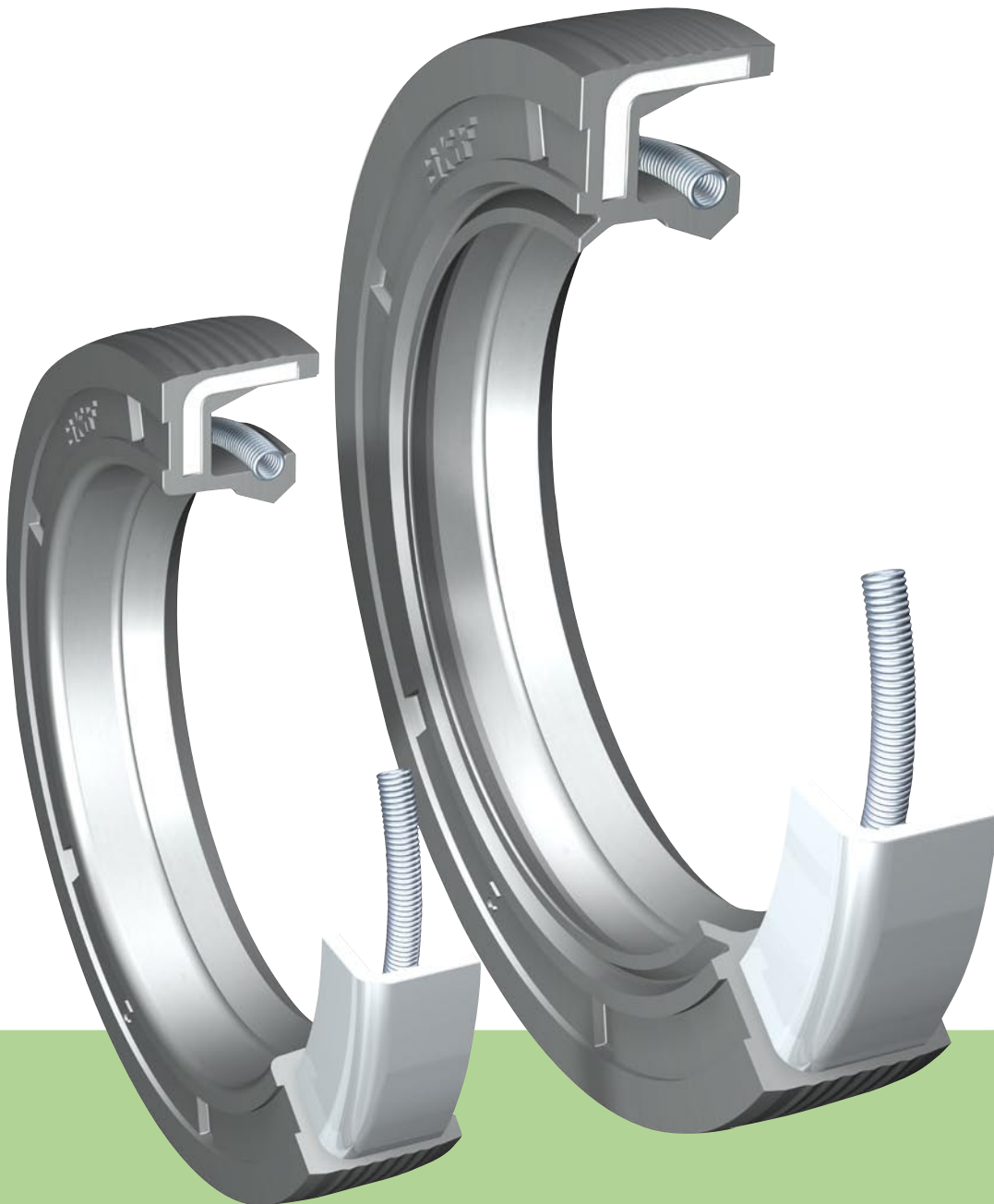


Maximizing performance

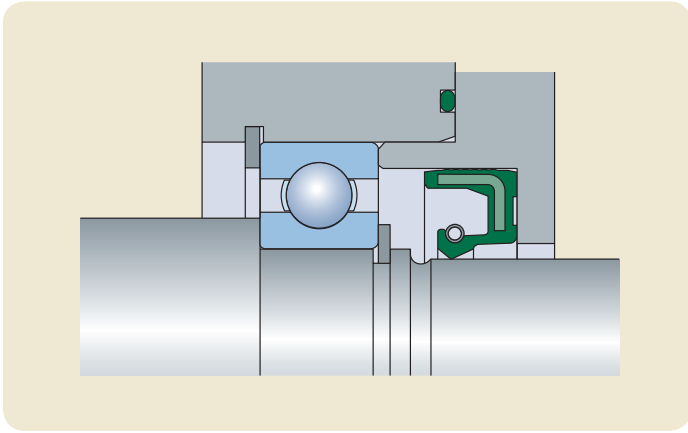


Radial shaft seals HMS5 and HMSA10

- Longer service life
- Improved sealing performance
- Excellent oil compatibility



Installation example



Radial shaft seals

HMS5 and HMSA10

Main features

SKF metric line of rubber outside diameter radial shaft seals, HMS5 and HMSA10, is designed in accordance with ISO 6194-1 and DIN 3760 for use in a wide range of industrial applications (→ **figs. 1** and **2**). The available size range of HMS5 and HMSA10 includes a full coverage of the ISO 6194-1 and DIN 3760 dimensions up to 250 mm shaft sizes. Main features include:

- optimized sealing lip material
- spring-loaded sealing lip
- optimally balanced sealing lip and flex section
- beaded outside diameter
- auxiliary lip (HMSA10 seals only)

Design

The rubber outside diameter provides optimized sealing ability in the housing, also at considerable surface roughness or in split housings.

The beads on the outside diameter provide improved sealing ability and reliable retention in the bore. They also prevent spring-back at installation.

The spring-loaded sealing lip contributes to a quick response in handling dynamic run-out and maintaining the sealing ability, also when sealing lip wear is excessive.

Sealing lip and flex section are optimally balanced to withstand considerable dynamic runout and shaft-to-bore misalignment.

The auxiliary lip on HMSA10 seals is non-contacting, which means that the seals normally can be used at the same speeds as the single-lip HMS5 seals.

Material

Metal insert:

Mild steel

Spring:

Spring steel

Sealing lip and outside diameter:

Acrylonitrile-butadiene (nitrile rubber), hardness 75° Shore A.

The optimized nitrile rubber compound used for the HMS5 and HMSA10 seals has the designation suffix RG. It is the result of developments in seal material research at SKF. Advantages of this material include:

- good resistance to ageing
- excellent compatibility to synthetic oils
- very good pumping ability
- good wear resistance

Pumping ability is defined as the time it takes for the seal to return a certain amount of oil from the air side to the oil side. The micro-structure of the SKF developed nitrile rubber

compound RG promotes rapid pumping of the oil (→ **table 1**).

In **diagram 1**, results from endurance tests show the extended service life of seals made of the optimized nitrile compound RG.

The complete range of HMS5 and HMSA10 seals is also available in a fluoro rubber compound with a stainless steel garter spring. This compound has the designation suffix V and is used in applications where temperatures exceed the limits of nitrile rubber.

Applications and operating conditions

HMS5 and HMSA10 seals are designed for oil or grease lubricated applications with temperatures ranging from -40 to +100 °C (-40 to 210 °F), short-term up to 120 °C (250 °F). The seals are also appropriate for sealing lubricants within a wide range of viscosities.

Circumferential speed:

up to 14 m/s (2 755 ft/min)

Operating pressure:

max 0,03 MPa (5 psi)

These values are the maximum value for each service condition and should not occur together. Consideration should be given as to how the operating conditions affect each other.

Machining directions

Recommendations according to ISO 6194-1 standard

Shaft

Tolerance:

h11

Surface roughness:

R_a 0,2 to 0,5 µm

R_z 1,2 to 3 µm

Hardness:

minimum 45 HRC

Surface texture:

non-oriented, preferably by plunge grinding

Housing bore

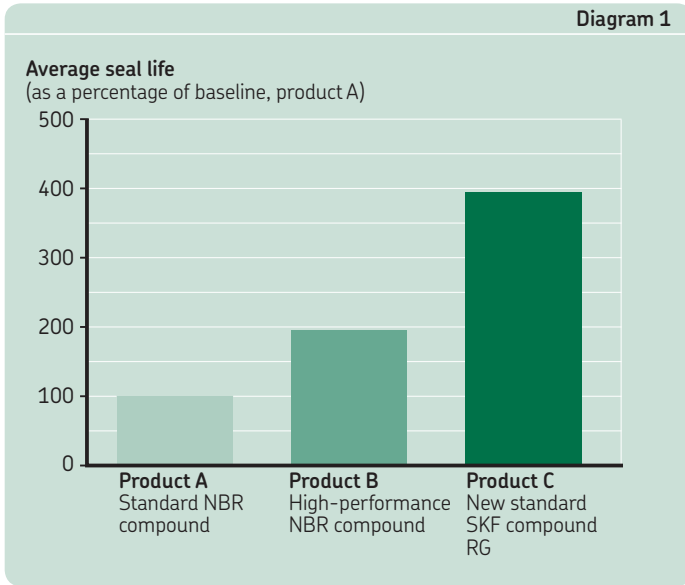
Tolerance:

H8

Surface roughness:

R_a 1,6 to 3,2 µm

R_z 6,3 to 12,5 µm



Endurance test

Table 1

Speed Rotating	Circumferential	Pumping time	
		Standard NBR	SKF compound RG
r/min	m/s	s	
1 000	3,1	–	117
1 500	4,7	280	69
2 000	6,3	186	50
2 500	7,9	130	40
3 000	9,4	102	31
3 500	11,0	82	25
4 000	12,6	68	21
4 500	14,1	57	18

Shaft diameter 60 mm, engine oil SAE 30

Pumping performance

Recommendations according to DIN 3760 standard

Shaft

Tolerance:

h11

Surface roughness:

R_a 0,2 to 0,8 µm

R_z 1 to 5 µm

Hardness:

minimum 45 HRC

Surface texture:

non-oriented, preferably by plunge grinding

Housing bore

Tolerance:

H8

Surface roughness:

R_a 1,6 to 6,3 µm

R_z 10 to 20 µm

Installation

Careful installation according to ISO 6194-3 or DIN 3760 is a prerequisite for proper functioning of the seal.

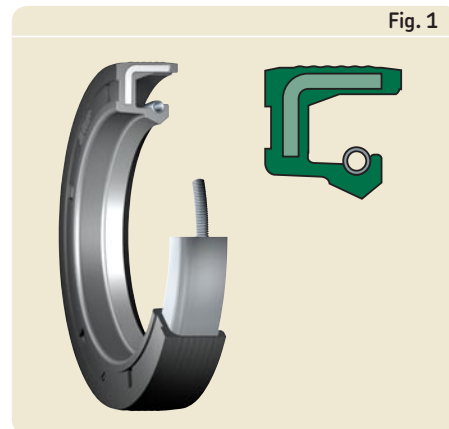
For further details regarding installation of SKF radial shaft seals, please see our catalogue *Industrial shaft seals* or visit the SKF Interactive Engineering Catalogue at skf.com.

SKF recommends the use of HMSA10 seals with an auxiliary lip in applications with

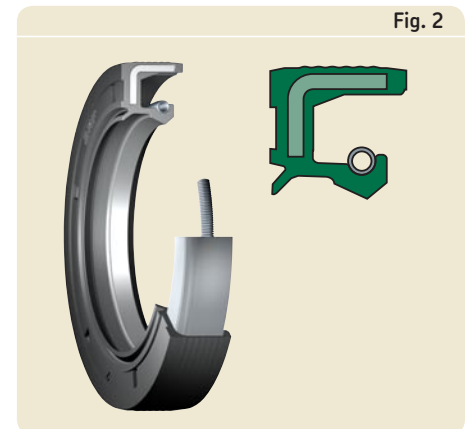
increased demand on protection of the primary lip.

For more information, please contact your local SKF sales representative.

HMS5

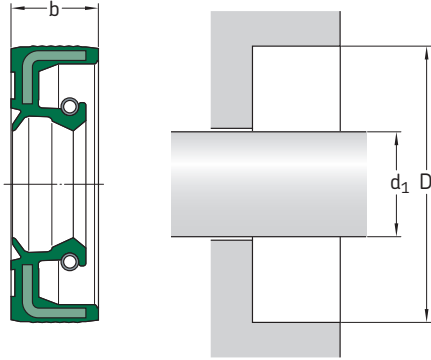


HMSA10



Radial shaft seals – HMS5 and HMSA10

d_1 6 – 27 mm



Dimensions				Designation ¹⁾	ISO/DIN	Dimensions			
Shaft	Bore	Nominal seal width				Shaft	Bore	Nominal seal width	
d_1	D	b			d_1	D	b		
mm			–	–	mm			–	
6	16	5	CR 6×16×5		12	30	7	CR 12×30×7	•
	16	7	CR 6×16×7	•		32	7	CR 12×32×7	
	22	7	CR 6×22×7	•		13	26	7	CR 13×26×7
7	16	7	CR 7×16×7 ²⁾		14		24	7	CR 14×24×7
	22	7	CR 7×22×7	•		25	5	CR 14×25×5	
8	18	5	CR 8×18×5		15	28	7	CR 14×28×7	
	18	7	CR 8×18×7			30	7	CR 14×30×7	•
	22	7	CR 8×22×7	•		15	24	7	CR 15×24×7 ²⁾
24	7	CR 8×24×7	•	25	5		CR 15×25×5		
9	22	7	CR 9×22×7	•	25	6	CR 15×25×6		
10	19	7	CR 10×19×7 ²⁾		26	7	CR 15×26×7	•	
	20	6	CR 10×20×6		30	7	CR 15×30×7	•	
	20	7	CR 10×20×7		32	7	CR 15×32×7		
	22	7	CR 10×22×7	•	35	7	CR 15×35×7	•	
	24	7	CR 10×24×7		40	10	CR 15×40×10		
	25	7	CR 10×25×7	•	16	24	7	CR 16×24×7	
	26	7	CR 10×26×7	•		28	7	CR 16×28×7	
12	19	5	CR 12×19×5 ²⁾		30	7	CR 16×30×7	•	
	22	5	CR 12×22×5		32	7	CR 16×32×7		
	22	6	CR 12×22×6		17	28	7	CR 17×28×7	
	22	7	CR 12×22×7	•		29	5	CR 17×29×5	
	24	7	CR 12×24×7	•					
	25	7	CR 12×25×7	•					
28	7	CR 12×28×7							

¹⁾ To be followed by the design and material codes, indicating one of the four variants available for each dimension:

HMS5 RG without auxiliary lip, nitrile rubber

HMS5 V without auxiliary lip, fluoro rubber

HMSA10 RG with auxiliary lip, nitrile rubber

HMSA10 V with auxiliary lip, fluoro rubber

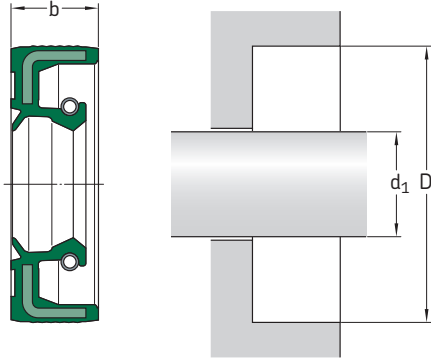
Example: **CR 6×16×5 HMSA10 RG**

²⁾ Design execution differs from the basic design and is indicated by a number, e.g. RG1

Dimensions				Designation ¹⁾	ISO/DIN	Dimensions			
Shaft	Bore	Nominal seal width				Shaft	Bore	Nominal seal width	
d ₁	D	b			d ₁	D	b		
mm				–	–	mm			
17	30	7	CR 17×30×7		22	42	10	CR 22×42×10	
	32	7	CR 17×32×7			47	7	CR 22×47×7	•
	35	7	CR 17×35×7		23	40	10	CR 23×40×10	
	40	7	CR 17×40×7			24	35	7	CR 24×35×7
40	10	CR 17×40×10		37	7		CR 24×37×7		
18	28	7	CR 18×28×7		40	7	CR 24×40×7		
	30	6	CR 18×30×6		42	8	CR 24×42×8		
	30	7	CR 18×30×7	•	47	7	CR 24×47×7		
	32	7	CR 18×32×7		25	35	6	CR 25×35×6	
	35	7	CR 18×35×7	•		35	7	CR 25×35×7	•
40	7	CR 18×40×7		37		5	CR 25×37×5		
19	30	7	CR 19×30×7		37	6	CR 25×37×6		
	30	8	CR 19×30×8		37	7	CR 25×37×7		
	32	7	CR 19×32×7		38	7	CR 25×38×7		
20	42	6	CR 19×42×6		40	5	CR 25×40×5		
	30	5	CR 20×30×5		40	7	CR 25×40×7	•	
	30	7	CR 20×30×7	•	40	8	CR 25×40×8		
	32	6	CR 20×32×6		40	10	CR 25×40×10		
	32	7	CR 20×32×7		42	6	CR 25×42×6		
	34	7	CR 20×34×7		42	7	CR 25×42×7		
	35	6	CR 20×35×6		42	10	CR 25×42×10		
	35	7	CR 20×35×7	•	45	7	CR 25×45×7		
	35	8	CR 20×35×8		45	8	CR 25×45×8		
	35	10	CR 20×35×10		45	10	CR 25×45×10		
	36	7	CR 20×36×7		46	7	CR 25×46×7		
	38	7	CR 20×38×7		47	7	CR 25×47×7	•	
40	7	CR 20×40×7		47	10	CR 25×47×10			
40	10	CR 20×40×10	•	50	10	CR 25×50×10			
42	7	CR 20×42×7		52	7	CR 25×52×7	•		
42	10	CR 20×42×10		52	8	CR 25×52×8			
47	7	CR 20×47×7		52	10	CR 25×52×10			
47	10	CR 20×47×10		62	7	CR 25×62×7			
52	7	CR 20×52×7		62	8	CR 25×62×8			
52	10	CR 20×52×10		62	10	CR 25×62×10			
21	35	7	CR 21×35×7		72	7	CR 25×72×7		
	40	7	CR 21×40×7		26	37	7	CR 26×37×7	
40	7	CR 21×40×7		38		5	CR 26×38×5		
22	32	7	CR 22×32×7		38	7	CR 26×38×7		
	35	7	CR 22×35×7	•	42	7	CR 26×42×7		
	36	7	CR 22×36×7		47	7	CR 26×47×7		
	38	8	CR 22×38×8		27	37	7	CR 27×37×7	
	40	7	CR 22×40×7	•		42	10	CR 27×42×10	
	40	10	CR 22×40×10			43	7	CR 27×43×7	
40	10	CR 22×40×10		47		10	CR 27×47×10		

Radial shaft seals – HMS5 and HMSA10

d₁ 28 – 42 mm



Dimensions				Designation ¹⁾	ISO/DIN	Dimensions					
Shaft	Bore	Nominal seal width				Shaft	Bore	Nominal seal width			
d ₁	D	b			d ₁	D	b				
mm			–	–	mm			–			
28	38	7	CR 28×38×7		30	52	7	CR 30×52×7	•		
	38	8	CR 28×38×8			52	8	CR 30×52×8			
	40	7	CR 28×40×7	•		52	10	CR 30×52×10			
	40	8	CR 28×40×8			55	7	CR 30×55×7			
	42	7	CR 28×42×7			55	10	CR 30×55×10			
	42	8	CR 28×42×8			62	7	CR 30×62×7			
	44	6	CR 28×44×6			62	10	CR 30×62×10			
	45	8	CR 28×45×8			72	10	CR 30×72×10			
	47	7	CR 28×47×7	•		32	42	7	CR 32×42×7		
	47	10	CR 28×47×10				43	7	CR 32×43×7		
	52	7	CR 28×52×7	•			44	7	CR 32×44×7		
	52	10	CR 28×52×10				45	7	CR 32×45×7	•	
	30	40	7	CR 30×40×7			•	45	8	CR 32×45×8	•
		42	6	CR 30×42×6				47	6	CR 32×47×6	
42		7	CR 30×42×7	•	47		7	CR 32×47×7	•		
42		8	CR 30×42×8		47		8	CR 32×47×8	•		
44		7	CR 30×44×7		47		10	CR 32×47×10			
45		7	CR 30×45×7		48		8	CR 32×48×8			
45		8	CR 30×45×8		50	8	CR 32×50×8				
46		7	CR 30×46×7		50	10	CR 32×50×10				
47		6	CR 30×47×6		52	7	CR 32×52×7	•			
47		7	CR 30×47×7	•	52	8	CR 32×52×8	•			
47		8	CR 30×47×8		55	10	CR 32×55×10				
47		10	CR 30×47×10		62	10	CR 32×62×10				
48		8	CR 30×48×8		72	7	CR 32×72×7				
50		7	CR 30×50×7		33	45	7	CR 33×45×7			
50	8	CR 30×50×8		50		6	CR 33×50×6				
50	10	CR 30×50×10									

¹⁾ To be followed by the design and material codes, indicating one of the four variants available for each dimension:

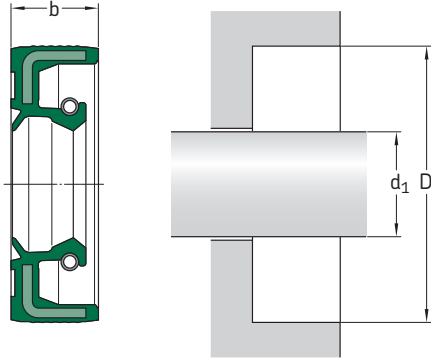
- HMS5 RG without auxiliary lip, nitrile rubber
- MS5 V without auxiliary lip, fluoro rubber
- HMSA10 RG with auxiliary lip, nitrile rubber
- HMSA10 V with auxiliary lip, fluoro rubber

Example: CR 28×38×7 HMSA10 RG

Dimensions			Designation ¹⁾	ISO/DIN	Dimensions			Designation ¹⁾	ISO/DIN
Shaft	Bore	Nominal seal width			Shaft	Bore	Nominal seal width		
d ₁	D	b				b			
mm			–	–	mm		–	–	
34	44	8	CR 34x44x8		38	60	10	CR 38x60x10	
	48	8	CR 34x48x8			62	7	CR 38x62x7	•
	52	8	CR 34x52x8			62	8	CR 38x62x8	•
	62	10	CR 34x62x10			62	10	CR 38x62x10	
35	45	7	CR 35x45x7		72	10	CR 38x72x10		
	47	6	CR 35x47x6		38,5	58	7	CR 38.5x58x7	
	47	7	CR 35x47x7	•		40	50	8	CR 40x50x8
	47	8	CR 35x47x8	•	52		6	CR 40x52x6	
	48	8	CR 35x48x8		52	7	CR 40x52x7	•	
	49	6	CR 35x49x6		52	8	CR 40x52x8	•	
	50	7	CR 35x50x7	•	55	7	CR 40x55x7	•	
	50	8	CR 35x50x8	•	55	8	CR 40x55x8	•	
	50	10	CR 35x50x10		56	8	CR 40x56x8		
	52	7	CR 35x52x7	•	58	7	CR 40x58x7		
	52	8	CR 35x52x8	•	58	8	CR 40x58x8		
	52	10	CR 35x52x10		58	10	CR 40x58x10		
	55	7	CR 35x55x7	•	60	8	CR 40x60x8		
	55	8	CR 35x55x8	•	60	10	CR 40x60x10		
	55	10	CR 35x55x10		62	6	CR 40x62x6		
	56	10	CR 35x56x10		62	7	CR 40x62x7	•	
	58	10	CR 35x58x10		62	8	CR 40x62x8	•	
	60	10	CR 35x60x10		62	10	CR 40x62x10		
	62	7	CR 35x62x7		65	10	CR 40x65x10		
	62	8	CR 35x62x8		65	12	CR 40x65x12		
62	10	CR 35x62x10		68	8	CR 40x68x8			
72	10	CR 35x72x10		68	10	CR 40x68x10			
72	12	CR 35x72x12		70	8	CR CR 40x70x8			
80	12	CR 35x80x12		72	7	CR 40x72x7			
36	47	7	CR 36x47x7		72	10	CR 40x72x10		
	50	7	CR 36x50x7		80	10	CR 40x80x10		
	52	7	CR 36x52x7		80	12	CR 40x80x12		
	58	10	CR 36x58x10		90	10	CR 40x90x10		
37	62	7	CR 36x62x7		41	56	7	CR 41x56x7	
	50	6	CR 37x50x6			42	55	7	CR 42x55x7
	50	7	CR 38x50x7		55		8	CR 42x55x8	•
38	52	7	CR 38x52x7		56	7	CR 42x56x7		
	52	8	CR 38x52x8		60	7	CR 42x60x7		
	54	10	CR 38x54x10		62	7	CR 42x62x7		
	55	7	CR 38x55x7	•	62	8	CR 42x62x8	•	
	55	8	CR 38x55x8	•	62	10	CR 42x62x10		
	55	10	CR 38x55x10		65	10	CR 42x65x10		
	58	8	CR 38x58x8	•	65	12	CR 42x65x12		
	58	10	CR 38x58x10		66	10	CR 42x66x10		
					67	10	CR 42x67x10		
					72	8	CR 42x72x8		
					72	10	CR 42x72x10		

Radial shaft seals – HMS5 and HMSA10

d₁ 43 – 80 mm



Dimensions				Designation ¹⁾	ISO/DIN	Dimensions			
Shaft	Bore	Nominal seal width				Shaft	Bore	Nominal seal width	
d ₁	D	b			d ₁	D	b		
mm			–	–	mm			–	
43	62	8	CR 43×62×8		47	65	10	CR 47×65×10	
44	60	10	CR 44×60×10			70	10	CR 47×70×10	
	62	10	CR 44×62×10		48	62	8	CR 48×62×8	•
	65	10	CR 44×65×10			65	10	CR 48×65×10	
45	55	7	CR 45×55×7			68	10	CR 48×68×10	
	58	7	CR 45×58×7			70	10	CR 48×70×10	
	60	7	CR 45×60×7			72	7	CR 48×72×7	
	60	8	CR 45×60×8	•		72	8	CR 48×72×8	
	60	10	CR 45×60×10			72	10	CR 48×72×10	
	62	7	CR 45×62×7		50	62	7	CR 50×62×7	
	62	8	CR 45×62×8	•		64	6	CR 50×64×6	
	62	10	CR 45×62×10			65	8	CR 50×65×8	•
	65	8	CR 45×65×8	•		65	10	CR 50×65×10	
	65	10	CR 45×65×10			68	7	CR 50×68×7	
	68	7	CR 45×68×7			68	8	CR 50×68×8	•
	68	10	CR 45×68×10			68	10	CR 50×68×10	
	68	12	CR 45×68×12			70	10	CR 50×70×10	
	72	8	CR 45×72×8			72	8	CR 50×72×8	•
	72	10	CR 45×72×10			72	10	CR 50×72×10	
	75	8	CR 45×75×8			72	12	CR 50×72×12	
	75	10	CR 45×75×10			75	10	CR 50×75×10	
	80	10	CR 45×80×10			80	8	CR 50×80×8	
	85	10	CR 45×85×10			80	10	CR 50×80×10	
	100	10	CR 45×100×10			85	10	CR 50×85×10	
46	59	12	CR 46×59×12			90	10	CR 50×90×10	
	65	10	CR 46×65×10						

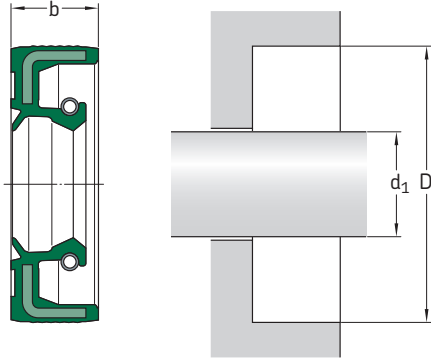
¹⁾ To be followed by the design and material codes, indicating one of the four variants available for each dimension:

HMS5 RG without auxiliary lip, nitrile rubber
HMS5 V without auxiliary lip, fluoro rubber
HMSA10 RG with auxiliary lip, nitrile rubber
HMSA10 V with auxiliary lip, fluoro rubber
Example: CR 44×60×10 HMSA10 RG

Dimensions			Designation ¹⁾	ISO/DIN	Dimensions			Designation ¹⁾	ISO/DIN
Shaft	Bore	Nominal seal width			Shaft	Bore	Nominal seal width		
d ₁	D	b				b			
mm			–	–	mm		–	–	
52	63	8	CR 52×63×8		62	90	10	CR 62×90×10	
	65	8	CR 52×65×8			63	85	10	CR 63×85×10
52	68	8	CR 52×68×8				90	10	CR 63×90×10
	72	8	CR 52×72×8		64	80	8	CR 64×80×8	
72	10	CR 52×72×10		65		80	8	CR 65×80×8	
	80	10	CR 52×80×10				85	8	CR 65×85×8
	85	10	CR 52×85×10			85	10	CR 65×85×10	•
55	68	8	CR 55×68×8			85	12	CR 65×85×12	
	70	8	CR 55×70×8	•		88	12	CR 65×88×12	
	70	10	CR 55×70×10			90	10	CR 65×90×10	•
	72	8	CR 55×72×8	•		95	10	CR 65×95×10	
	72	10	CR 55×72×10			100	10	CR 65×100×10	
	75	10	CR 55×75×10		68	90	10	CR 68×90×10	
	78	10	CR 55×78×10			70	85	8	CR 70×85×8
	78	12	CR 55×78×12				90	10	CR 70×90×10
	80	8	CR 55×80×8	•		90	12	CR 70×90×12	
	80	10	CR 55×80×10			92	12	CR 70×92×12	
	85	8	CR 55×85×8			95	10	CR 70×95×10	•
	85	10	CR 55×85×10			100	10	CR 70×100×10	
	90	10	CR 55×90×10			110	10	CR 70×110×10	
	100	12	CR 55×100×12			110	12	CR 70×110×12	
56	72	8	CR 56×72×8		72	90	10	CR 72×90×10	
57	67	7	CR 57×67×7				95	10	CR 72×95×10
58	72	8	CR 58×72×8			100	10	CR 72×100×10	
	80	8	CR 58×80×8		75	90	10	CR 75×90×10	
80	10	CR 58×80×10				95	10	CR 75×95×10	•
	80	12	CR 58×80×12			95	12	CR 75×95×12	
60	72	8	CR 60×72×8			100	10	CR 75×100×10	•
	75	8	CR 60×75×8	•		100	12	CR 75×100×12	
	80	8	CR 60×80×8	•		105	10	CR 75×105×10	
	80	10	CR 60×80×10			110	12	CR 75×110×12	
	82	12	CR 60×82×12			120	12	CR 75×120×12	
	85	8	CR 60×85×8	•	78	100	10	CR 78×100×10	
	85	10	CR 60×85×10			80	95	10	CR 80×95×10
	90	8	CR 60×90×8				100	10	CR 80×100×10
	90	10	CR 60×90×10			100	12	CR 80×100×12	
	95	10	CR 60×95×10			105	10	CR 80×105×10	
	100	10	CR 60×100×10		62	80	10	CR 80×110×10	•
	110	8	CR 60×110×8				110	12	CR 80×110×12
62	80	10	CR 62×80×10			115	12	CR 80×115×12	
	85	10	CR 62×85×10						

Radial shaft seals – HMS5 and HMSA10

d₁ 85 – 250 mm



Dimensions				Designation ¹⁾	ISO/DIN	Dimensions			
Shaft	Bore	Nominal seal width				Shaft	Bore	Nominal seal width	
d ₁	D	b			d ₁	D	b		
mm			–	–	mm			–	
85	100	10	CR 85×100×10			150	12	CR 110×150×12	
	105	12	CR 85×105×12		115	140	12	CR 115×140×12	•
	110	12	CR 85×110×12	•		150	12	CR 115×150×12	
	115	12	CR 85×115×12		120	140	12	CR 120×140×12	
	120	12	CR 85×120×12	•		150	12	CR 120×150×12	•
	130	12	CR 85×130×12			160	12	CR 120×160×12	
90	110	10	CR 90×110×10		125	150	12	CR 125×150×12	•
	110	12	CR 90×110×12	•	130	160	12	CR 130×160×12	•
	115	12	CR 90×115×12			160	15	CR 130×160×15	•
	120	12	CR 90×120×12	•	135	170	12	CR 135×170×12	•
95	115	12	CR 95×115×12		140	160	12	CR 140×160×12	
	120	12	CR 95×120×12	•		170	12	CR 140×170×12	•
	125	12	CR 95×125×12	•		170	15	CR 140×170×15	
100	120	10	CR 100×120×10			180	12	CR 140×180×12	
	120	12	CR 100×120×12	•	145	175	15	CR 145×175×15	•
	125	12	CR 100×125×12	•	148	170	15	CR 148×170×15	
	130	12	CR 100×130×12	•	150	180	12	CR 150×180×12	
	140	12	CR 100×140×12			180	15	CR 150×180×15	•
	150	12	CR 100×150×12		155	180	15	CR 155×180×15	
					160	185	15	CR 160×185×15	
105	130	12	CR 105×130×12	•		190	15	CR 160×190×15	•
	140	12	CR 105×140×12						
110	130	12	CR 110×130×12	•	165	190	15	CR 165×190×15	
	140	12	CR 110×140×12	•	170	200	15	CR 170×200×15	•

¹⁾ To be followed by the design and material codes, indicating one of the four variants available for each dimension:

HMS5 RG without auxiliary lip, nitrile rubber
HMS5 V without auxiliary lip, fluoro rubber
HMSA10 RG with auxiliary lip, nitrile rubber
HMSA10 V with auxiliary lip, fluoro rubber
Example: CR 90×110×10 HMSA10 RG

Dimensions			Designation ¹⁾	ISO/DIN
Shaft	Bore	Nominal seal width		
d_1	D	b		
mm			–	–
180	210	15	CR 180×210×15	•
190	220	15	CR 190×220×15	•
	225	15	CR 190×225×15	
200	230	15	CR 200×230×15	•
210	240	15	CR 210×240×15	•
220	250	15	CR 220×250×15	•
230	260	15	CR 230×260×15	•
240	270	15	CR 240×270×15	•
250	280	15	CR 250×280×15	•
	285	15	CR 250×285×15	



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