	2	30	122	300	220	290	4	30	122	160	230	28
R-Max AGSM 2000/100/50	300	80	2	30	122	380	300	360	4	30	122	240	300	48
R-Max AGSM 3000/100/50	340	88	2	30	122	420	340	410	4	30	122	280	350	69
R-Max AGSM 4000/100/50	390	97	2	30	122	470	390	460	4	30	122	330	400	94
R-Max AGSM 5000/100/50	420	98	2	30	122	500	420	500	4	30	122	360	440	114
R-Max AGSM 6000/100/50	450	114	2	40	140	550	450	530	4	30	122	390	470	150
R-Max AGSM 7000/100/50	480	113	2	40	140	580	480	570	4	30	122	420	510	171
R-Max AGSM 8000/100/50	510	114	2	40	140	610	510	600	4	30	122	450	540	195
R-Max AGSM 9000/100/50	540	131	2	40	140	640	540	620	4	30	122	480	560	246
R-Max AGSM 10000/100/50	570	131	2	40	140	670	570	650	4	30	122	510	590	274
R-Max AGSM 12000/100/50	620	131	2	50	188	740	620	700	4	40	140	540	620	334
R-Max AGSM 15000/100/50	680	150	2	50	188	800	680	770	4	40	140	600	690	458
R-Max AGSM 18000/100/50	740	147	4	40	140	594	740	830	4	40	140	660	750	533
R-Max AGSM 20000/100/50	770	165	4	40	140	615	770	870	4	40	140	690	790	648
R-Max AGSM 25000/100/50	850	178	4	50	188	686	850	950	4	50	188	750	850	857
R-Max AGSM 30000/100/50	930	183	4	50	188	742	930	1030	4	50	188	830	930	1064
R-Max AGSM 35000/100/50	1000	195	4	60	235	806	1000	1110	4	60	235	880	990	1325
R-Max AGSM 40000/100/50	1080	219	4	60	235	863	1080	1170	4	60	235	960	1050	1712
R-Max AGSM 45000/100/50	1170	236	4	60	235	926	1170	1240	4	60	235	1050	1120	2122
R-Max AGSM 50000/100/50	1260	258	4	60	235	990	1260	1300	4	60	235	1140	1180	2642



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