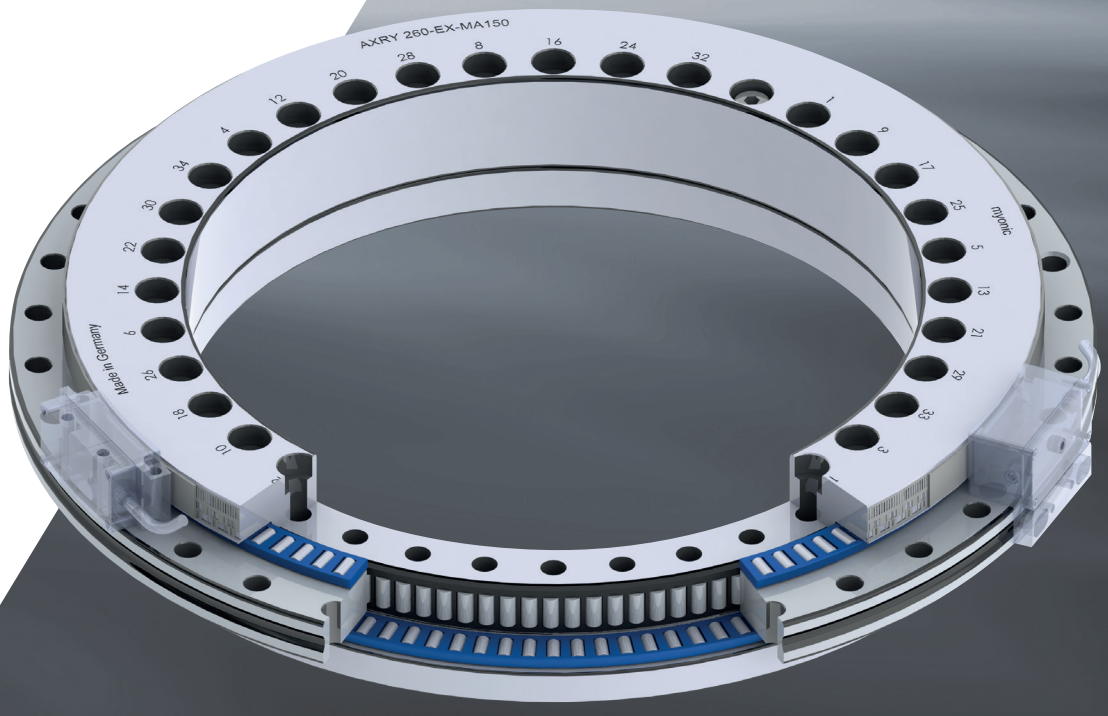
Product chapter

AXRY-EX-M
AXRY-EX-S-M
AXRY-ES-M



General

General & advantages

myonic supplies bearing-integrated absolute and incremental angle measurement systems in cooperation with AMO. Here the measuring ring is directly mounted onto the bearing. Normally on the inner ring as this has a fit to the shaft.
The shell surface on which the measuring ring is mounted runs almost concentrically to the table centre due to exceptionally accurate myonic production tolerances. This increases the system accuracy and thus the overall accuracy of the axis. Because these measurements take place close to the workpiece, deviations through torsion are almost completely avoided.

AMO measuring systems are inductive systems, i.e. no magnetic or optical components are used. AMO systems have the advantage of a high accuracy/speed, direct mounting without own bearing (no additional friction/heating and largest hollow shaft) and no encapsulation (IP67 standard) is required. The measuring unit is not magnetic and therefore completely resistant to electromagnetic interference fields.

Open system

myonic has developed the new generation of absolute measuring heads and has consciously openly designed this development. All manufacturers and users are able to procure these systems directly from AMO.
This guarantees that all users can access the systems without limitations; no ties to an individual roller bearing manufacturer are made when deciding on a measuring head.

Measuring accuracy

System accuracy:

Accuracy of the completely assembled angle measuring device only on the AXRY bearing.

Mainly influenced through:

- The pitch accuracy of the measuring ring (±3 µm or ±5 µm)
- Eccentricity error of the measuring ring (1/2 radial runout inner ring)
- Interpolation error of the measuring head (IPF-AMO)

Total accuracy:

Accuracy of the completely assembly angle measuring device in the machine axis.

Mainly influenced through:

- Deformation of the axis (tilting etc.)
- Form and dimension deviations in the customer shaft and adjacent construction
- Installation error

The larger the bearings are, the more easily can high system accuracies be realised. Using multi-head solutions, accuracies of less than +/- 1 arcsec have been realised in practical applications.
The heads are available with different input frequencies so that ultra precision applications and high speed applications can be covered.

General

Available systems

Measuring systems can be mounted on most axial-radial bearings of the construction series AXRY-EX/AXRY-EX-S and AXRY-ES.

The following systems are available:

- Incremental systems (MI) as single and multi-head solution, as miniature head with external electronics or with heads with integrated electronics.
- Absolute systems (MA) as single and multi-head solution as modular head. This can be mounted axially or radially. In case of radial assembly, it is mounted on the shell surface on the bearing outer ring.
  This means that the complex adjustment of the air gap between the head and measuring ring are no longer required.

Due to the height of the measuring ring of 10 mm incremental or 14 mm absolute, the construction heights increase for the smaller bearings.
Details are specified in the product areas.

Function, incremental vs. absolute systems

The measuring ring permanently mounted on the bearing contains a measuring track and a reference track. The measuring track represents the measuring embodiment, into which a high precision periodic pitch is photolithographically etched. These graduation marks or increments are counted by the head as they pass by, whereby the absolute position is unclear.
On incremental systems, these are obtained through a distance code on the reference track. By driving over 2 neighbouring reference tracks, the system is able to determine the absolute position. The necessary angle is dependent on size; generally less than 30°.
On absolute systems, a second absolute pitch division runs in parallel next to the incremental pitch division, which constantly supplies the control system with a constant, absolute position.

Connection to control system/electronics

myonic cooperates closely with AMO regarding all measuring system electronics. In this way, the connection to very different control systems, cable outlets, cable lengths, feedthroughs etc. can be efficiently fixed.
Prototype solutions are realised short-term.
The best know-how bearers for mechanics and electronics are available from a single source.

Delivery condition

myonic supplies bearings with mounted measuring rings; the measuring heads can be directly procured via AMO. If required, just the bearings can be supplied, appropriately prepared to hold measuring rings.

Product chapter AXRY-EX-M/EX-S-M/-ES-M

Bearing with incremental angular measurement system MI

Through the purely inductive measuring system, maximum system accuracies smaller than +/- 2 µm discharge length can be realised.

The measuring system consists of a solid measure with incremental code as well as a measuring head with a sensor and the analogue-digital evaluation electronics.

Depending on the requirements, a single or multi-head scanner can be used, whereby the measuring ring is mounted directly on the bearing inner ring (MI150) or on the axial washer (MI160).

The integrated measuring systems are available for sizes 150 to 650. In the size range 200 to 650, the bearing main dimensions accord with the AXRY-EX standard design, in the case of the sizes 150 and 180, the construction height is higher (Details in the product data sheet).

Here the measuring head is integrated in the adjacent construction or the central distance plate directly on the outer ring.

Characteristics:

- Can be mounted on an inner ring or axial washer (on request)
- Bearing main dimensions mainly accord with the AXRY standard
- Available from size 150 to 650 mm
- Incremental coding
- Minimal installation dimensions through miniature measuring head
- Special solutions for smaller types available on request
- Single and multi-head scanner for maximum accuracies
- Elimination of eccentricity and radial runout errors during multi-head scanning
- Resistant to dirt IP67
- Resistant to magnetic interference fields
- High accuracy and resolution
- Working temperature -10 °C to +100 °C
- Integrated reference pulse, also distance-coded
- Analogue starting signals (1 VSS) with subdivided signal period up to 15 µm
- Digital output RS-422/TTL with resolution up to 0.125 µm discharge length

The bearings are prepared for mounting up to 2 measuring heads (axially or radially mountable on the outer ring).

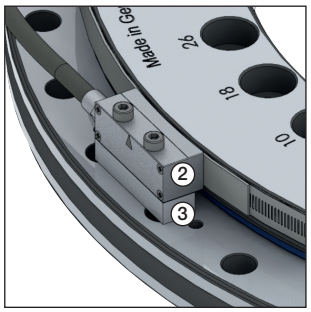
The required threads for assembly are located in the outer ring (axial and radial 2x each).

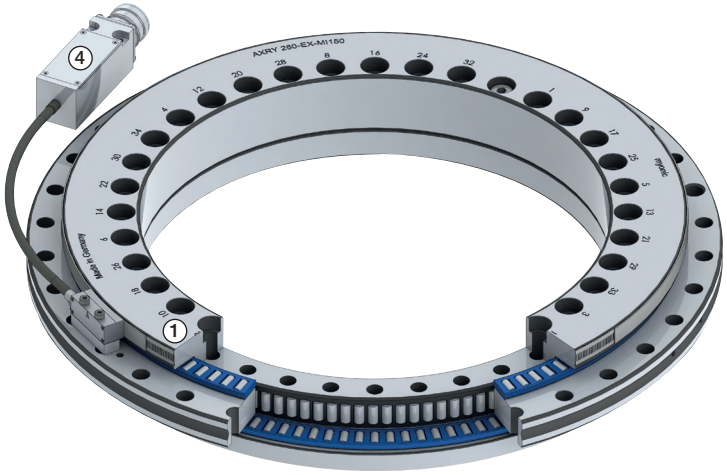
The distance plates can be ordered separately from AMO or myonic.

Bearing with incremental angular measurement system MI

Single head measurement (axial):

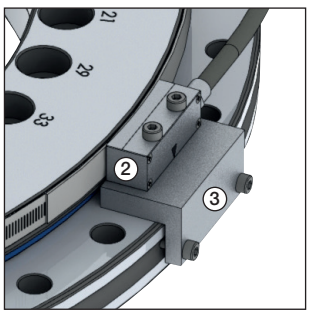
1 AXRY-EX-MI150
2 Measuring head
3 Distance plate
4 External evaluation electronics

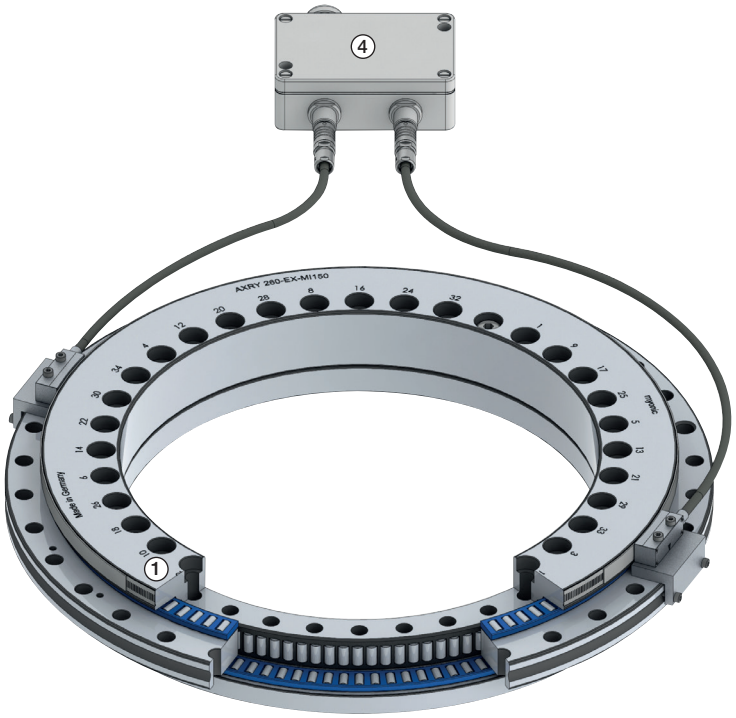




Double head measurement (radial):

1 AXRY-EX-MI150
2 Measuring head
3 Radial plate
4 MHS evaluation electronics





Product chapter AXRY-EX-M/EX-S-M/-ES-M

Bearing with absolute angular measurement system MA

With the purely inductive measuring system, maximum system accuracies up to +/- 1 µm discharge length can be realised.

The measuring system consists of a solid measure with incremental code as well as a measuring head with a sensor and the evaluation electronics.

Depending on the requirements, a single or multi-head scanner can be used, whereby the measuring ring is mounted directly on the bearing inner ring (MA150) or on the axial washer (MA160).

The integrated measuring systems are available for the sizes 150 to 650. In the size range 395 to 650, the bearing main dimensions accord with the standard design AXRY-EX, for the sizes 150 and 325, the construction height is larger (details in the product data sheet).

The measuring head is mounted directly on the outer ring; the fastening can take place radially or axially. During radial assembly, the clearance adjustment takes place via the shell diameter of the outer ring; complex setup of the measuring gap is no longer required.

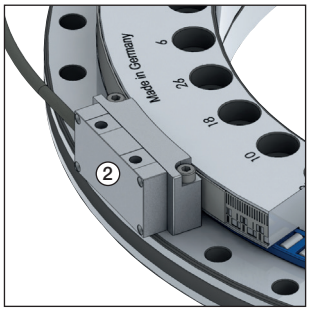
Characteristics:

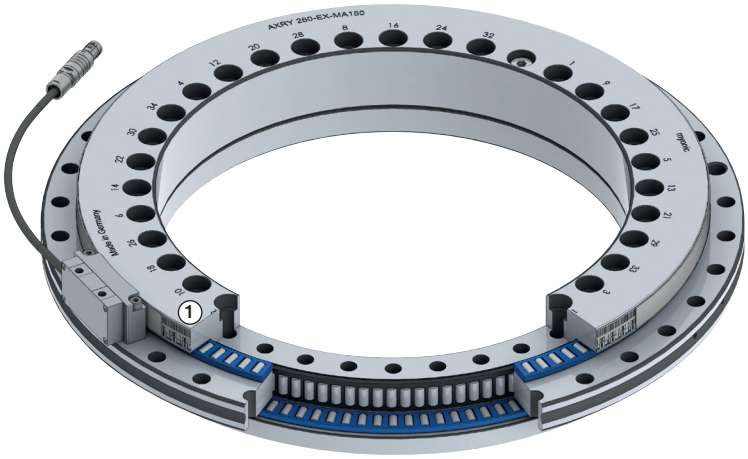
- Can be mounted on the inner ring or axial washer (on request)
- Bearing main measurements mainly accord with the AXRY standard
- Available from size 150 to 650 mm
- Absolute coding
- Special solutions for smaller types available on request
- Single and multi-head scanner for maximum accuracies
- Elimination of eccentricity and radial runout errors during multi-head scanning
- Resistant to dirt IP67
- Resistant to magnetic interference fields
- High accuracy and resolution
- Working temperature -10 °C to +100 °C
- Interfaces to most CNC control systems, direct cooperation with AMO for a fast connection

Bearing with absolute angular measurement system MA

Single head measurement (axial):

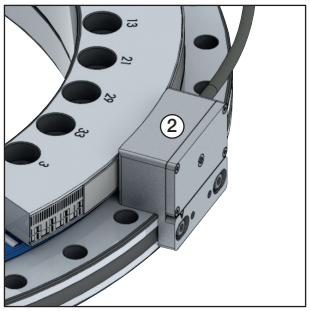
1 AXRY-EX-MA150
2 Measuring head (axial)

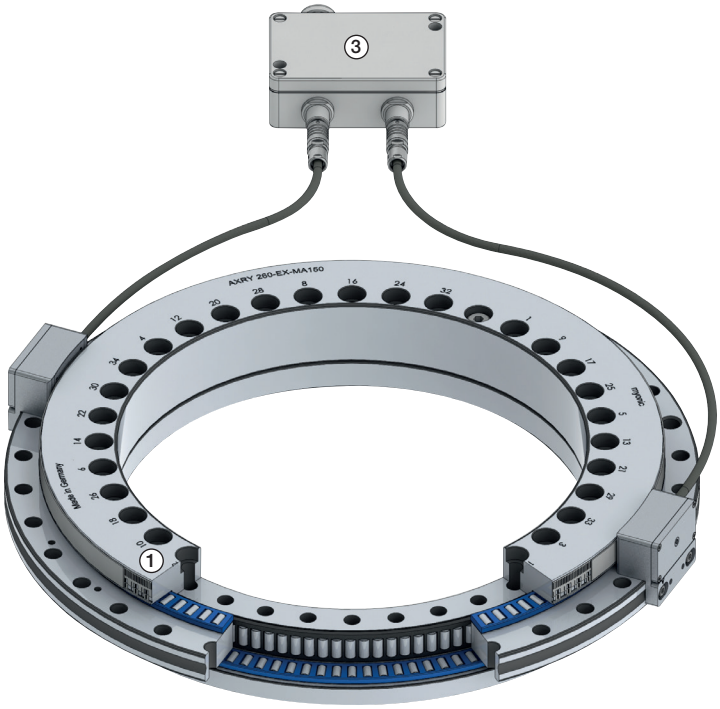




Double head measurement (radial):

1 AXRY-EX-MA150
2 Measuring head (radial)
3 MHSA evaluation electronics





Order designation

Designation system — Bearing — Measuring system

AXRY 260 - EX - S - 2Z - PRR50 - H1 - H2 - AC - JXXXX - L120 - MI150 - A - 3 - 500 - K

Construc-tion series

Bore
in mm

Bearing type
EX = Standard
ES = High-speed

Standard speed:
(only for EX)

Seal:
Without = No seal
AZ = Axial washer, sealed
IZ = Inner ring, sealed
2Z = Sealed on 2 sides

Accuracy requirements:
Without = Standard accuracy requirement
PRR50 = Axial and radial runout tolerances Restricted (for EX-S and ES standard series PRR50)

Connection dimension H1:
Without = Standard tolerance
H1= Restricted connection dimension H1

Connection dimension H2:
Without = Standard tolerance
H2 = Restricted connection dimension H2

Bearing preload:
Without = Standard alignment
AC = Alignment for supported L-section ring

Design:
Without = Catalogue design
JXXXX = Customer-specific design
(number is issued by myonic)

Lubrication:
Without = Standard grease
L120 = Bearing ungreased, only preserved
(e.g. for oil lubrication)
GXXX = Special grease
(number is issued by myonic)

Reference marks:
K = Distance-coded
(only possible for MI150 and MI160)
RI = 1 reference mark
(only possible for MI150 and MI160)

Graduation period:
500 = 500 µm
(only possible for MI150 and MI160)
1000 = 1000 µm
3000 = 3000 µm
(only possible for MI150 and MI160)

Graduation accuracy:
3 = ± 3 µm
5 = ± 5 µm
10 = ± 10 µm

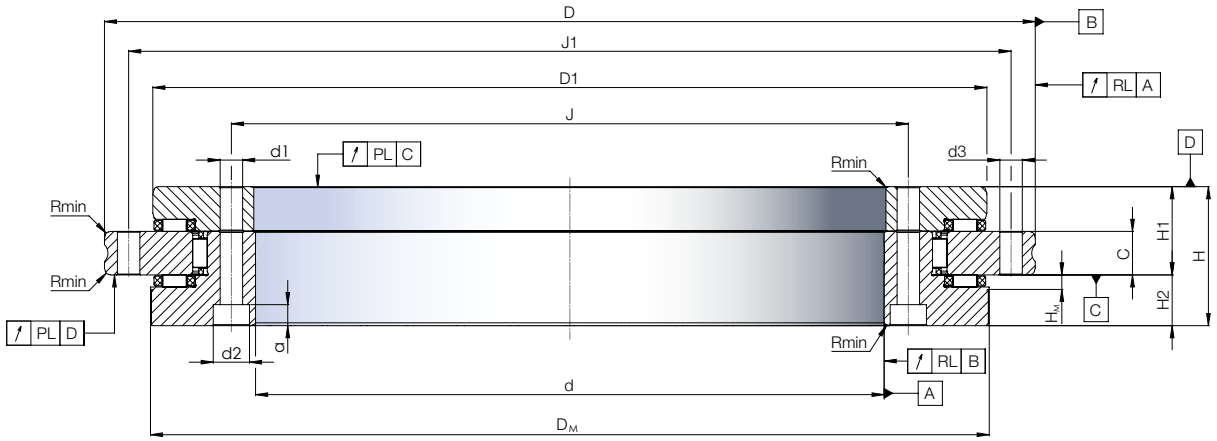
Position of the reference mark:
I = Reference mark inside
(only possible for MI150 and MI160)
A = Reference mark outside
(only possible for MI150 and MI160)

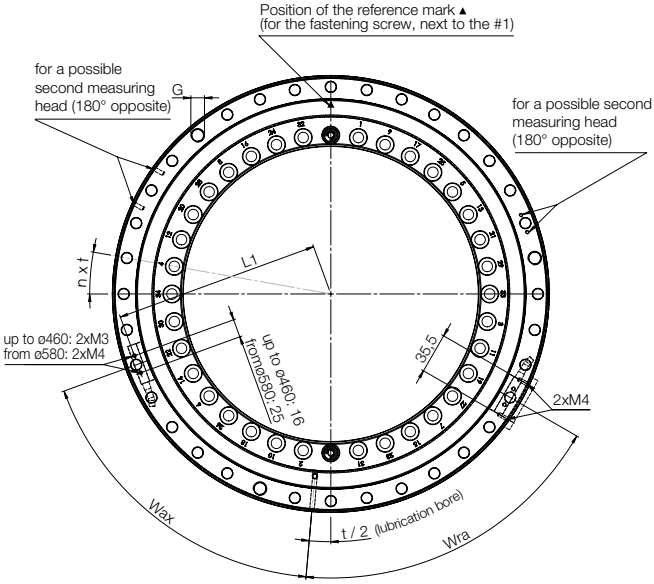
Design and mounting of measuring ring:
MI150 = Incremental on the inner ring
MI160 = Incremental on the axial washer
MA150 = Absolute on the inner ring
MA160 = Absolute on the axial washer

For further technical details or special designs, please contact myonic application engineering.

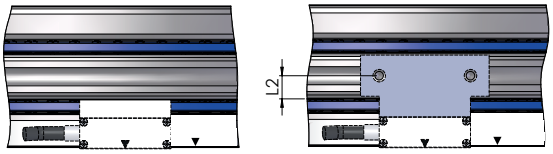
Dimensions table AXRY-EX-MI150

(Standard design with incremental measuring ring on the inner ring)

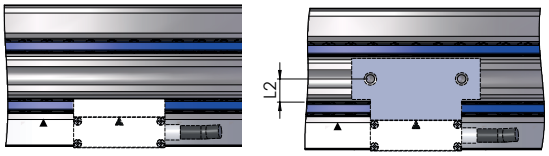




Reference mark ▾ outside (suffix -A)



Reference mark ▲ inside (suffix -I)



Measuring heads and support plates only represented symbolically (not included in scope delivery)

Designation	Weight	Dimensions [mm]															
	m [kg]	d	Δd	D	ΔD	H	H1	ΔH1	ΔH1 restricted	H2	ΔH2 restricted	C	D1 max	J	J1	D_M	H_M
AXRY 150-EX-MI150	7.1	150	-0.013	240	-0.015	47[8]	26	± 0.175	± 0.03	21[8]	± 0.02	12	214	165	225	214.4	6
AXRY 180-EX-MI150	8.5	180	-0.013	280	-0.018	50[8]	29	± 0.175	± 0.03	21[8]	± 0.025	15	244	194	260	245.0	6
AXRY 200-EX-MI150	10.4	200	-0.015	300	-0.018	45	30	± 0.175	± 0.03	15	± 0.025	15	274	215	285	274.2	5
AXRY 260-EX-MI150	18.9	260	-0.018	385	-0.020	55	36.5	± 0.200	± 0.04	18.5	± 0.025	18	345	280	365	344.3	8
AXRY 325-EX-MI150[4]	25	325	-0.023	450	-0.023	60	40	± 0.200	± 0.05	20	± 0.025	20	415	342	430	415.0	8
AXRY 395-EX-MI150	33	395	-0.023	525	-0.028	65	42.5	± 0.200	± 0.05	22.5	± 0.025	20	486	415	505	484.4	8
AXRY 460-EX-MI150	45	460	-0.023	600	-0.028	70	46	± 0.225	± 0.06	24	± 0.03	22	560	482	580	558.2	10
AXRY 580-EX-MI150	89	580	-0.025	750	-0.035	90	60	± 0.250	± 0.075	30	± 0.03	30	700	610	720	700.9	15
AXRY 650-EX-MI150	170	650	-0.038	870	-0.050	122	78	± 0.250	± 0.1	44	± 0.03	34	800	680	830	796.4	21

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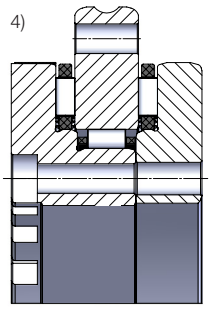
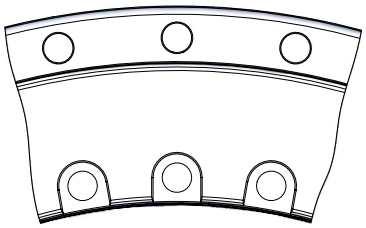




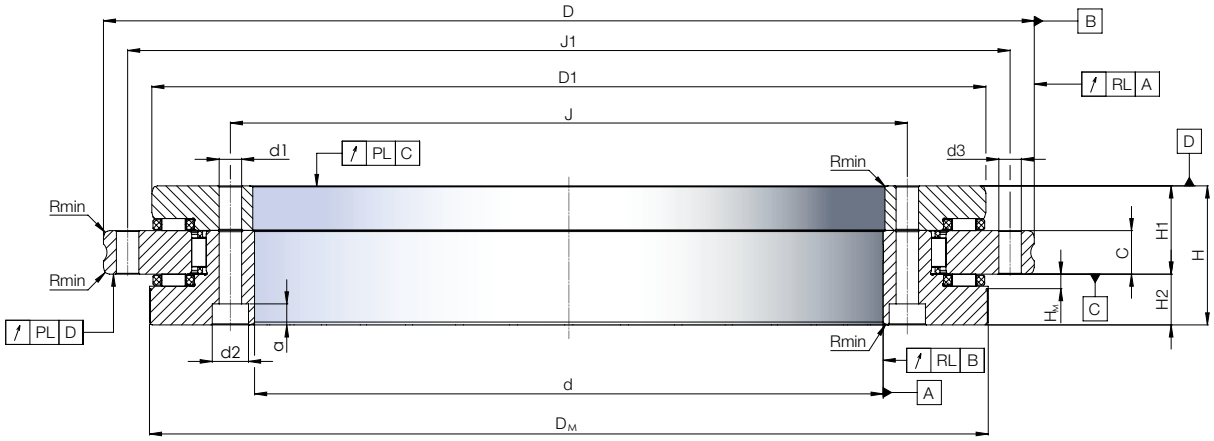
1) Including fastening screws or extraction thread.
2) Tightening torque for screws acc. DIN 912, strength class 10.9.
3) Attention! For fixing holes in the adjacent construction. Observe the pitch of the bearing bores.
4) Screw counterbores in large L-ring open to bearing bore. Bearing inside diameter is not supported in this area.
5) Please enquire in case of high speed applications.
6) Frictional torques as a reference value: measuring speed nconst = 5 min^{-1}; with myonic standard grease; with myonic standard amount of grease; without support ring; Frictional torque can increase 2.5 times up to the limiting speed.
7) Measured on installed bearing with ideal adjacent construction.
8) Dimensions deviating from the AXRY-EX.

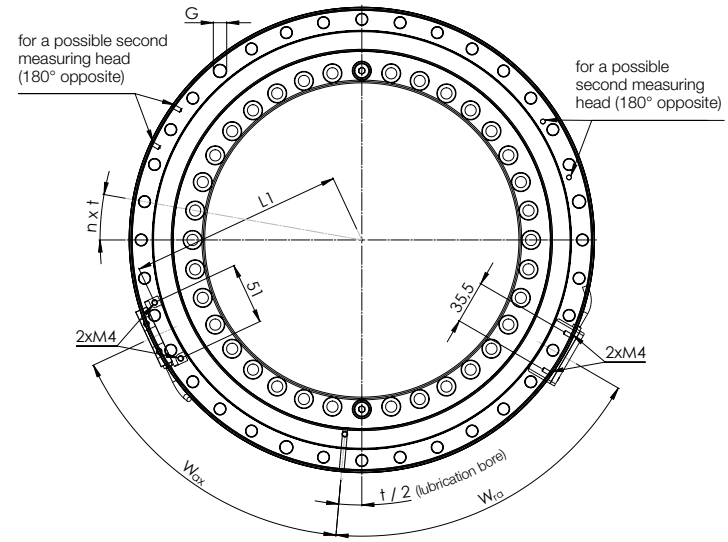
Designation	Fixing holes													
	Inner ring				Outer ring								Number x Pitch	Screw tightening torque
							Extraction thread		Fastening thread for measuring head					
	d1	d2	a	Number[3]	d3	Number[3]	G	Number	L1	W_{ax}	L2	W_{ra}	nxt[1]	M_A[2] [Nm]
AXRY 150-EX-MI150	7	11	6.4	34	7	33	M8	3	116.3	55°	6	65°	36 x 10°	14
AXRY 180-EX-MI150	7	11	6.4	46	7	45	M8	3	131.6	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 200-EX-MI150	7	11	6.4	46	7	45	M8	3	146.2	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 260-EX-MI150	9.3	15	8.6	34	9.3	33	M12	3	181.3	60°	9	65°	36 x 10°	34
AXRY 325-EX-MI150[4]	9.3	15	8.1	34	9.3	33	M12	3	216.6	55°	10	65°	36 x 10°	34
AXRY 395-EX-MI150	9.3	15	8.6	46	9.3	45	M12	3	251.3	60°	10	63.75°	48 x 7.5°	34
AXRY 460-EX-MI150	9.3	15	8.6	46	9.3	45	M12	3	288.2	56.25°	11	63.75°	48 x 7.5°	34
AXRY 580-EX-MI150	11.4	18	10.6	46	11.4	42	M12	6	367.3	56.25°	15	63.75°	48 x 7.5°	68
AXRY 650-EX-MI150	14	20	12.6	46	14	42	M12	6	420.0	56.25°	17	63.75°	48 x 7.5°	116

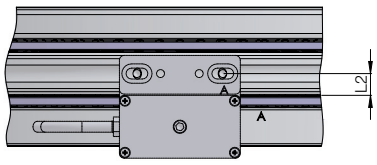
Designation	Load ratings				Limiting speed [5]	Bearing friction torque[6]	Axial runout & radial runout[7]		Rigidity of the bearing position			Min. corner radius	Measuring ring		
	Axial		Radial		Grease	Grease	Standard	Restricted	Axial	Radial	Tilting rigidity		Grad.mark./ 360°	Pitch accuracy	
	dyn. C_a [kN]	stat. C_{0a} [kN]	dyn. C_r [kN]	stat. C_{0r} [kN]	n_G [rpm]	M_{RL} [Nm]	PL & RL [µm]	PL & RL [µm]	C_{al} [kN/µm]	C_{rl} [kN/µm]	C_{kl} [kNm/mrad]	R_{min} [mm]	with 500 µm pitch	wih ±3µm	with ±5µm
AXRY 150-EX-MI150	100.4	720.7	68.4	185	1000	7	3	1.5	6.1	3.7	28.4	0.8	1344	5.8"	9.6"
AXRY 180-EX-MI150	112.8	880.9	74	215	900	8	4	2	9.3	4.3	58	1	1536	5.1"	8.4"
AXRY 200-EX-MI150	117.6	961	98.5	282.7	800	9	4	2	7.2	4.6	53.9	1	1720	4.5"	7.5"
AXRY 260-EX-MI150	131.9	1201	112.8	367.7	650	13	6	3	10.7	5.9	131.2	1	2160	3.6"	6.0"
AXRY 325-EX-MI150[4]	196.2	1875.5	123.9	441	520	20	6	3	12	6.6	212	1.2	2604	3.0"	5.0"
AXRY 395-EX-MI150	215	2227.1	136.1	528.9	450	25	6	3	15.1	7.8	375	1.2	3040	2.5"	4.2"
AXRY 460-EX-MI150	278.3	2905.1	146.5	608	400	37	6	3	15.7	8.9	512	1.2	3504	2.2"	3.7"
AXRY 580-EX-MI150	317.8	3712	173.2	726.3	250	67	10	5	22.3	10.1	1139	2	4400	1.8"	3.0"
AXRY 650-EX-MI150	548.3	6086.1	417.1	1830.2	180	100	10	5	26.4	14.8	1796	2	5000	1.6"	2.6"

Dimensions table AXRY-EX-MA150

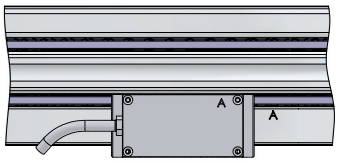
(Standard design with absolute measuring ring on the inner ring)







Measuring head only represented symbolically (not included in scope of delivery)



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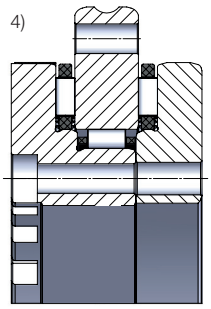
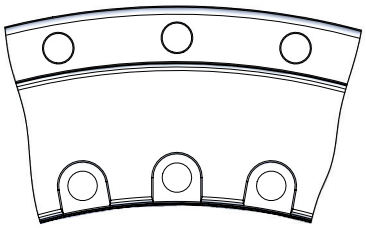
AXRY 460-EX-MA150	45	460	-0.023	600	-0.028	70	46	± 0.225	± 0.06	24	± 0.03	22	560	482	580	560.9	9
AXRY 580-EX-MA150	89	580	-0.025	750	-0.035	90	60	± 0.250	± 0.075	30	± 0.03	30	700	610	720	699.7	9
AXRY 650-EX-MA150	170	650	-0.038	870	-0.050	122	78	± 0.250	± 0.1	44	± 0.03	34	800	680	830	799.0	21

4)





1) Including fastening screws or extraction thread.

2) Tightening torque for screws acc. DIN 912, strength class 10.9.

3) Attention! For fixing holes in the adjacent construction. Observe the pitch of the bearing bores.

4) Screw counterbores in large L-ring open to bearing bore. Bearing inside diameter is not supported in this area.

5) Please enquire in case of high speed applications.

6) Frictional torques as a reference value: measuring speed nconst = 5 min^{-1}; with myonic standard grease; with myonic standard amount of grease; without support ring; Frictional torque can increase 2.5 times up to the limiting speed.

7) Measured on installed bearing with ideal adjacent construction.

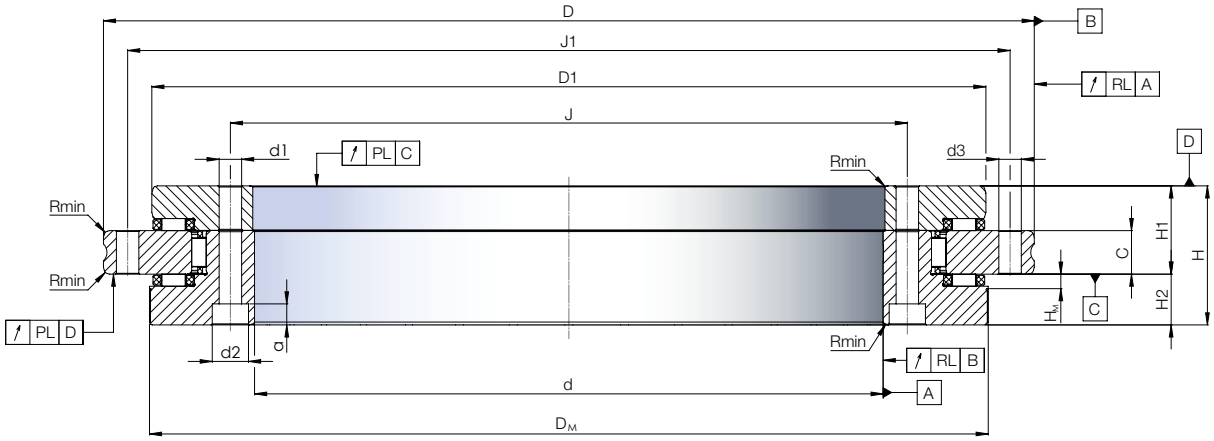
8) Dimensions deviating from the AXRY-EX.

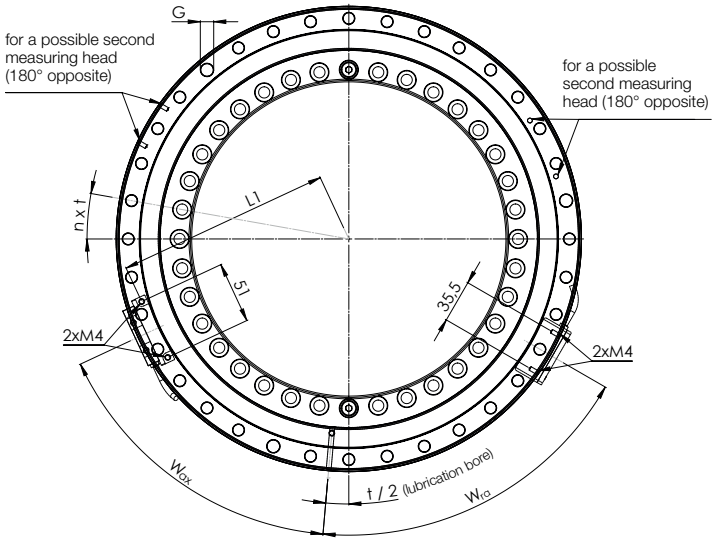
Designation	Fixing holes													
	Inner ring				Outer ring								Number x Pitch	Screw tightening torque
							Extraction thread		Fastening thread for measuring head					
	d1	d2	a	Number[3]	d3	Number[3]	G	Number	L1	W_{ax}	L2	W_{ra}	nxt[1]	M_A[2] [Nm]
AXRY 150-EX-MA150	7	11	6.4	34	7	33	M8	3	111.7	55°	6	65°	36 x 10°	14
AXRY 180-EX-MA150	7	11	6.4	46	7	45	M8	3	127.0	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 200-EX-MA150	7	11	6.4	46	7	45	M8	3	141.6	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 260-EX-MA150	9.3	15	8.6	34	9.3	33	M12	3	177.2	60°	9	65°	36 x 10°	34
AXRY 325-EX-MA150[4]	9.3	15	8.6	34	9.3	33	M12	3	212.5	55°	10	65°	36 x 10°	34
AXRY 395-EX-MA150	9.3	15	8.6	46	9.3	45	M12	3	249.0	60°	10	63.75°	48 x 7.5°	34
AXRY 460-EX-MA150	9.3	15	8.6	46	9.3	45	M12	3	285.6	56.25°	11	63.75°	48 x 7.5°	34
AXRY 580-EX-MA150	11.4	18	10.6	46	11.4	42	M12	6	355.0	56.25°	15	63.75°	48 x 7.5°	68
AXRY 650-EX-MA150	14	20	12.6	46	14	42	M12	6	404.7	56.25°	17	63.75°	48 x 7.5°	116

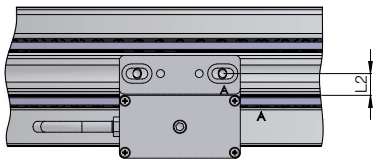
Designation	Load ratings				Limiting speed[5]	Bearing friction torque[6]	Axial runout & radial runout[7]		Rigidity of the bearing position			Min. corner radius	Measuring ring		
	Axial		Radial		Grease	Grease	Standard	Restricted	Axial	Radial	Tilting rigidity		Grad.mark./ 360°	Pitch accuracy	
	dyn. C_a [kN]	stat. C_{0a} [kN]	dyn. C_r [kN]	stat. C_{0r} [kN]	n_G [rpm]	M_{RL} [Nm]	PL & RL [µm]	PL & RL [µm]	C_{al} [kN/µm]	C_{rl} [kN/µm]	C_{kl} [kNm/mrad]	R_{min} [mm]	with 1000 µm-pitch	with ±3µm	with ±5µm
AXRY 150-EX-MA150	100.4	720.7	68.4	185	1000	7	3	1.5	6.1	3.7	28.4	0.8	672	5.8"	9.6"
AXRY 180-EX-MA150	112.8	880.9	74	215	900	8	4	2	9.3	4.3	58	1	768	5.1"	8.4"
AXRY 200-EX-MA150	117.6	961	98.5	282.7	800	9	4	2	7.9	4.6	59.6	1	860	4.5"	7.5"
AXRY 260-EX-MA150	131.9	1201	112.8	367.7	650	13	6	3	11	5.9	135	1	1088	3.6"	6.0"
AXRY 325-EX-MA150[4]	196.2	1875.5	123.9	441	520	20	6	3	12.1	6.6	215	1.2	1302	3.0"	5.0"
AXRY 395-EX-MA150	215	2227.1	136.1	528.9	450	25	6	3	15.1	7.8	375	1.2	1530	2.5"	4.2"
AXRY 460-EX-MA150	278.3	2905.1	146.5	608	400	37	6	3	15.7	8.9	512	1.2	1760	2.2"	3.7"
AXRY 580-EX-MA150	317.8	3712	173.2	726.3	250	67	10	5	22.3	10.1	1139	2	2196	1.8"	3.0"
AXRY 650-EX-MA150	548.3	6086.1	417.1	1830.2	180	100	10	5	26.4	14.9	1796	2	2508	1.6"	2.6"

Dimensions table AXRY-EX-S-MA150

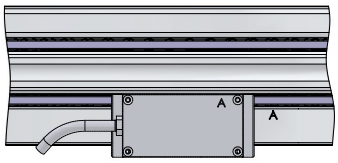
(Standard speed design with absolute measuring ring on inner ring)





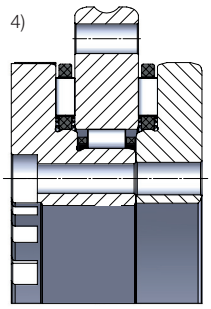


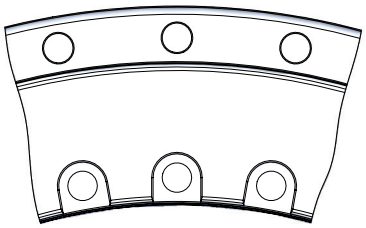
Measuring head only represented symbolically (not included in scope of delivery)



Designation	Weight	Dimensions [mm]															
	m [kg]	d	Δd	D	ΔD	H	H1	ΔH1	ΔH1 restricted	H2	ΔH2 restricted	C	D1 max	J	J1	D_M	H_M
AXRY 150-EX-S-MA150	7.1	150	-0.013	240	-0.015	47[7]	26	± 0.175	± 0.03	21[7]	± 0.02	12	214	165	225	214.5	6
AXRY 180-EX-S-MA150	8.5	180	-0.013	280	-0.018	50[7]	29	± 0.175	± 0.03	21[7]	± 0.025	15	244	194	260	245.1	6
AXRY 200-EX-S-MA150	10.4	200	-0.015	300	-0.018	51[7]	30	± 0.175	± 0.03	21[7]	± 0.025	15	274	215	285	274.3	6
AXRY 260-EX-S-MA150	18.9	260	-0.018	385	-0.020	57.5[7]	36.5	± 0.200	± 0.04	21[7]	± 0.025	18	345	280	365	346.9	6
AXRY 325-EX-S-MA150[4]	25	325	-0.023	450	-0.023	61[7]	40	± 0.200	± 0.05	21[7]	± 0.025	20	415	342	430	415.1	6
AXRY 395-EX-S-MA150	33	395	-0.023	525	-0.028	65	42.5	± 0.200	± 0.05	22.5	± 0.025	20	486	415	505	487.7	6
AXRY 460-EX-S-MA150	45	460	-0.023	600	-0.028	70	46	± 0.225	± 0.06	24	± 0.03	22	560	482	580	560.9	9
AXRY 580-EX-S-MA150	89	580	-0.025	750	-0.035	90	60	± 0.250	± 0.075	30	± 0.03	30	700	610	720	699.7	9
AXRY 650-EX-S-MA150	170	650	-0.038	870	-0.050	122	78	± 0.250	± 0.1	44	± 0.03	34	800	680	830	799.0	21

4)





1) Including fastening screws or extraction thread.

2) Tightening torque for screws acc. DIN 912, strength class 10.9.

3) Attention! For fixing holes in the adjacent construction. Observe the pitch of the bearing bores.

4) Screw counterbores in large L-ring open to bearing bore. Bearing inside diameter is not supported in this area.

5) Frictional torques as a reference value: measuring speed nconst = 5 min^{-1}; with myonic standard grease; with myonic standard amount of grease; without support ring; Frictional torque can increase 2.5 times up to the limiting speed.

6) Measured on the installed bearing with ideal adjacent construction.

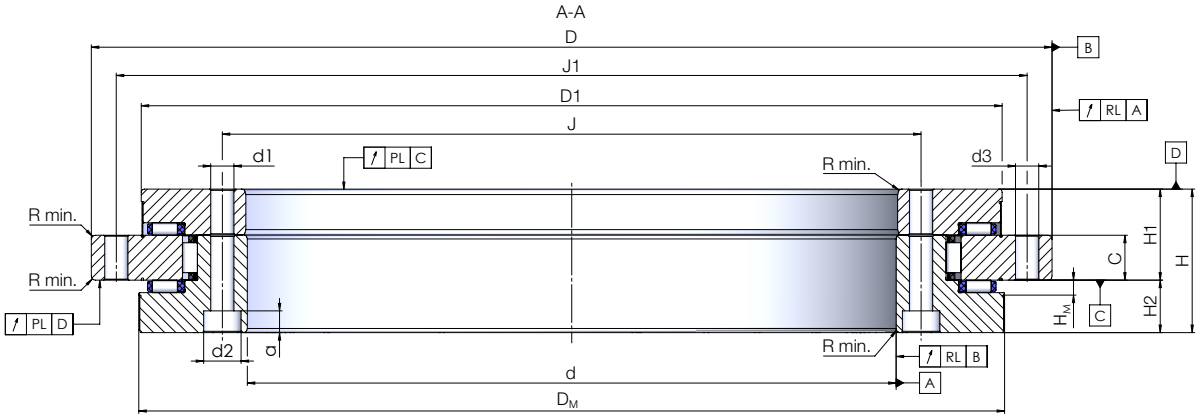
7) Dimension deviating from AXRY-EX-S.

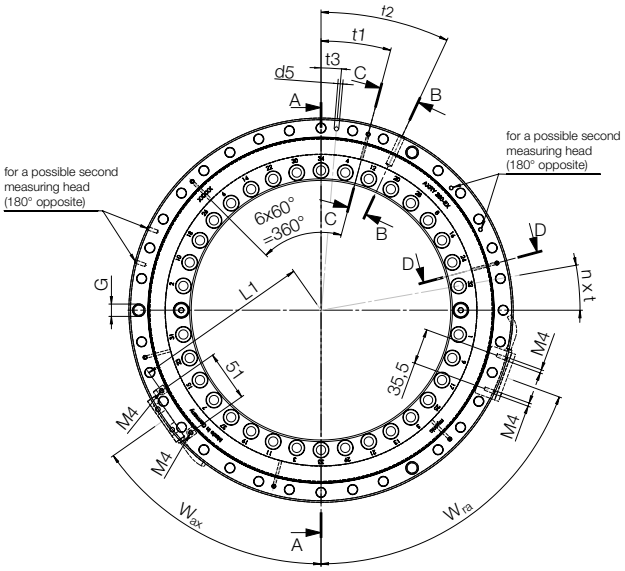
Designation	Fixing holes													
	Inner ring				Outer ring								Number x Pitch	Screw tightening torque
							Extraction thread		Fastening thread for measuring head					
	d1	d2	a	Number[3]	d3	Number[3]	G	Number	L1	W_{ax}	L2	W_{ra}	nxt[1]	M_A[2] [Nm]
AXRY 150-EX-S-MA150	7	11	6.4	34	7	33	M8	3	111.7	55°	6	65°	36 x 10°	14
AXRY 180-EX-S-MA150	7	11	6.4	46	7	45	M8	3	127.0	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 200-EX-S-MA150	7	11	6.4	46	7	45	M8	3	141.6	56.25°	7.5	63.75°	48 x 7.5°	14
AXRY 260-EX-S-MA150	9.3	15	8.6	34	9.3	33	M12	3	177.2	60°	9	65°	36 x 10°	34
AXRY 325-EX-S-MA150[4]	9.3	15	8.6	34	9.3	33	M12	3	212.5	55°	10	65°	36 x 10°	34
AXRY 395-EX-S-MA150	9.3	15	8.6	46	9.3	45	M12	3	249.0	60°	10	63.75°	48 x 7.5°	34
AXRY 460-EX-S-MA150	9.3	15	8.6	46	9.3	45	M12	3	285.6	56.25°	11	63.75°	48 x 7.5°	34
AXRY 580-EX-S-MA150	11.4	18	10.6	46	11.4	42	M12	6	355.0	56.25°	15	63.75°	48 x 7.5°	68
AXRY 650-EX-S-MA150	14	20	12.6	46	14	42	M12	6	404.7	56.25°	17	63.75°	48 x 7.5°	116

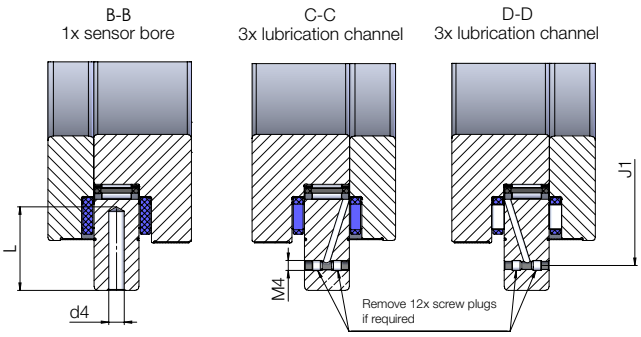
Designation	Load ratings				Limiting speed		Bearing-friction torque[5]	Axial & radial runout[6]	Rigidity of the bearing position			Min. corner radius	Measuring ring		
	Axial		Radial		Oil	Grease	Grease	Standard	Axial	Radial	Tilting rigidity		Grad.mark./ 360°	Pitch accuracy	
	dyn. C_a [kN]	stat. C_{0a} [kN]	dyn. C_r [kN]	stat. C_{0r} [kN]	n_G [rpm]	n_G [rpm]	M_{RL} [Nm]	PL & RL [µm]	C_{al} [kN/µm]	C_{rl} [kN/µm]	C_{kl} [kNm/mrad]	R_{min} [mm]	with 1000 µm pitch	with ±3µm	with ±5µm
AXRY 150-EX-S-MA150	74.1	480.5	41	93.5	1800	1600	4.2	1.5	5.6	2.5	25.2	0.8	672	5.8"	9.6"
AXRY 180-EX-S-MA150	82.5	580.6	44	107.5	1600	1400	4.8	2	7.7	2.6	48.7	1	768	5.1"	8.4"
AXRY 200-EX-S-MA150	85.7	630.6	59	143.8	1400	1200	5.4	2	7	3	54.1	1	860	4.5"	7.5"
AXRY 260-EX-S-MA150	96.4	790.8	67.1	183.9	1200	1000	7.8	3	9.2	3.7	121.2	1	1088	3.6"	6.0"
AXRY 325-EX-S-MA150[4]	143.1	1230.8	74	222	1000	800	12	3	10.1	4.2	184	1.2	1302	3.0"	5.0"
AXRY 395-EX-S-MA150	157.1	1465.2	81.3	265.9	800	680	15	3	12.7	5	324	1.2	1530	2.5"	4.2"
AXRY 460-EX-S-MA150	203.7	1916.5	87.1	304	700	600	22	3	13.4	5.9	446	1.2	1760	2.2"	3.7"
AXRY 580-EX-S-MA150	232.1	2441.1	103	363.2	450	350	40	5	18.7	6.4	982	2	2196	1.8"	3.0"
AXRY 650-EX-S-MA150	400.5	4004	249	920.3	350	250	60	5	21.8	9.7	1517	2	2508	1.6"	2.6"

Dimensions table AXRY-ES-MA150

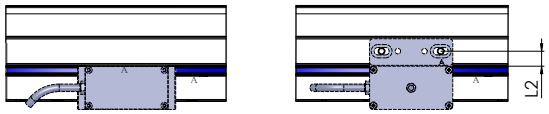
(extended speed design with absolute measuring ring on the inner ring)





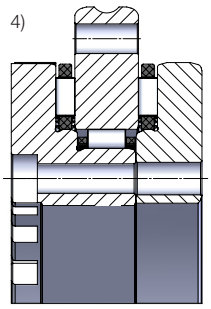


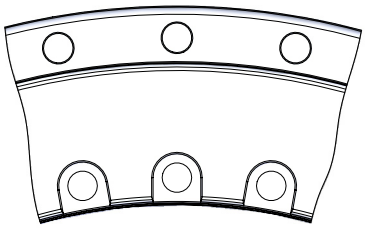
Measuring head only represented symbolically (not included in scope of delivery)



Designation	Weight	Dimensions [mm]																					
	m	d	Δd	D	ΔD	H	H1	ΔH1	ΔH1	H2	ΔH2	C	D1	J	J1	t1	t2	t3	d4	d5	L	D_M	H_M
	[kg]								restricted		restricted		max								~		
AXRY 150-ES-MA150	7.1	150	-0.013	240	-0.015	47[7]	26	± 0.175	± 0.03	21[7]	± 0.02	12	214	165	225	15°	25°	5°	4.2	5	24	214.5	6
AXRY 180-ES-MA150	8.5	180	-0.013	280	-0.018	50[7]	29	± 0.175	± 0.03	21[7]	± 0.025	15	244	194	260	18.75°	26.25°	11.25°	6.2	5	29.5	245.1	6
AXRY 200-ES-MA150	10.4	200	-0.015	300	-0.018	51[7]	30	± 0.175	± 0.03	21[7]	± 0.025	15	274	215	285	18.75°	26.25°	11.25°	6.2	5	26	274.3	6
AXRY 260-ES-MA150	18.9	260	-0.018	385	-0.020	57.5[7]	36.5	± 0.200	± 0.04	21[7]	± 0.025	18	345	280	365	15°	25°	5°	6.2	5	33.5	346.9	6
AXRY 325-ES-MA150[4]	25	325	-0.023	450	-0.023	61[7]	40	± 0.200	± 0.05	21[7]	± 0.025	20	415	342	430	15°	25°	5°	6.2	5	35.5	415.1	6
AXRY 395-ES-MA150	33	395	-0.023	525	-0.028	65	42.5	± 0.200	± 0.05	22.5	± 0.025	20	486	415	505	18.75°	26.25°	11.25°	6.2	5	37	487.7	6
AXRY 460-ES-MA150	45	460	-0.023	600	-0.028	70	46	± 0.225	± 0.06	24	± 0.03	22	560	482	580	18.75°	26.25°	11.25°	6.2	5	43	560.9	9
AXRY 580-ES-MA150	89	580	-0.025	750	-0.035	90	60	± 0.250	± 0.075	30	± 0.03	30	700	610	720	41.25°	48.75°	33.75°	12.2	8	48	699.7	9
AXRY 650-ES-MA150	170	650	-0.038	870	-0.050	122	78	± 0.250	± 0.1	44	± 0.03	34	800	680	830	41.25°	48.75°	33.75°	12.2	10	61.5	799.0	21

4)





1) Including fastening screws or extraction thread.

2) Tightening torque for screws acc. DIN 912, strength class 10.9.

3) Attention! For fixing holes in the adjacent construction. Observe the pitch of the bearing bores.

4) Screw counterbores in large L-ring open to bearing bore. Bearing inside diameter is not supported in this area.

5) Frictional torques as a reference value: measuring speed nconst = 5 min^{-1}; with myonic standard grease; with myonic standard amount of grease; without support ring; Frictional torque can increase 2.5 times up to the limiting speed.

6) Measured on the installed bearing with ideal adjacent construction.

7) Dimension deviating from AXRY-ES.

Designation	Fixing holes													
	Inner ring				Outer ring								Number x Pitch	Screw tightening torque
							Extraction thread		Fastening thread for measuring head					
	d1	d2	a	Number[3]	d3	Number[3]	G	Number	L1	W_{ax}	L2	W_{ra}	nxt[1]	M_A[2] [Nm]
AXRY 150-ES-MA150	7	11	6.4	34	7	33	M8	3	111.7	50°	6	70°	36 x 10°	14
AXRY 180-ES-MA150	7	11	6.4	46	7	45	M8	3	127.0	52.5°	7.5	67.5°	48 x 7.5°	14
AXRY 200-ES-MA150	7	11	6.4	46	7	45	M8	3	141.6	52.5°	7.5	67.5°	48 x 7.5°	14
AXRY 260-ES-MA150	9.3	15	8.6	34	9.3	33	M12	3	177.2	55°	9	70°	36 x 10°	34
AXRY 325-ES-MA150[4]	9.3	15	8.6	34	9.3	33	M12	3	212.5	50°	10	70°	36 x 10°	34
AXRY 395-ES-MA150	9.3	15	8.6	46	9.3	45	M12	3	249.0	56.25°	10	67.5°	48 x 7.5°	34
AXRY 460-ES-MA150	9.3	15	8.6	46	9.3	45	M12	3	285.6	52.5°	11	67.5°	48 x 7.5°	34
AXRY 580-ES-MA150	11.4	18	10.6	46	11.4	42	M12	6	355.0	52.5°	15	67.5°	48 x 7.5°	68
AXRY 650-ES-MA150	14	20	12.6	46	14	42	M12	6	404.7	52.5°	17	67.5°	48 x 7.5°	116

Designation	Load ratings				Limiting speed		Bearing friction torque[5]	Axial & radial runout[6]	Rigidity of the bearing position			Min. corner radius	Measuring ring		
	Axial		Radial		Oil	Grease	Grease	Standard	Axial	Radial	Tilting rigidity		Grad.mark./ 360°	Pitch accuracy	
	dyn. C_a [kN]	stat. C_{0a} [kN]	dyn. C_r [kN]	stat. C_{0r} [kN]	n_G [rpm]	n_G [rpm]	M_{RL} [Nm]	PL & RL [µm]	C_{al} [kN/µm]	C_{rl} [kN/µm]	C_{kl} [kNm/mrad]	R_{min} [mm]	with 1000 µm pitch	with ±3µm	with ±5µm
AXRY 150-ES-MA150	74.1	480.5	41	93.5	1800	1600	4.2	1.5	5.6	2.5	25.2	0.8	672	5.8"	9.6"
AXRY 180-ES-MA150	82.5	580.6	44	107.5	1600	1400	4.8	2	7.7	2.6	48.7	1	768	5.1"	8.4"
AXRY 200-ES-MA150	85.7	630.6	59	143.8	1400	1200	5.4	2	7	3	54.1	1	860	4.5"	7.5"
AXRY 260-ES-MA150	96.4	790.8	67.1	183.9	1200	1000	7.8	3	9.2	3.7	121.2	1	1088	3.6"	6.0"
AXRY 325-ES-MA150[4]	143.1	1230.8	74	222	1000	800	12	3	10.1	4.2	184	1.2	1302	3.0"	5.0"
AXRY 395-ES-MA150	157.1	1465.2	81.3	265.9	800	680	15	3	12.7	5	324	1.2	1530	2.5"	4.2"
AXRY 460-ES-MA150	203.7	1916.5	87.1	304	700	600	22	3	13.4	5.9	446	1.2	1760	2.2"	3.7"
AXRY 580-ES-MA150	232.1	2441.1	103	363.2	450	350	40	5	18.7	6.4	982	2	2196	1.8"	3.0"
AXRY 650-ES-MA150	400.5	4004	249	920.3	350	250	60	5	21.8	9.7	1517	2	2508	1.6"	2.6"