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Dina Seal (HW 500)

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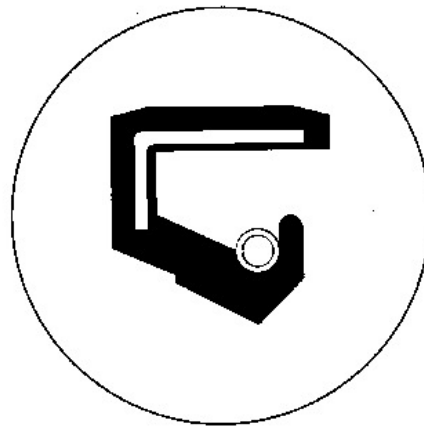
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Example for ordering

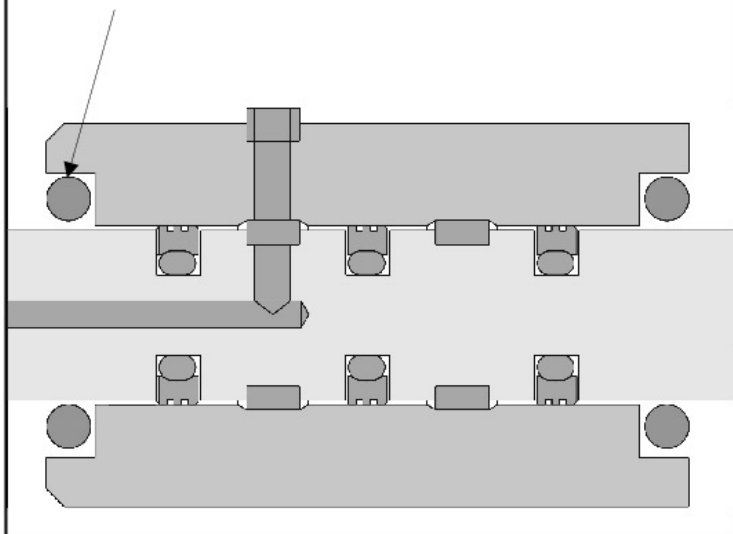
Shaft seal is an indispensable component for packing / sealing of rotary shafts in many machine construction applications. A careful choice with regards to the proper form and suitable material ensures long service life and safe functioning of the component.

Special Features:

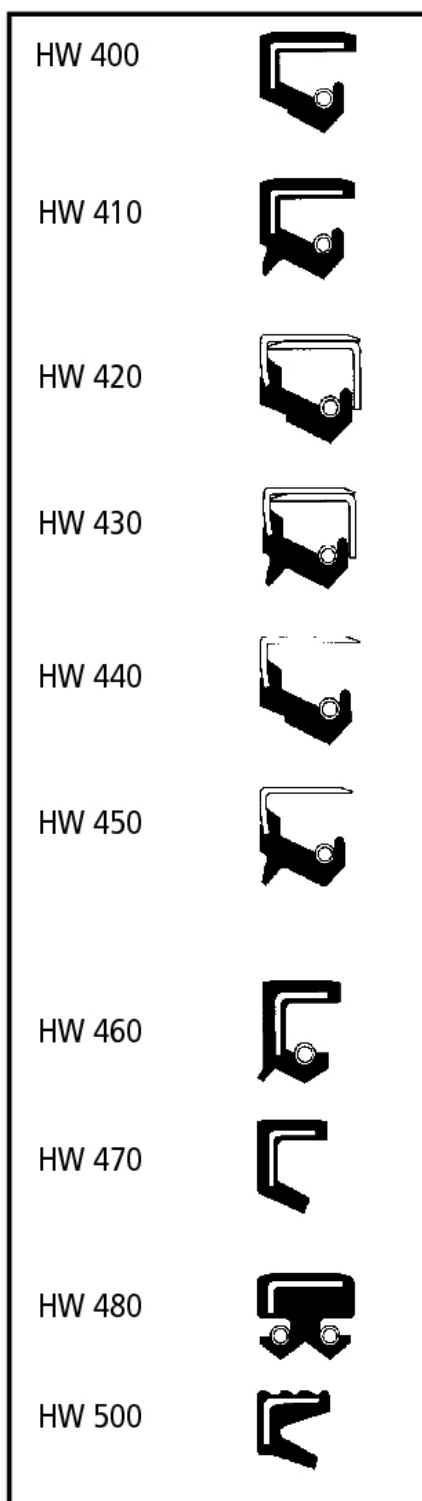
- Good wear resistance, low friction
- small housings and easy to produce
- Wide choice of sizes and forms
- High rotational velocity possible
- Many sizes also available in FPM and silicones
- Niro Steel springs for special applications also available



Material	: Rubber elastomer / metal combination
Operational pressure	: up to 0.8 Mpa (8 bar) as per construction
Velocity	: rotary to 38 m/s (depending on material)
Temperature	: -60° C up to +220° C (depending on material)



Standard Types of shaft seals (as per DIN 3760)



A	(HW400)	Vulcanised metal cage sealing lip with draw spring
AS	(HW410)	Vulcanised metal cage sealing lip with draw spring and additional dust lip
C	(HW420)	Metallic housing with reinforcing / stiffening cover / cap sealing lip with draw spring
CS	(HW430)	Metallic housing with reinforcing / stiffening cover / cap sealing lip with draw spring and additional dust lip
B	(HW440)	Metallic housing sealing lip with draw spring
BS	(HW450)	Metallic housing sealing lip with draw spring and additional dust lip

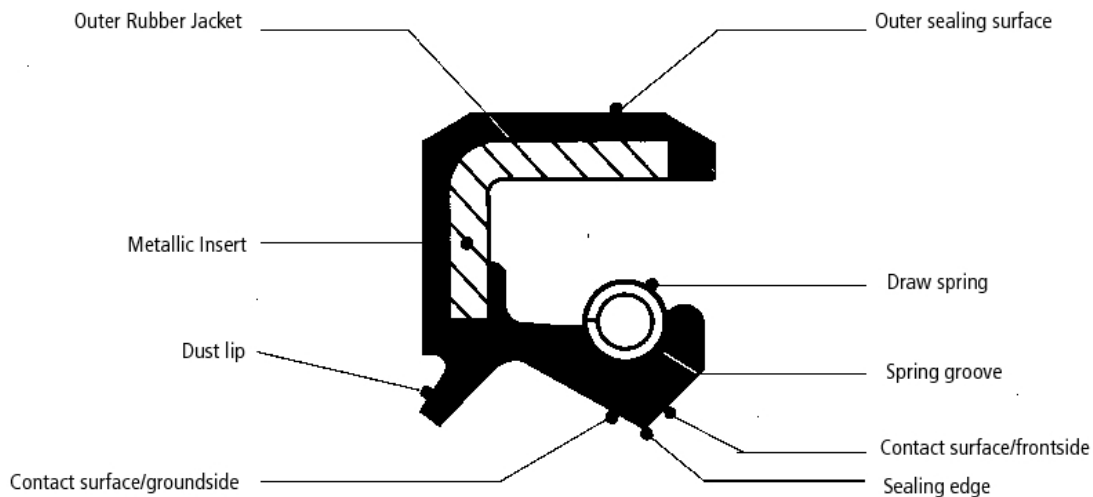
Further Types -----:

P	(HW460)	Vulcanised metal cage reinforced sealing lip for excess pressure and additional dust lip
O	(HW470)	Vulcanised metal cage sealing lip without draw spring
DUO	(HW480)	Vulcanised metal cage twin sealing lip with draw springs
DINA	(HW500)	Radial wiper / shaft seal without draw spring

For special purpose applications, radial shaft seals with hydrodynamic right, left or variable twist / turn on the sealing lip can also be supplied. Please enquire our customer support department to assistent you.

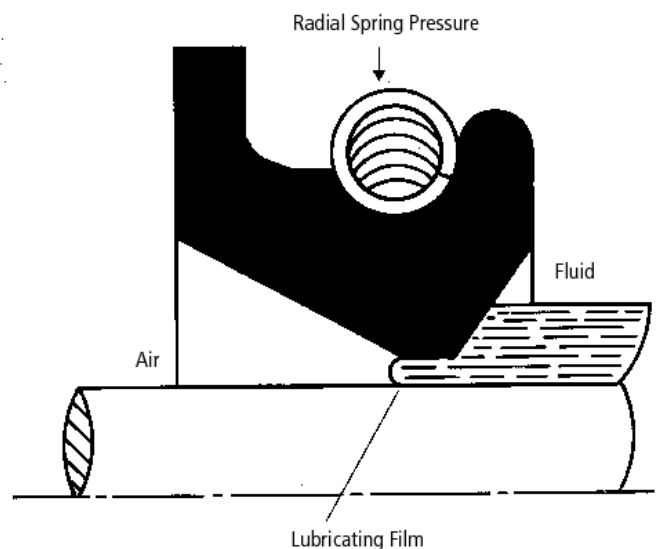
2. Technical Data

2.1. Description of Rotary Shaft Seals



2.2 Functional Principle

The space between the sealing lip and the shaft is very important. Sealing effect is achieved through pre/stressing of the sealing lip, in that the internal diameter of the sealing lip is chosen to be slightly smaller than the shaft diameter. The draw spring provides for constant pressure maintains radial pressure on the shaft thus the sealing edge is flattened to a certain width. A thin fluid films builds up under the flattened area, obtained. Its thickness (film) should be 1 to 3 μm to avoid leakage. The lubricating film works as an interface between the external air and the fluid. A fissure in this film of lubricant leads to leakage. Thus can occur if the shaft causes cracks in sealing surface / area (see drawing)



2.3. Metallic Housing

Metal inserts or the housing are used to impart stability and strength to the seal. They are usually made from cold rolled steel as per DIN 1624.

To avoid rusting and chemical attack, stainless steel can be used.

- Chromium-Nickel AISI 304 (DIN 1.4301 - V2A)
- Chromium-Nickel-Molybdän AISI 316 TI (DIN 1.4401 - V4A)

2.4. Draw Spring

This serves to maintain the radial force that is exercising by the sealing lip on the shaft surface. It is usually made from harmonic spring steel wire C 72 or stainless Chromium/Nickel steel wire AISI 302 (DIN 1.4300)

For special purpose applications, stainless steel springs in AISI 316 TI (DIN 1.401 - V4A) are also supplied.

All our standard shaft seals produced from FPM (Viton) material are provided with stainless steel springs as per AISI 302

2.5. Elastomeric Sealants

2.5.1 Nitrile Rubber NBR (HME-material-no. 100)

This elastomer is a copolymer of butadiene and acrylonitrile and is used in conventional applications.

Physical data:

- Operational temperature : -40 °C up to +120 °C (+90 °C in water)
- Tensile strength : to 15 Mpa
- Standard colour : black

Advantages:

- Good resistance to mineral oils and lubricating greases
- Good resistance to water and coolants
- High resistance to cracking

Limitations:

- Low resistance to mixed hypoid oils
- Low resistance to oxygen, weathering and sunlight
- Low resistance to polar fluids like Ketone, Ethers and Esters
- Low resistance to chlorine containing hydro carbons like Tetrachloride, Trichlorethylene)
- Low resistance to aromatic solvents
- No resistance to truck brake oils (based with glycol)

2.5.2 Fluoro elastomers / Rubber FPM (HME-material-no. 120)

Mainly known by trade names such as VITON from DUPONT, TECHNOFLON from MONTEDISON and FLUOREL from 3M. It possesses good chemical resistance and is recommended for high temperature use.

Physical data:

- Operational temperature : -30 °C up to +200 °C
- Tensile strength : to 15 Mpa
- Standard colour : brown

Advantages:

- Outstanding resistance to mineral oils and strongly mixed hypoid oils
- Outstanding resistance to acids

- Outstanding resistance to aromatic and chlorine containing hydrocarbons.
- Outstanding resistance to ageing, oxygen and weathering.

Limitations:

- Restricted low temperature flexibility
- Low resistance to polar fluids such as Ketones, Ethers, Esters)

2.5.3 Silicone Rubber SIL (HME-material-no. 180)

Also known as MVQ

Physical data:

- Operational temperature : -60 °C up to +220 °C
- Tensile strength : to 3-7 Mpa
- Standard colour : red

Advantages:

- Retains flexibility even at low (very low) temperatures
- Withstands continued heating even at very high temperatures without hardening
- Resistant to mineral oils and lubricant greases
- Outstanding resistance to ageing, weathering and oxygen
- Good alkali resistance

Limitations:

- Not recommended for use with hydrocarbons such as fuels or paraffins, light petroleum oils and steam pressure above 3,5 bar.
- Not resistant to hot water, acids and non mineral truck brake fluids
- Low tensile and cracking resistance
- Poor resistance to wear and tear

3. Mounting and Operating

3.1. Shaft

Shaft surface finish is extremely important for effective sealing and longer service life. Basically, surface hardness of the (running) face must increase with increasing peripheral velocity of shaft.

As per DIN 3760 the requisite minimal hardness should be 45 HRC. This hardness should be 55 HRC at 4 m/s and 60 HRC at 10 m/s. Lubrication is also very important. This is discussed further part 3.3 of this catalogue. As specified by DIN 3760, surface finish must be friction and cause higher temperatures. Errors in workmanship and fabrication, scratches on shaft must be avoided.

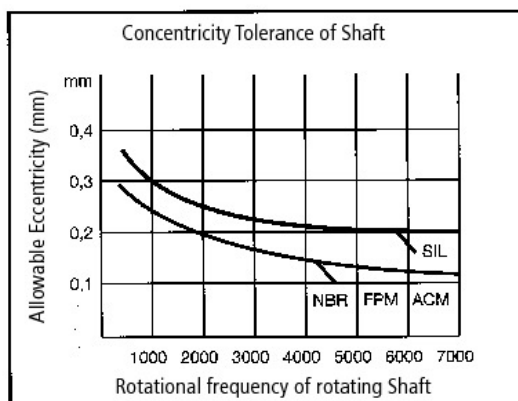
Even small defects may contribute to increase in lubricant film thickness, causing leakage. It is important to avoid parallel chamfering. This can cause pump effect and leakage.

Hardened steel is most commonly used for shafts. Process tolerance is h11 in accordance with ISO STANDARD UNI-6388-68 (see table).

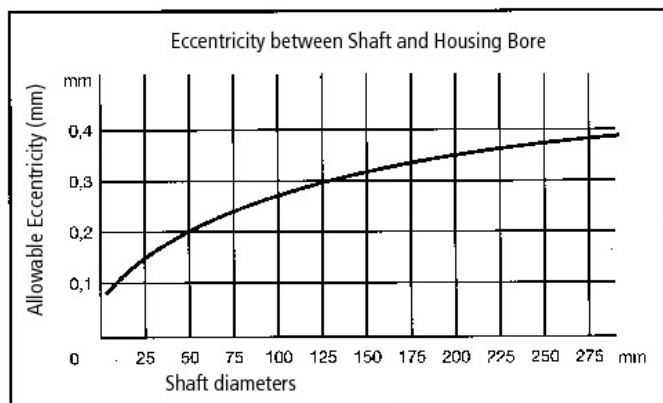
Shaft diameter		Tolerance
from (mm)	to (mm)	h11
6	10	0,000 - 0,090
10	18	0,000 - 0,110
18	30	0,000 - 0,130
30	50	0,000 - 0,160
50	80	0,000 - 0,190

Shaft diameter		Tolerance
from (mm)	to (mm)	h11
80	120	0,000 - 0,220
120	180	0,000 - 0,250
180	250	0,000 - 0,290
250	315	0,000 - 0,320
315	400	0,000 - 0,360

The most convenient operational conditions are those, when the shaft is perfectly centered and concentric with respect to the axis of the radial shaft seal, while turning. Naturally, this does not always occur and some radial run-out is inevitable. This should be minimized since there is a danger, particularly at high temperatures, that the sealing edge cannot follow the shaft on account of its inertia.



It is therefore important to place the shaft seal in immediate XXXXXX of the bearing and to keep the bearing clearance as small as possible. Eccentricity between shaft and housing bore should be as low as possible. This significantly reduces unilateral loading / stress (wear) of the sealing lip.



3.2. Housing Bore

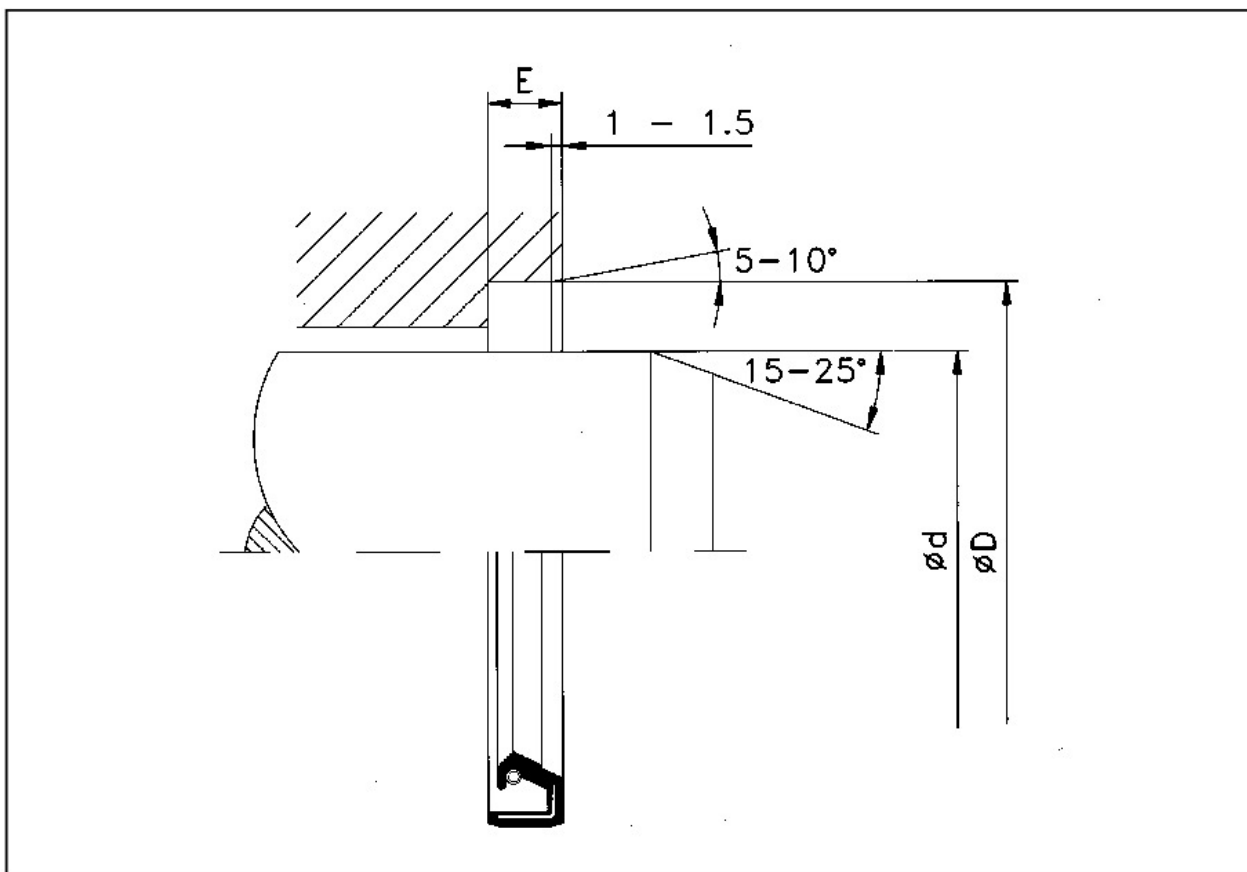
Good pressfit of shaft seal in the housing bore is of extreme importance.

For bore diameter, the tolerance zone / clearance space H8 is preferred as per ISO Standard UNI-6388-68 (See table)

Bore diameter from (mm) to (mm)		Tolerance H 8
10	18	+0,027 0,000
18	30	+0,033 0,000
30	50	+0,039 0,000
50	80	+0,046 0,000
80	120	+0,054 0,000

Bore diameter von (mm) bis (mm)		Tolerance H 8
120	180	+0,063 0,000
180	250	+0,072 0,000
250	315	+0,081 0,000
315	400	+0,081 0,000

As per DIN 3760, maximal surface roughness (peak to valley distance) $R_t = 16 \mu\text{m}$. We recommend a stopper or safety ring, against which the seal can be fixed. If this is not possible, care should be taken that the seal is in alignment with the axis of shaft. To simplify assembly, the housing should be bevelled between 5° and 10° on the front face - with a depth of 1 mm for rings up to 10 mm thickness - and a depth between 1.2 - 1.5 mm for rings than 10 mm. On the front face, the shaft must also exhibit a bevel with an angle of 15° - 25° with rounded and polished transition.

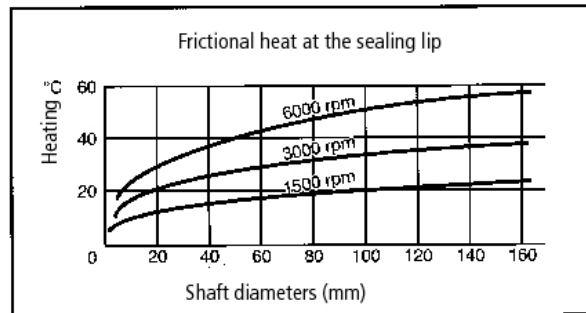


3.3 Lubrication

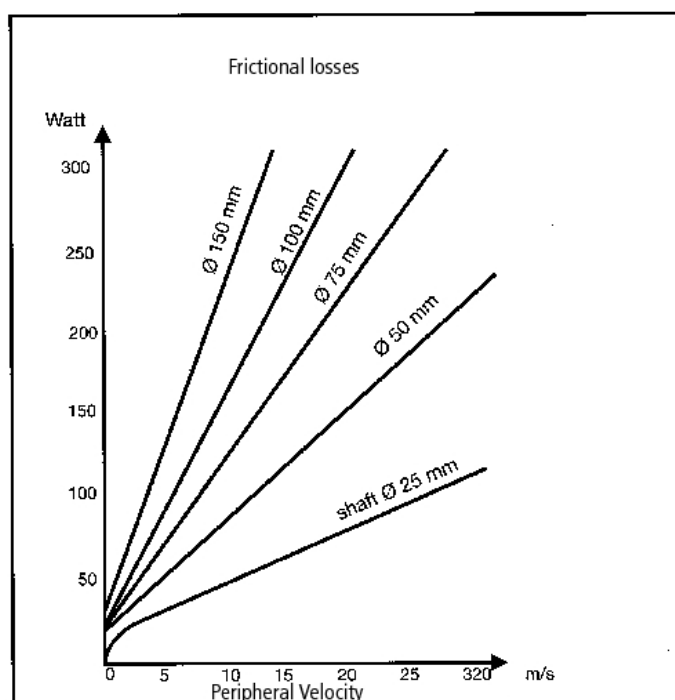
Lubrication is very important for proper functioning of the seal. Actually, the sealing lip does not move directly on the sealing surface but it moves on a so called lubricating film. (see par. 2.2) Film thickness usually is 1-3 μm though it is influenced by various factors such as oil viscosity, surface finish of shaft and pre-stressing of seal. The first few hours of operation (run in operation) are important from the view point of lubricant film build up and also the flattening of the sealing edge that occurs.

Certain amount of leakage is possible during this period of time.

An adequate lubricating film strongly reduces the friction between sealing lip and shaft and also acts as coolant against the resulting heat. The lower this temperature, the longer the life of the seal and its endurance. If the liquid possesses merely a low lubricity (like water and aqueous solutions) a shaft sealing system with dust lip (AS, BS, or CS) needs to be used. In this case, take care that the space between the two lips is filled with lubricating grease.



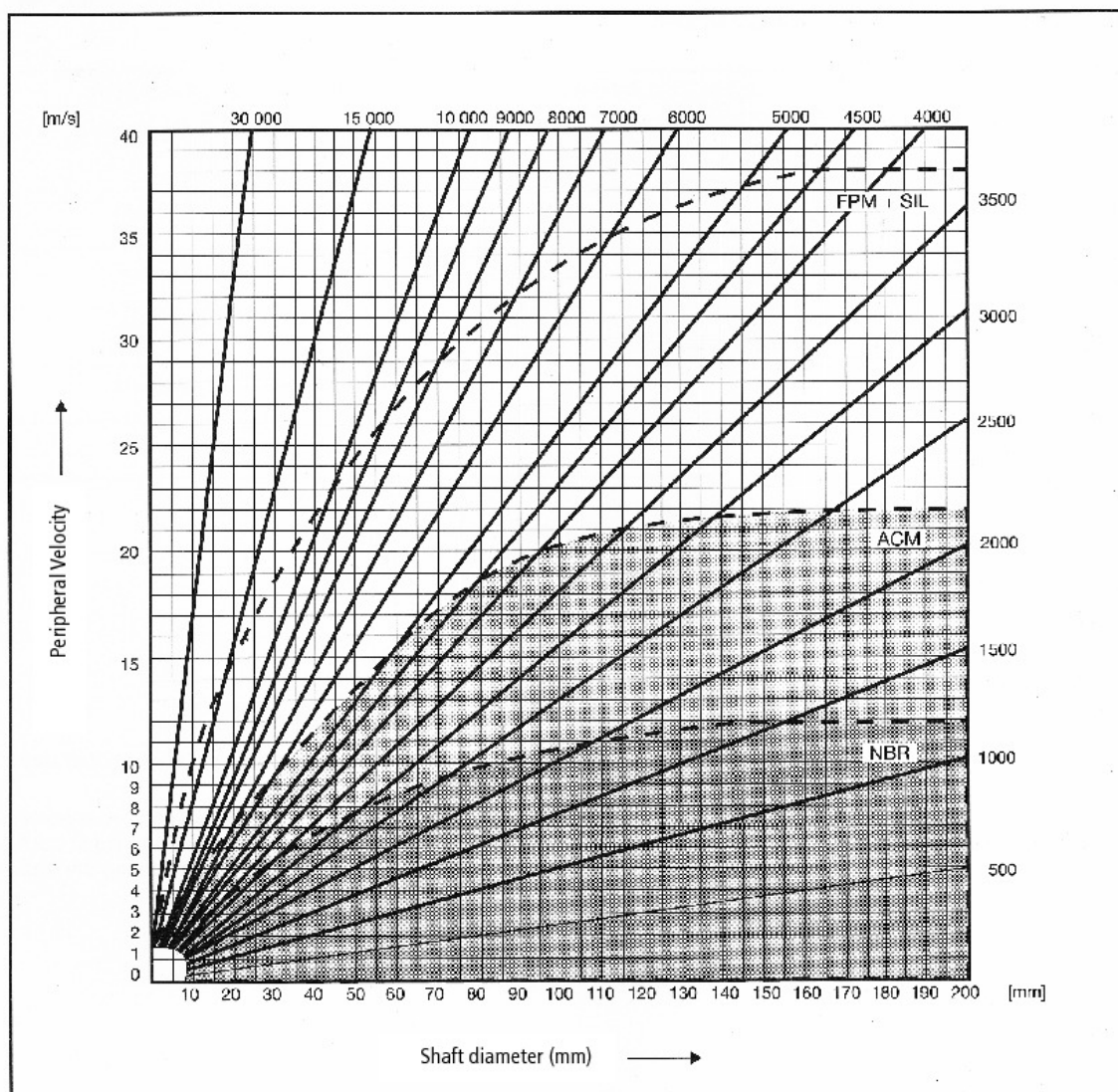
Frictional heat also depends on peripheral velocity of shaft. Friction will not merely harm the sealing lip material but can also lead to frictional losses. When only small forces are being transmitted, this can have an adverse effect.



3.4. Temperature

Temperature at the sealing lip is the temperature of the medium due to frictional heat. The higher the actual service temperature, the faster the ageing process of the elastomer which also influences the function of the sealing lip and shaft surface.

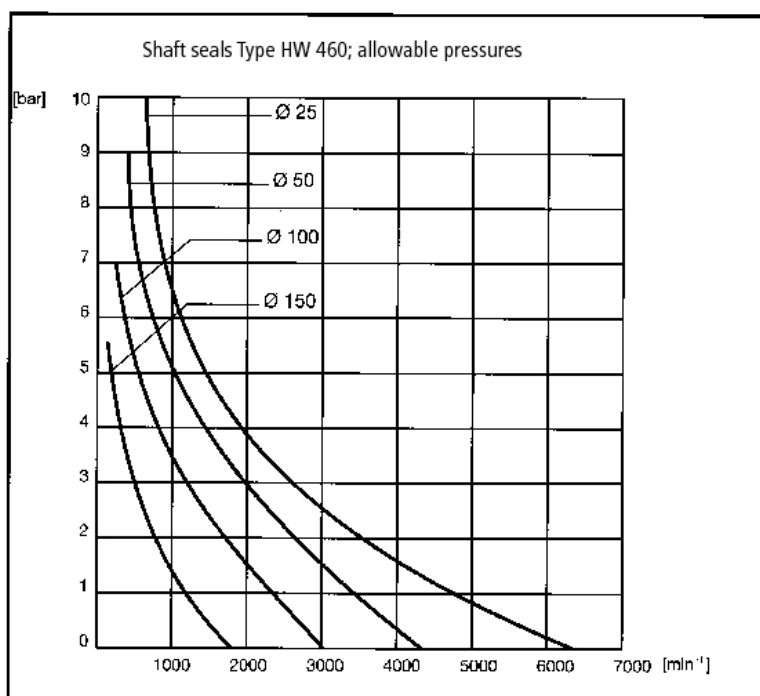
Frictional heat depends on peripheral velocity, pre-stressing on the sealing lip, surface finish of shaft, lubricant medium etc. The graph below shows allowable values with reference to various materials. (Depressurised operation, mineral oil with good lubricity and good thermal dissipation.)



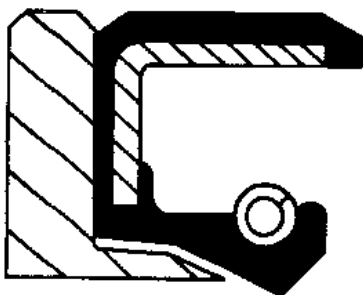
3.5 Pressure

Differential pressure is zero or minimal for most applications. Where the radial shaft seals is subject to pressure, the sealing lip is pressed against the shaft leading to increased temperature. In most cases, increase in temperature can cause the sealing lip to turn around on axis.

At over 0.2 bar and high RPM or at over 0.5 bar and low RPM , back rings or specially developed radial shaft seals with thick duet lips and supported metal inserts need to be used. In the last case, we refer to our P-typ (HW 460) Inspite of this and the shaft seals of type P, the allowable excess presssure is limited.



On inquiry, we can supply shaft seals that have a specially reinforced sealing lip. These can withstand pressures above the allowable limit given. Standard sizes of radial shaft seals can be used when back rings are assembled. Back rings are costly and the necessary mounting space may not be always available. Many times, back rings cannot be used since they require very careful assembly and a very low radial run out.



Specially develeoped radial shaft seals (P-types) are preferred here, when a more careful assembly and a lower radial run-out than the normal is required.

4. Production and Quality Assurance

Radial rotary shaft seals are manufactured according to German Standard DIN 3760 and Quality assurance standards ISO 9000 ff.

All production phases are checked and all measurements are recorded and stored for eventual tracing.

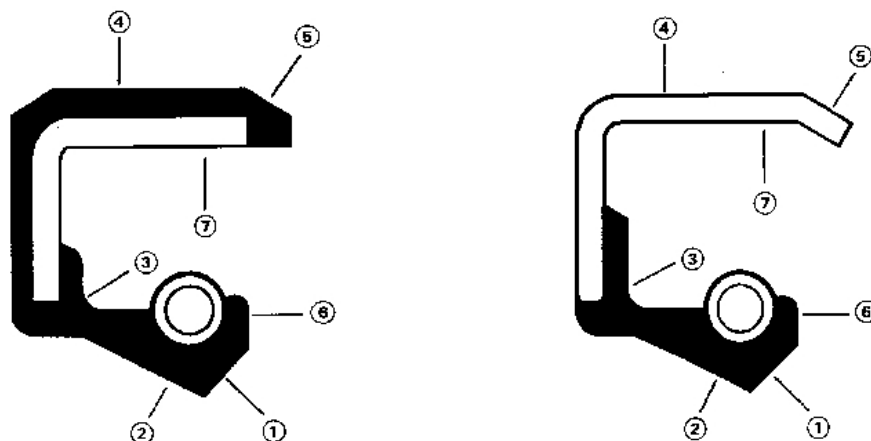
4.1 Press fit allowance and Permissible eccentricity

in accordance with German Standard DIN 3760

Outer diameter (mm)	Press fit allowance			Permissible eccentricity HW420 - HW460
	HW400	HW410	HW420 - HW460	
up to 50	+0,30 +0,15		+0,20 +0,10	0,25
over 50 to 80	+0,35 +0,20		+0,23 +0,13	0,35
over 80 to 120	+0,35 +0,20		+0,25 +0,15	0,50
over 120 to 180	+0,45 +0,25		+0,28 +0,20	0,65
over 180 to 300	+0,45 +0,25		+0,30 +0,20	0,80
over 300 to 500	+0,55 +0,30		+0,35 +0,23	1,00

4.2 Final Inspection Standard

In accordance with our production standard and DIN 3761 Part 4.



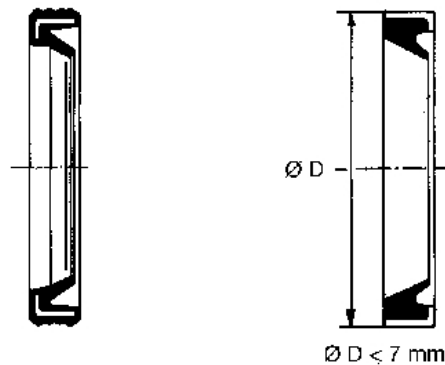
	Zone	Not permitted	Permitted
1 + 2	Sealing Edge 1 = Front side 2 = Back side	Cracks in Sealing Edge	No faults permitted
3	Radius of vulcanisation	Vulcanisation defects	
4	External diameter of shaft	faults that may influence seal at its outer diameter	Kleinere Mängel, vorausgesetzt, dass mindestens 2/3 des Außendurchmessers an diesem Punkt in Ordnung sind.
5	Chamfer	faults that adversely influence seal assembly process	
6	Spring retention lip	Contactions that may initiate a split	Small contractions
7	Inner wall	Loose splinters	Splinters that are firmly attached to the inner wall

The contact surface of sealing lip is defined according to DIN 3761 part 4. as follows:

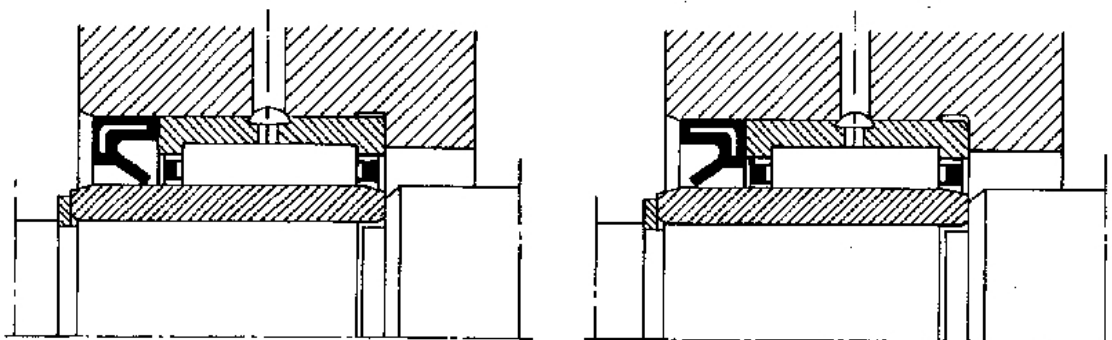
Shaft diameter	Front face width	Back side width
up to 50 mm	0,5 mm	1,2 mm
51 to 120 mm	0,8 mm	1,5 mm
over 121 mm	1,0 mm	2,0 mm

5. DINA SEAL (HW 500)

This specially developed radial shaft seal is meant for use with needle clearings. The DINA SEAL is reinforced with a steel insert and has a single thin sealing lip without spring, which has low frictional losses due to minimal pre-stressing. To ensure a better fit in the bore, the DINA SEAL has a rubber coated outer diameter with the exception of smaller seals up to 7 mm external diameter. These seals have smooth metallic outer diameters.



Standard DINA ring materials are NBR elastomer and carbon steel inserts. For special applications FPM and sil-elastomers and / or stainless steel inserts are available on demand. The DINA SEAL avoids leakage, when it is assembled with the front face towards the needle bearing. It protects the bearing from dust and dirt attack if it is used / assembled with the ground side towards the bearing.



6. Storage and Handling

Certain pre-caution must be exercised during storage to avoid material damage. Radial shaft seals must be stored in a dust free and dry environment, and they must remain in their original packaging. This should be opened just before assembly. Specimens should be re-packed after inspection. Excess humidity adversely affects some elastomers and may also initiate corrosion of metal housing and spring.

Do not throw radial shaft seals on shelves, or into boxes, or hang them on wires, hooks or nails. The sealing lip is likely to be damaged. Seals are to be stacked horizontally.

We recommend that seals are stored as per -FIRST IN - FINAL OUT - principle, to avoid ageing on the shelf itself. Avoid storage them in the vicinity of heat sources or electric equipments that can emit ozone. Protect from direct sunlight.

7. Sizes:

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
4,00	8,00	2,00										x	HW..... 0040-01-100
4,00	12,00	6,00	x										HW..... 0040-02-100
5,00	9,00	2,00										x	HW..... 0050-01-100
5,00	10,00	2,00										x	HW..... 0050-02-100
5,00	15,00	6,00	x										HW..... 0050-03-100
5,00	16,00	6,00	x										HW..... 0050-04-100
6,00	10,00	2,00										x	HW..... 0060-01-100
6,00	11,00	4,50				x							HW..... 0060-02-100
6,00	12,00	2,00										x	HW..... 0060-03-100
6,00	12,00	4,50	x										HW..... 0060-04-100
6,00	14,00	6,00	x										HW..... 0060-05-100
6,00	15,00	4,00	x										HW..... 0060-06-100
6,00	16,00	5,00		x									HW..... 0060-07-100
6,00	16,00	7,00	x										HW..... 0060-08-100
6,00	18,00	8,00									x		HW..... 0060-09-100
6,00	19,00	5,00	x										HW..... 0060-10-100
6,00	19,00	6,00	x										HW..... 0060-11-100
6,00	19,00	7,00	x										HW..... 0060-12-100
6,00	22,00	7,00	x										HW..... 0060-13-100
7,00	11,00	2,00										x	HW..... 0070-01-100
7,00	14,00	2,00										x	HW..... 0070-02-100
7,00	14,00	5,00	x										HW..... 0070-03-100
7,00	15,00	5,00	x										HW..... 0070-04-100
7,00	16,00	7,00	x										HW..... 0070-05-100
7,00	18,00	8,00		x									HW..... 0070-06-100
7,00	22,00	7,00	x										HW..... 0070-07-100
7,80	13,70	2,50								x			HW..... 0078-01-100
8,00	12,00	3,00										x	HW..... 0080-01-100
8,00	15,00	3,00										x	HW..... 0080-02-100
8,00	16,00	3,50								x			HW..... 0080-03-100
8,00	16,00	5,00				x	x						HW..... 0080-04-100
8,00	16,00	7,00	x	x									HW..... 0080-05-100
8,00	16,00	10,00									x		HW..... 0080-06-100
8,00	18,00	5,00	x										HW..... 0080-07-100
8,00	18,00	6,00	x	x									HW..... 0080-08-100
8,00	22,00	7,00	x	x									HW..... 0080-09-100
8,00	22,00	8,00	x										HW..... 0080-10-100
8,00	24,00	7,00	x										HW..... 0080-11-100
8,00	25,00	7,00	x										HW..... 0080-12-100
8,50	18,00	7,00	x										HW..... 0085-01-100
9,00	13,00	3,00										x	HW..... 0090-01-100
9,00	16,00	3,00										x	HW..... 0090-02-100
9,00	18,00	7,00		x									HW..... 0090-03-100
9,00	18,00	8,00		x									HW..... 0090-04-100
9,00	20,00	6,00							x				HW..... 0090-05-100
9,00	22,00	7,00	x										HW..... 0090-06-100
9,00	24,00	7,00	x										HW..... 0090-07-100
9,00	26,00	7,00	x										HW..... 0090-08-100
10,00	14,00	3,00										x	HW..... 0100-01-100
10,00	16,00	5,00	x										HW..... 0100-02-100
10,00	16,50	4,00	x										HW..... 0100-03-100
10,00	17,00	3,00										x	HW..... 0100-04-100
10,00	18,00	4,00	x										HW..... 0100-05-100
10,00	18,00	4,80		x									HW..... 0100-06-100
10,00	18,00	6,00	x										HW..... 0100-07-100
10,00	19,00	7,00	x	x									HW..... 0100-08-100

Ø d h11	Ø D H8	E +0,3											Part N°.
10,00	19,00	9,00		x									HW..... 0100-09-100
10,00	21,00	4,00								x			HW..... 0100-10-100
10,00	22,00	3,00										x	HW..... 0100-11-100
10,00	22,00	6,00	x	x					x				HW..... 0100-12-100
10,00	22,00	7,00	x										HW..... 0100-13-100
10,00	24,00	7,00	x										HW..... 0100-14-100
10,00	26,00	5,50	x										HW..... 0100-15-100
10,00	26,00	7,00	x	x					x				HW..... 0100-16-100
10,00	30,00	7,00	x										HW..... 0100-17-100
11,00	17,00	4,00	x										HW..... 0110-01-100
11,00	22,00	7,00	x										HW..... 0110-02-100
11,00	26,00	7,00	x										HW..... 0110-03-100
11,00	30,00	7,00		x									HW..... 0110-04-100
12,00	16,00	3,00								x		x	HW..... 0120-01-100
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12,00	18,00	4,00								x			HW..... 0120-03-100
12,00	18,00	4,50		x									HW..... 0120-04-100
12,00	18,35	3,00								x			HW..... 0120-05-100
12,00	19,00	3,00								x		x	HW..... 0120-06-100
12,00	19,00	4,00					x						HW..... 0120-07-100
12,00	19,00	5,00	x										HW..... 0120-08-100
12,00	20,00	4,50					x						HW..... 0120-09-100
12,00	20,00	5,00		x									HW..... 0120-10-100
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12,00	22,00	5,00	x										HW..... 0120-12-100
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12,00	22,00	7,00	x	x									HW..... 0120-14-100
12,00	22,00	7,50							x				HW..... 0120-15-100
12,00	24,00	4,50	x										HW..... 0120-16-100
12,00	24,00	6,00	x										HW..... 0120-17-100
12,00	24,00	7,00	x	x									HW..... 0120-18-100
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12,00	25,00	8,00	x										HW..... 0120-21-100
12,00	26,00	8,00	x										HW..... 0120-22-100
12,00	28,00	5,00	x										HW..... 0120-23-100
12,00	28,00	7,00	x	x									HW..... 0120-24-100
12,00	30,00	7,00	x	x			x						HW..... 0120-25-100
12,00	32,00	7,00	x										HW..... 0120-26-100
12,00	35,00	7,00	x										HW..... 0120-27-100
12,50	19,00	5,00	x										HW..... 0125-01-100
12,50	20,00	5,00	x										HW..... 0125-02-100
12,50	20,00	6,00	x										HW..... 0125-03-100
12,50	22,00	4,50	x										HW..... 0125-04-100
12,50	22,00	5,00	x										HW..... 0125-05-100
12,70	22,23	6,35		x									HW..... 0127-01-100
12,70	26,00	6,00	x										HW..... 0127-02-100
12,80	19,40	2,50								x			HW..... 0128-01-100
13,00	19,00	3,00								x		x	HW..... 0130-01-100
13,00	20,00	4,00					x	x					HW..... 0130-02-100
13,00	22,00	4,00	x										HW..... 0130-03-100
13,00	22,00	5,00	x										HW..... 0130-04-100
13,00	22,00	7,00		x									HW..... 0130-05-100
13,00	26,00	5,00	x										HW..... 0130-06-100
13,00	30,00	7,00	x										HW..... 0130-07-100
13,00	35,00	10,00	x										HW..... 0130-08-100
14,00	20,00	3,00										x	HW..... 0140-01-100
14,00	21,00	3,00										x	HW..... 0140-02-100
14,00	22,00	3,00										x	HW..... 0140-03-100
14,00	22,00	4,00	x										HW..... 0140-04-100

ROTATION SEALS

HW 400 TO HW 500

Ø d h11	Ø D H8	E +0,3											Part N°.
14,00	22,00	5,00		x									HW..... 0140-05-100
14,00	24,00	5,00		x									HW..... 0140-06-100
14,00	24,00	6,00					x						HW..... 0140-07-100
14,00	24,00	7,00	x	x									HW..... 0140-08-100
14,00	28,00	7,00	x	x									HW..... 0140-09-100
14,00	30,00	7,00	x										HW..... 0140-10-100
14,00	30,00	8,00	x										HW..... 0140-11-100
14,00	30,00	10,00		x									HW..... 0140-12-100
14,00	35,00	7,00	x										HW..... 0140-13-100
14,00	35,00	10,00	x										HW..... 0140-14-100
15,00	21,00	2,00										x	HW..... 0150-01-100
15,00	21,00	3,00								x		x	HW..... 0150-02-100
15,00	21,00	5,00	x										HW..... 0150-03-100
15,00	22,00	5,00					x						HW..... 0150-04-100
15,00	23,00	3,00										x	HW..... 0150-05-100
15,00	24,00	5,00	x										HW..... 0150-06-100
15,00	24,00	6,00		x									HW..... 0150-07-100
15,00	24,00	7,00	x	x					x				HW..... 0150-08-100
15,00	25,00	3,00								x			HW..... 0150-09-100
15,00	25,00	5,00	x										HW..... 0150-10-100
15,00	25,00	7,00	x										HW..... 0150-11-100
15,00	25,40	5/7		x									HW..... 0150-12-100
15,00	25,50	4,60	x										HW..... 0150-13-100
15,00	26,00	7,00	x	x				x					HW..... 0150-14-100
15,00	27,00	7,00	x	x									HW..... 0150-15-100
15,00	28,00	4,00	x										HW..... 0150-16-100
15,00	28,00	6,00	x										HW..... 0150-17-100
15,00	28,00	7,00									x		HW..... 0150-18-100
15,00	30,00	4,50	x										HW..... 0150-19-100
15,00	30,00	7,00	x										HW..... 0150-20-100
15,00	30,00	10,00	x	x									HW..... 0150-21-100
15,00	32,00	7,00	x										HW..... 0150-22-100
15,00	32,00	7,00		x									HW..... 0150-23-100
15,00	35,00	6/7						x					HW..... 0150-24-100
15,00	35,00	5,00	x										HW..... 0150-25-100
15,00	35,00	6,00						x	x				HW..... 0150-26-100
15,00	35,00	7,00	x	x									HW..... 0150-27-100
15,00	35,00	8,00	x										HW..... 0150-28-100
15,00	35,00	10,00	x										HW..... 0150-29-100
15,00	40,00	10,00	x										HW..... 0150-30-100
15,00	42,00	7,00	x										HW..... 0150-31-100
15,00	42,00	10,00									x		HW..... 0150-32-100
15,00	50,00	7,00	x										HW..... 0150-33-100
16,00	22,00	3,00										x	HW..... 0160-01-100
16,00	22,20	4,00	x										HW..... 0160-02-100
16,00	22,70	2,00								x			HW..... 0160-03-100
16,00	24,00	3,00								x		x	HW..... 0160-04-100
16,00	24,00	5,00	x										HW..... 0160-05-100
16,00	25,00	3,00										x	HW..... 0160-06-100
16,00	26,00	7,00	x										HW..... 0160-07-100
16,00	28,00	7,00	x	x					x				HW..... 0160-08-100
16,00	30,00	5,00	x										HW..... 0160-09-100
16,00	30,00	6,00	x										HW..... 0160-10-100
16,00	30,00	6,60	x										HW..... 0160-11-100
16,00	30,00	7,00	x										HW..... 0160-12-100
16,00	32,00	7,00	x										HW..... 0160-13-100
16,00	32,00	9,00	x										HW..... 0160-14-100
16,00	35,00	6/8									x		HW..... 0160-15-100
16,00	35,00	7,00	x										HW..... 0160-16-100
16,00	35,00	10,00	x										HW..... 0160-17-100

ROTATION SEALS

HW 400 TO HW 500

Ø d h11	Ø D H8	E +0,3											Part N°.
16,00	40,00	10,00	x										HW..... 0160-18-100
17,00	23,00	3,00										x	HW..... 0170-01-100
17,00	25,00	3,00										x	HW..... 0170-02-100
17,00	25,00	4,00	x										HW..... 0170-03-100
17,00	26,00	6,00	x										HW..... 0170-04-100
17,00	28,00	6,00	x										HW..... 0170-05-100
17,00	28,00	7,00	x	x			x		x				HW..... 0170-06-100
17,00	28,00	7,30	x										HW..... 0170-07-100
17,00	28,00	8,00	x								x		HW..... 0170-08-100
17,00	30,00	5,00	x	x									HW..... 0170-09-100
17,00	30,00	7,00	x	x									HW..... 0170-10-100
17,00	32,00	5,00	x										HW..... 0170-11-100
17,00	32,00	7,00	x										HW..... 0170-12-100
17,00	35,00	7,00	x	x					x				HW..... 0170-13-100
17,00	35,00	8,00	x	x									HW..... 0170-14-100
17,00	37,00	4,00	x										HW..... 0170-15-100
17,00	40,00	7/7,5							x				HW..... 0170-16-100
17,00	40,00	7,00	x	x									HW..... 0170-17-100
17,00	40,00	8,50	x										HW..... 0170-18-100
17,00	40,00	10,00	x										HW..... 0170-19-100
17,00	47,00	7,00	x										HW..... 0170-20-100
17,46	23,81	3,18								x			HW..... 0175-01-100
17,46	31,75	7,93									x		HW..... 0175-02-100
17,80	26,20	3,50	x										HW..... 0178-01-100
18,00	24,00	3,00										x	HW..... 0180-01-100
18,00	24,00	4,00								x		x	HW..... 0180-02-100
18,00	26,00	4,00										x	HW..... 0180-03-100
18,00	27,00	4,00										x	HW..... 0180-04-100
18,00	28,00	7,00	x	x									HW..... 0180-05-100
18,00	30,00	5,00	x										HW..... 0180-06-100
18,00	30,00	7,00	x	x									HW..... 0180-07-100
18,00	30,00	8,00									x		HW..... 0180-08-100
18,00	32,00	7,00	x	x									HW..... 0180-09-100
18,00	32,00	8,00	x								x		HW..... 0180-10-100
18,00	35,00	7,00	x										HW..... 0180-11-100
18,00	35,00	8,00	x										HW..... 0180-12-100
18,00	35,00	10,00	x										HW..... 0180-13-100
18,00	40,00	7,00	x										HW..... 0180-14-100
19,00	27,00	4,00										x	HW..... 0190-01-100
19,00	27,00	6,00	x										HW..... 0190-02-100
19,00	27,20	5,00							x				HW..... 0190-03-100
19,00	30,00	7,00		x			x						HW..... 0190-04-100
19,00	30,50	8,5/11,5		x									HW..... 0190-05-100
19,00	32,00	7,00	x	x									HW..... 0190-06-100
19,00	32,00	10,00	x	x									HW..... 0190-07-100
19,00	35,00	10,00	x										HW..... 0190-08-100
19,00	42,00	7,00	x										HW..... 0190-09-100
19,00	47,00	10,00	x										HW..... 0190-10-100
20,00	26,00	4,00								x		x	HW..... 0200-01-100
20,00	28,00	4,00	x							x		x	HW..... 0200-02-100
20,00	28,00	6,00	x					x					HW..... 0200-03-100
20,00	28,00	7,00	x										HW..... 0200-04-100
20,00	30,00	4,00	x										HW..... 0200-05-100
20,00	30,00	5,00	x	x									HW..... 0200-06-100
20,00	30,00	6,00	x										HW..... 0200-07-100
20,00	30,00	7,00	x	x									HW..... 0200-08-100
20,00	31,00	7,00					x						HW..... 0200-09-100
20,00	32,00	7,00	x	x			x						HW..... 0200-10-100
20,00	34,10	10/13		x									HW..... 0200-11-100
20,00	35,00	7/7,5							x				HW..... 0200-12-100

ROTATION SEALS

HW 400 TO HW 500

Ø d h11	Ø D H8	E +0,3											Part N°.
20,00	35,00	5,00	x										HW..... 0200-13-100
20,00	35,00	6,00		x					x				HW..... 0200-14-100
20,00	35,00	7,00	x	x									HW..... 0200-15-100
20,00	35,00	8,00	x										HW..... 0200-16-100
20,00	35,00	10,00	x										HW..... 0200-17-100
20,00	37,00	8,00	x										HW..... 0200-18-100
20,00	38,00	7,00	x										HW..... 0200-19-100
20,00	38,00	8,00	x	x									HW..... 0200-20-100
20,00	40,00	8/13						x					HW..... 0200-21-100
20,00	40,00	6,00		x									HW..... 0200-22-100
20,00	40,00	7,00	x	x									HW..... 0200-23-100
20,00	40,00	8,00	x										HW..... 0200-24-100
20,00	40,00	10,00	x										HW..... 0200-25-100
20,00	42,00	6,00	x	x									HW..... 0200-26-100
20,00	42,00	7,00	x	x									HW..... 0200-27-100
20,00	42,00	10,00	x	x									HW..... 0200-28-100
20,00	45,00	7,00		x									HW..... 0200-29-100
20,00	47,00	7,00	x	x									HW..... 0200-30-100
20,00	47,00	8,00	x										HW..... 0200-31-100
20,00	47,00	10,00	x		x			x					HW..... 0200-32-100
20,00	48,40	7,00	x										HW..... 0200-33-100
20,00	52,00	7,00	x										HW..... 0200-34-100
20,00	52,00	10,00	x	x									HW..... 0200-35-100
20,00	72,00	10,00	x										HW..... 0200-36-100
20,40	27,15	2,00								x			HW..... 0204-01-100
21,00	29,00	4,00										x	HW..... 0210-01-100
21,00	40,00	7,00		x									HW..... 0210-02-100
21,80	38,10	6,35	x										HW..... 0218-01-100
22,00	28,00	4,00										x	HW..... 0220-01-100
22,00	30,00	4,00										x	HW..... 0220-02-100
22,00	32,00	7/9						x					HW..... 0220-03-100
22,00	32,00	5,50	x										HW..... 0220-04-100
22,00	32,00	7,00	x	x					x				HW..... 0220-05-100
22,00	35,00	10/13		x									HW..... 0220-06-100
22,00	35,00	6/6,5							x				HW..... 0220-07-100
22,00	35,00	7,00	x	x									HW..... 0220-08-100
22,00	35,00	8,00	x										HW..... 0220-09-100
22,00	35,00	10,00	x	x									HW..... 0220-10-100
22,00	40,00	8/11,5		x									HW..... 0220-11-100
22,00	40,00	7,00	x	x									HW..... 0220-12-100
22,00	40,00	8,00	x										HW..... 0220-13-100
22,00	42,00	10,00			x								HW..... 0220-14-100
22,00	45,00	7,00	x										HW..... 0220-15-100
22,00	47,00	7,00	x	x									HW..... 0220-16-100
22,00	47,00	10,00	x										HW..... 0220-17-100
22,00	62,00	7,00	x										HW..... 0220-18-100
22,20	34,90	6,35	x										HW..... 0222-01-100
22,23	38,10	6,35	x										HW..... 0222-02-100
22,70	47,00	7,00	x										HW..... 0227-01-100
23,00	30,00	4,00								x			HW..... 0230-01-100
23,00	47,00	10,00	x	x									HW..... 0230-02-100
23,70	45,00	8,00					x						HW..... 0237-01-100
23,81	36,51	6,35	x										HW..... 0238-01-100
24,00	32,00	4,00										x	HW..... 0240-01-100
24,00	35,00	7,00	x				x						HW..... 0240-02-100
24,00	36,00	7,00	x	x									HW..... 0240-03-100
24,00	37,00	7,00	x										HW..... 0240-04-100
24,00	40,00	7,00	x	x					x				HW..... 0240-05-100
24,00	40,00	8,00		x									HW..... 0240-06-100
24,00	40,00	10,00	x										HW..... 0240-07-100

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
24,00	42,00	8,00	x										HW..... 0240-08-100
24,00	45,00	7,00		x									HW..... 0240-09-100
24,00	47,00	7,00	x										HW..... 0240-10-100
24,00	48,00	10,00	x										HW..... 0240-11-100
24,00	50,00	10,00	x										HW..... 0240-12-100
24,00	52,00	10,00	x										HW..... 0240-13-100
24,50	33,00	5,00	x										HW..... 0245-01-100
24,50	40,00	8,50	x										HW..... 0245-02-100
24,90	45,00	6,50	x										HW..... 0249-01-100
25,00	32,00	4,00										x	HW..... 0250-01-100
25,00	32,00	5,00					x						HW..... 0250-02-100
25,00	32,00	6,00	x										HW..... 0250-03-100
25,00	33,00	4,00	x									x	HW..... 0250-04-100
25,00	35,00	6/6,5							x				HW..... 0250-05-100
25,00	35,00	4,00								x		x	HW..... 0250-06-100
25,00	35,00	5,00	x										HW..... 0250-07-100
25,00	35,00	6,00	x						x				HW..... 0250-08-100
25,00	35,00	7,00	x	x									HW..... 0250-09-100
25,00	35,00	8,50	x										HW..... 0250-10-100
25,00	37,00	5,00	x										HW..... 0250-11-100
25,00	37,00	7,00	x	x									HW..... 0250-12-100
25,00	38,00	7,00	x	x									HW..... 0250-13-100
25,00	40,00	10/9,5									x		HW..... 0250-14-100
25,00	40,00	7,00	x	x			x						HW..... 0250-15-100
25,00	40,00	8,00	x	x							x		HW..... 0250-16-100
25,00	42,00	6,00	x										HW..... 0250-17-100
25,00	42,00	7,00	x	x									HW..... 0250-18-100
25,00	42,00	8,50	x	x									HW..... 0250-19-100
25,00	42,00	10,00	x	x									HW..... 0250-20-100
25,00	42,00	14,00									x		HW..... 0250-21-100
25,00	43,00	9,00	x										HW..... 0250-22-100
25,00	45,00	10,00	x										HW..... 0250-23-100
25,00	46,00	7,00	x										HW..... 0250-24-100
25,00	47,00	8/11,5		x									HW..... 0250-25-100
25,00	47,00	7,00	x	x									HW..... 0250-26-100
25,00	47,00	8,00	x										HW..... 0250-27-100
25,00	47,00	8,70		x									HW..... 0250-28-100
25,00	47,00	10,00	x	x	x								HW..... 0250-29-100
25,00	47,00	12,00									x		HW..... 0250-30-100
25,00	49,00	10/15		x									HW..... 0250-31-100
25,00	50,00	10,00	x	x									HW..... 0250-32-100
25,00	52,00	5,00	x										HW..... 0250-33-100
25,00	52,00	7,00	x	x									HW..... 0250-34-100
25,00	52,00	8,00	x	x									HW..... 0250-35-100
25,00	52,00	10,00	x	x	x								HW..... 0250-36-100
25,00	62,00	7,00		x									HW..... 0250-37-100
25,00	62,00	10,00	x	x									HW..... 0250-38-100
25,40	35,00	7,00		x									HW..... 0254-01-100
25,40	36,52	6,35						x					HW..... 0254-02-100
25,40	38,18	6,50					x						HW..... 0254-03-100
25,40	41,35	6,35					x						HW..... 0254-04-100
25,40	44,45	9,53	x										HW..... 0254-05-100
25,40	52,00	7,00		x									HW..... 0254-06-100
25,70	35,00	7/9						x					HW..... 0257-01-100
26,00	34,00	4,00										x	HW..... 0260-01-100
26,00	35,00	7,00	x	x			x						HW..... 0260-02-100
26,00	36,00	7,00	x	x									HW..... 0260-03-100
26,00	37,00	7/8		x									HW..... 0260-04-100
26,00	37,00	7,00	x										HW..... 0260-05-100
26,00	42,00	7,00	x										HW..... 0260-06-100

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
26,00	47,00	7,00	x										HW..... 0260-07-100
26,00	50,00	10,00	x										HW..... 0260-08-100
26,00	50,00	12,00			x								HW..... 0260-09-100
26,00	52,00	8,00	x										HW..... 0260-10-100
26,00	52,00	10,00		x									HW..... 0260-11-100
26,50	47,00	7,00	x										HW..... 0265-01-100
27,00	37,00	7,00	x										HW..... 0270-01-100
27,00	41,00	10,00	x										HW..... 0270-02-100
27,00	47,00	10/12		x									HW..... 0270-03-100
27,00	47,00	6,00	x										HW..... 0270-04-100
27,00	47,00	7,00	x	x									HW..... 0270-05-100
27,00	51,00	10,00		x									HW..... 0270-06-100
28,00	35,00	4,00										x	HW..... 0280-01-100
28,00	37,00	4,00										x	HW..... 0280-02-100
28,00	38,00	6,00	x										HW..... 0280-03-100
28,00	38,00	7,00	x	x									HW..... 0280-04-100
28,00	40,00	8/8,5							x				HW..... 0280-05-100
28,00	40,00	7,00	x	x					x				HW..... 0280-06-100
28,00	40,00	10,00	x										HW..... 0280-07-100
28,00	42,00	7,00	x				x						HW..... 0280-08-100
28,00	42,00	10,00	x										HW..... 0280-09-100
28,00	43,00	10,00	x										HW..... 0280-10-100
28,00	47,00	7,00	x	x									HW..... 0280-11-100
28,00	47,00	8,00	x										HW..... 0280-12-100
28,00	47,00	10,00	x										HW..... 0280-13-100
28,00	50,00	10,00	x										HW..... 0280-14-100
28,00	52,00	5,00	x										HW..... 0280-15-100
28,00	52,00	6,00	x										HW..... 0280-16-100
28,00	52,00	7,00	x										HW..... 0280-17-100
28,00	52,00	10,00	x	x									HW..... 0280-18-100
28,00	57,00	12,00	x										HW..... 0280-19-100
28,00	62,00	12,00	x										HW..... 0280-20-100
28,45	38,10	6,35	x										HW..... 0285-01-100
28,57	45,24	6,35		x									HW..... 0286-01-100
28,58	38,10	6,35	x										HW..... 0286-02-100
28,58	41,28	9,52		x									HW..... 0286-03-100
29,00	38,00	4,00										x	HW..... 0290-01-100
29,00	40,00	7,00	x										HW..... 0290-02-100
29,00	45,00	9,50	x										HW..... 0290-03-100
30,00	37,00	4,00										x	HW..... 0300-01-100
30,00	38,00	5,00					x						HW..... 0300-02-100
30,00	40,00	4,00	x							x		x	HW..... 0300-03-100
30,00	40,00	5,00	x										HW..... 0300-04-100
30,00	40,00	7,00	x	x									HW..... 0300-05-100
30,00	42,00	6,00		x									HW..... 0300-06-100
30,00	42,00	7,00	x	x					x				HW..... 0300-07-100
30,00	42,00	8,00		x									HW..... 0300-08-100
30,00	43,00	8,00					x						HW..... 0300-09-100
30,00	44,00	10,00	x	x									HW..... 0300-10-100
30,00	45,00	5,00	x										HW..... 0300-11-100
30,00	45,00	8,00	x										HW..... 0300-12-100
30,00	47,00	5,00	x										HW..... 0300-13-100
30,00	47,00	6,00	x										HW..... 0300-14-100
30,00	47,00	7,00	x	x					x				HW..... 0300-15-100
30,00	47,00	8,00	x	x									HW..... 0300-16-100
30,00	47,00	10,00	x	x									HW..... 0300-17-100
30,00	48,00	8,00	x										HW..... 0300-18-100
30,00	50,00	5,00	x										HW..... 0300-19-100
30,00	50,00	7,00	x						x				HW..... 0300-20-100

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
30,00	50,00	8,00	x	x									HW..... 0300-21-100
30,00	50,00	10,00	x	x	x								HW..... 0300-22-100
30,00	50,00	12,00			x								HW..... 0300-23-100
30,00	52,00	10/12		x									HW..... 0300-24-100
30,00	52,00	4,00	x										HW..... 0300-25-100
30,00	52,00	7,00	x	x				x					HW..... 0300-26-100
30,00	52,00	10,00	x	x									HW..... 0300-27-100
30,00	53,50	12/17,5		x									HW..... 0300-28-100
30,00	53,50	10/14		x									HW..... 0300-29-100
30,00	55,00	7/9							x				HW..... 0300-30-100
30,00	55,00	7,00	x										HW..... 0300-31-100
30,00	55,00	10,00	x	x									HW..... 0300-32-100
30,00	55,00	12,00					x						HW..... 0300-33-100
30,00	56,00	10,00	x										HW..... 0300-34-100
30,00	56,00	12,00			x								HW..... 0300-35-100
30,00	60,00	10,00	x										HW..... 0300-36-100
30,00	62,00	7,00	x	x									HW..... 0300-37-100
30,00	62,00	10,00	x	x	x								HW..... 0300-38-100
30,00	68,00	7,00	x										HW..... 0300-39-100
30,00	72,00	10,00	x										HW..... 0300-40-100
30,00	43,64	13,90						x					HW..... 0300-41-100
30,20	50,70	6,35	x										HW..... 0302-01-100
31,00	47,00	7,00	x										HW..... 0310-01-100
31,00	52,00	7,00	x	x									HW..... 0310-02-100
31,00	62,00	4/5	x										HW..... 0310-03-100
31,50	47,00	7,00	x										HW..... 0310-04-100
31,75	40,00	7,00		x									HW..... 0318-01-100
31,75	41,27	6,35		x									HW..... 0318-02-100
31,75	44,60	6,35	x										HW..... 0318-03-100
31,75	47,75	9,6/10,7	x										HW..... 0318-04-100
31,75	50,80	10,00									x		HW..... 0318-05-100
31,75	62,00	7,00		x									HW..... 0318-06-100
32,00	42,00	4,00										x	HW..... 0320-01-100
32,00	42,00	7,00	x	x									HW..... 0320-02-100
32,00	45,00	4,00										x	HW..... 0320-03-100
32,00	45,00	7,00	x	x									HW..... 0320-04-100
32,00	47,00	7,00	x				x	x					HW..... 0320-05-100
32,00	47,00	8,00	x										HW..... 0320-06-100
32,00	47,00	12,00									x		HW..... 0320-07-100
32,00	48,00	7,00		x									HW..... 0320-08-100
32,00	50,00	8,00	x		x								HW..... 0320-09-100
32,00	50,00	10,00	x										HW..... 0320-10-100
32,00	52,00	10/12		x									HW..... 0320-11-100
32,00	52,00	5,00	x										HW..... 0320-12-100
32,00	52,00	7,00	x	x			x						HW..... 0320-13-100
32,00	52,00	7,50	x										HW..... 0320-14-100
32,00	52,00	10,00	x										HW..... 0320-15-100
32,00	52,00	12,00	x										HW..... 0320-16-100
32,00	56,00	10,00	x										HW..... 0320-17-100
32,00	62,00	6/7	x										HW..... 0320-18-100
32,00	62,00	10,00	x	x									HW..... 0320-19-100
32,00	70,00	8,00	x										HW..... 0320-20-100
33,00	45,00	10,00		x									HW..... 0330-01-100
33,00	47,00	11,00	x										HW..... 0330-02-100
33,00	50,00	6,00		x									HW..... 0330-03-100
33,00	50,00	10,00		x									HW..... 0330-04-100
33,00	52,00	6,00	x										HW..... 0330-05-100
33,00	72,00	12,00			x								HW..... 0330-06-100
33,50	50,00	6,00		x									HW..... 0335-01-100
34,00	46,00	10,00	x										HW..... 0340-01-100

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
34,00	50,00	10,00	x										HW..... 0340-02-100
34,00	52,00	10/12		x									HW..... 0340-03-100
34,00	52,00	8,00	x										HW..... 0340-04-100
34,00	52,00	10,00	x										HW..... 0340-05-100
34,00	62,00	10,00	x										HW..... 0340-06-100
34,90	46,50	7,00					x						HW..... 0349-01-100
34,90	50,80	11,10		x									HW..... 0349-02-100
34,90	53,90	7,90	x										HW..... 0349-03-100
34,90	60,30	12,70	x										HW..... 0349-04-100
35,00	42,00	4,00										x	HW..... 0350-01-100
35,00	42,00	5,00					x						HW..... 0350-02-100
35,00	45,00	4,00										x	HW..... 0350-03-100
35,00	45,00	6,00	x										HW..... 0350-04-100
35,00	45,00	7,00	x	x									HW..... 0350-05-100
35,00	45,00	10,00	x										HW..... 0350-06-100
35,00	47,00	4,50	x										HW..... 0350-07-100
35,00	47,00	6,00	x										HW..... 0350-08-100
35,00	47,00	7,00	x	x									HW..... 0350-09-100
35,00	47,00	10,00	x	x									HW..... 0350-10-100
35,00	50,00	7,00	x						x				HW..... 0350-11-100
35,00	50,00	8,00	x	x									HW..... 0350-12-100
35,00	50,00	10,00	x	x									HW..... 0350-13-100
35,00	52,00	6,00		x					x				HW..... 0350-14-100
35,00	52,00	7,00	x	x									HW..... 0350-15-100
35,00	52,00	8,00	x	x									HW..... 0350-16-100
35,00	52,00	10,00	x	x									HW..... 0350-17-100
35,00	52,00	12,00									x		HW..... 0350-18-100
35,00	53,00	8,00	x										HW..... 0350-19-100
35,00	55,00	8,00	x										HW..... 0350-20-100
35,00	55,00	9,00		x									HW..... 0350-21-100
35,00	55,00	10,00	x										HW..... 0350-22-100
35,00	55,00	10,00		x									HW..... 0350-23-100
35,00	55,50	9,00	x										HW..... 0350-24-100
35,00	56,00	10,00	x	x									HW..... 0350-25-100
35,00	58,00	10,00	x	x									HW..... 0350-26-100
35,00	60,00	10,00	x	x									HW..... 0350-27-100
35,00	62,00	7,00	x	x					x				HW..... 0350-28-100
35,00	62,00	8,00	x	x									HW..... 0350-29-100
35,00	62,00	10,00	x	x									HW..... 0350-30-100
35,00	62,00	12,00		x									HW..... 0350-31-100
35,00	65,00	10,00	x										HW..... 0350-32-100
35,00	67,00	7,00	x										HW..... 0350-33-100
35,00	68,00	10,00	x	x									HW..... 0350-34-100
35,00	70,00	10,00	x										HW..... 0350-35-100
35,00	72,00	7,00		x									HW..... 0350-36-100
35,00	72,00	10,00	x	x									HW..... 0350-37-100
35,00	72,00	12,00	x	x	x								HW..... 0350-38-100
35,00	80,00	10,00	x	x									HW..... 0350-39-100
35,00	80,00	12,00	x										HW..... 0350-40-100
35,20	57,30	12,70			x								HW..... 0352-01-100
36,00	45,00	6,00	x										HW..... 0360-01-100
36,00	47,00	7,00	x	x									HW..... 0360-02-100
36,00	50,00	7,00	x										HW..... 0360-03-100
36,00	50,00	10,00	x										HW..... 0360-04-100
36,00	52,00	7,00	x										HW..... 0360-05-100
36,00	52,00	10,00		x									HW..... 0360-06-100
36,00	54,00	7,50	x										HW..... 0360-07-100
36,00	58,00	10,00	x										HW..... 0360-08-100
36,00	62,00	7,00	x										HW..... 0360-09-100
36,00	63,00	12,00				x							HW..... 0360-10-100

Ø d h11	Ø D H8	E +0,3											Part N°.
36,00	68,00	10,00	x										HW..... 0360-11-100
36,51	52,58	7,93		x									HW..... 0365-01-100
37,00	47,00	4,00										x	HW..... 0370-01-100
38,00	48,00	4,00										x	HW..... 0370-02-100
38,00	50,00	7,00	x										HW..... 0380-01-100
38,00	52,00	7,00	x	x									HW..... 0380-02-100
38,00	52,00	10,00					x						HW..... 0380-03-100
38,00	54,00	5,00	x										HW..... 0380-04-100
38,00	54,00	10,00	x	x									HW..... 0380-05-100
38,00	55,00	7,00	x										HW..... 0380-06-100
38,00	55,00	10,00	x	x									HW..... 0380-07-100
38,00	56,00	10,00	x										HW..... 0380-08-100
38,00	62,00	7,00	x	x					x				HW..... 0380-09-100
38,00	62,00	10,00	x										HW..... 0380-10-100
38,00	72,00	10,00	x	x									HW..... 0380-11-100
38,10	50,29	12,70	x										HW..... 0381-01-100
38,10	60,32	9,52		x									HW..... 0381-02-100
40,00	47,00	4,00										x	HW..... 0400-01-100
40,00	48,00	4,00										x	HW..... 0400-02-100
40,00	50,00	4,00										x	HW..... 0400-03-100
40,00	50,00	7,00		x									HW..... 0400-04-100
40,00	52,00	5,00							x			x	HW..... 0400-05-100
40,00	52,00	7,00	x	x									HW..... 0400-06-100
40,00	52,00	10,00		x									HW..... 0400-07-100
40,00	54,00	7,00	x										HW..... 0400-08-100
40,00	55,00	7,00	x	x					x				HW..... 0400-09-100
40,00	55,00	8,00	x	x									HW..... 0400-10-100
40,00	55,00	10,00	x										HW..... 0400-11-100
40,00	56,00	6,00							x				HW..... 0400-12-100
40,00	56,00	8,00	x	x									HW..... 0400-13-100
40,00	56,00	8,50								x			HW..... 0400-14-100
40,00	56,00	10,00	x										HW..... 0400-15-100
40,00	58,00	10,00	x	x									HW..... 0400-16-100
40,00	60,00	7,00	x										HW..... 0400-17-100
40,00	60,00	10,00	x	x					x				HW..... 0400-18-100
40,00	62,00	6,00							x				HW..... 0400-19-100
40,00	62,00	7,00	x	x									HW..... 0400-20-100
40,00	62,00	10,00	x	x		x		x					HW..... 0400-21-100
40,00	63,00	10,00	x										HW..... 0400-22-100
40,00	63,50	12,50			x								HW..... 0400-23-100
40,00	65,00	10,00	x										HW..... 0400-24-100
40,00	65,00	12,00	x										HW..... 0400-25-100
40,00	68,00	8,00	x										HW..... 0400-26-100
40,00	68,00	10,00	x	x									HW..... 0400-27-100
40,00	70,00	10,00	x										HW..... 0400-28-100
40,00	72,00	7,00	x	x									HW..... 0400-29-100
40,00	72,00	10,00	x										HW..... 0400-30-100
40,00	80,00	7,00		x									HW..... 0400-31-100
40,00	80,00	10,00	x	x									HW..... 0400-32-100
40,00	82,57	13,00			x								HW..... 0400-33-100
40,00	90,00	9,00			x								HW..... 0400-34-100
40,00	90,00	10,00	x										HW..... 0400-35-100
40,00	90,00	12,00	x	x									HW..... 0400-36-100
40,00	95,00	10,00			x								HW..... 0400-37-100
40,08	50,85	4,10	x										HW..... 0401-01-100
41,27	66,67	9,52	x										HW..... 0413-01-100
41,27	60,33	9,52		x									HW..... 0413-02-100
42,00	52,00	4,00										x	HW..... 0420-01-100
42,00	52,00	8,00		x									HW..... 0420-02-100
42,00	55,00	7,00	x										HW..... 0420-03-100

Ø d h11	Ø D H8	E +0,3											Part N°
			400	410	420	430	440	450	460	470	480	500	
42.00	55.00	8.00	x										HW..... 0420-04-100
42.00	55.00	10.00		x									HW..... 0420-05-100
42.00	56.00	7.00	x	x									HW..... 0420-06-100
42.00	58.00	10.00	x										HW..... 0420-07-100
42.00	60.00	12.00	x										HW..... 0420-08-100
42.00	62.00	7/7,5							x				HW..... 0420-09-100
42.00	62.00	7.00	x	x									HW..... 0420-10-100
42.00	62.00	8.00	x	x									HW..... 0420-11-100
42.00	62.00	10.00	x	x									HW..... 0420-12-100
42.00	65.00	8.00			x								HW..... 0420-13-100
42.00	65.00	10.00	x										HW..... 0420-14-100
42.00	72.00	8.00	x										HW..... 0420-15-100
42.00	72.00	10.00	x										HW..... 0420-16-100
42.00	72.00	12.00			x								HW..... 0420-17-100
43.00	53.00	4.00										x	HW..... 0430-01-100
43.00	54.00	9.00		x									HW..... 0430-02-100
43.00	55.00	9.00		x									HW..... 0430-03-100
43.00	55.00	10.00		x									HW..... 0430-04-100
43.00	60.00	10.00	x										HW..... 0430-05-100
44.00	55.00	10.00									x		HW..... 0440-01-100
44.00	62.00	10.00		x									HW..... 0440-02-100
44.00	72.00	12.00	x										HW..... 0440-03-100
44.40	68.26	15/19	x										HW..... 0444-01-100
44.45	68.32	19.40									x		HW..... 0445-01-100
44.50	63.65	9.50					x						HW..... 0445-02-100
45.00	52.00	4.00										x	HW..... 0450-01-100
45.00	55.00	4.00										x	HW..... 0450-02-100
45.00	55.00	6.00	x										HW..... 0450-03-100
45.00	55.00	7.00	x										HW..... 0450-04-100
45.00	56.00	7.00	x										HW..... 0450-05-100
45.00	57.00	10.00		x									HW..... 0450-06-100
45.00	58.00	7.00		x									HW..... 0450-07-100
45.00	60.00	10/13		x									HW..... 0450-08-100
45.00	60.00	7/8		x									HW..... 0450-09-100
45.00	60.00	7.00	x	x									HW..... 0450-10-100
45.00	60.00	8.00	x	x									HW..... 0450-11-100
45.00	60.00	10.00	x										HW..... 0450-12-100
45.00	62.00	7.00	x						x				HW..... 0450-13-100
45.00	62.00	8.00	x							x			HW..... 0450-14-100
45.00	62.00	10.00	x	x	x								HW..... 0450-15-100
45.00	62.00	12.00	x										HW..... 0450-16-100
45.00	64.00	12.00				x							HW..... 0450-17-100
45.00	65.00	10/12		x									HW..... 0450-18-100
45.00	65.00	7.00							x				HW..... 0450-19-100
45.00	65.00	8.00	x	x					x				HW..... 0450-20-100
45.00	65.00	10.00	x	x	x			x					HW..... 0450-21-100
45.00	66.00	6.00	x										HW..... 0450-22-100
45.00	66.00	10.00	x										HW..... 0450-23-100
45.00	68.00	10.00	x										HW..... 0450-24-100
45.00	70.00	10.00	x										HW..... 0450-25-100
45.00	72.00	7.00	x										HW..... 0450-26-100
45.00	72.00	8.00	x	x									HW..... 0450-27-100
45.00	72.00	10.00	x										HW..... 0450-28-100
45.00	73.00	12.00	x										HW..... 0450-29-100
45.00	75.00	8.00	x	x									HW..... 0450-30-100
45.00	75.00	10.00	x	x									HW..... 0450-31-100
45.00	80.00	7.00		x									HW..... 0450-32-100
45.00	80.00	10.00	x	x									HW..... 0450-33-100
45.00	80.00	13.00	x										HW..... 0450-34-100
45.00	85.00	10.00	x	x									HW..... 0450-35-100

ROTATION SEALS

HW 400 TO HW 500

Ø d h11	Ø D H8	E +0,3											Part N°.
			400	410	420	430	440	450	460	470	480	500	
45.00	90.00	8.00	x										HW..... 0450-36-100
45.00	90.00	10.00	x	x	x								HW..... 0450-37-100
45.00	100.00	10.00	x										HW..... 0450-38-100
46.00	64.00	8.00	x										HW..... 0460-01-100
46.00	64.00	14.00		x									HW..... 0460-02-100
46.00	65.00	10.00	x										HW..... 0460-03-100
46.80	61.30	4.00	x										HW..... 0468-01-100
47.00	58.00	6.00	x										HW..... 0470-01-100
47.00	65.00	10.00							x				HW..... 0470-02-100
47.00	67.00	10.00		x									HW..... 0470-03-100
47.00	70.00	10.00	x										HW..... 0470-04-100
47.00	75.00	12.00			x								HW..... 0470-05-100
47.00	77.00	8.00	x										HW..... 0470-06-100
48.00	62.00	8.00	x	x									HW..... 0480-01-100
48.00	65.00	10.00	x	x			x						HW..... 0480-02-100
48.00	67.00	10.00		x									HW..... 0480-03-100
48.00	68.00	10.00		x									HW..... 0480-04-100
48.00	68.00	12.00	x										HW..... 0480-05-100
48.00	68.00	14.00		x									HW..... 0480-06-100
48.00	72.00	8.00	x										HW..... 0480-07-100
48.00	72.00	10.00	x										HW..... 0480-08-100
48.00	72.00	15.00									x		HW..... 0480-09-100
48.00	80.00	10.00	x										HW..... 0480-10-100
49.00	65.00	10.00	x										HW..... 0490-01-100
49.20	79.38	9.65			x								HW..... 0492-01-100
49.50	60.00	8.00	x										HW..... 0495-01-100
50.00	58.00	4.00										x	HW..... 0500-01-100
50.00	58.00	5.00					x						HW..... 0500-02-100
50.00	62.00	5.00										x	HW..... 0500-03-100
50.00	65.00	8.00	x	x					x				HW..... 0500-04-100
50.00	65.00	10.00	x										HW..... 0500-05-100
50.00	68.00	8.00	x	x					x				HW..... 0500-06-100
50.00	68.00	8.50								x			HW..... 0500-07-100
50.00	68.00	10.00	x	x									HW..... 0500-08-100
50.00	70.00	8.00	x										HW..... 0500-09-100
50.00	70.00	10.00	x	x	x								HW..... 0500-10-100
50.00	70.00	12.00	x										HW..... 0500-11-100
50.00	72.00	8/10		x					x				HW..... 0500-12-100
50.00	72.00	6.00	x										HW..... 0500-13-100
50.00	72.00	7.00							x				HW..... 0500-14-100
50.00	72.00	8.00	x	x									HW..... 0500-15-100
50.00	72.00	10.00	x	x									HW..... 0500-16-100
50.00	72.00	12.00	x	x									HW..... 0500-17-100
50.00	72.00	14.00									x		HW..... 0500-18-100
50.00	75.00	10.00	x										HW..... 0500-19-100
50.00	75.00	12.00		x									HW..... 0500-20-100
50.00	80.00	8.00	x	x									HW..... 0500-21-100
50.00	80.00	10.00	x	x	x								HW..... 0500-22-100
50.00	80.00	13.00	x	x									HW..... 0500-23-100
50.00	80.00	15.00									x		HW..... 0500-24-100
50.00	85.00	10.00	x										HW..... 0500-25-100
50.00	90.00	10.00	x	x									HW..... 0500-26-100
50.00	90.00	13.00			x								HW..... 0500-27-100
50.00	95.00	10.00			x								HW..... 0500-28-100
50.00	110.00	12.00	x										HW..... 0500-29-100
50.40	76.20	12.70				x							HW..... 0504-01-100
50.80	69.85	12.70			x								HW..... 0508-01-100
50.80	69.93	12.70						x					HW..... 0508-02-100
50.80	76.20	10.00									x		HW..... 0508-03-100
50.80	76.20	12.70			x								HW..... 0508-04-100

Ø d h11	Ø D H8	E +0,3											Part N°.
			400	410	420	430	440	450	460	470	480	500	
50,80	76,30	9,50	x										HW..... 0508-05-100
51,60	67,85	9,50	x										HW..... 0516-01-100
52,00	68,00	8,00	x										HW..... 0520-01-100
52,00	70,00	7,00	x										HW..... 0520-02-100
52,00	72,00	8,00	x										HW..... 0520-03-100
52,00	73,30	10,60	x										HW..... 0520-04-100
52,00	75,00	12,00	x										HW..... 0520-05-100
52,00	76,00	13,00	x										HW..... 0520-06-100
52,00	80,00	10,00	x	x									HW..... 0520-07-100
52,00	80,00	13,00			x								HW..... 0520-08-100
52,00	85,00	10,00	x	x									HW..... 0520-09-100
52,00	87,00	8,00	x										HW..... 0520-10-100
52,38	80,96	11,43	x										HW..... 0524-01-100
53,00	79,00	10,00	x										HW..... 0530-01-100
53,00	80,00	10,00	x										HW..... 0530-02-100
53,97	72,93	12,70		x									HW..... 0539-01-100
54,00	72,00	10,00		x									HW..... 0540-01-100
54,00	80,00	10,00			x								HW..... 0540-02-100
54,00	85,00	10,00	x	x									HW..... 0540-03-100
54,00	90,00	13,00	x										HW..... 0540-04-100
54,80	70,00	9/9,5							x				HW..... 0548-01-100
54,86	82,57	12,70	x										HW..... 0548-02-100
55,00	63,00	5,00										x	HW..... 0550-01-100
55,00	68,00	8,00	x										HW..... 0550-02-100
55,00	70,00	8,00	x						x				HW..... 0550-03-100
55,00	70,00	10,00	x	x									HW..... 0550-04-100
55,00	72,00	8/8,5							x				HW..... 0550-05-100
55,00	72,00	8,00	x	x									HW..... 0550-06-100
55,00	72,00	10,00	x	x									HW..... 0550-07-100
55,00	75,00	8,00	x										HW..... 0550-08-100
55,00	75,00	9,00	x										HW..... 0550-09-100
55,00	75,00	10,00	x	x									HW..... 0550-10-100
55,00	75,00	12,00	x										HW..... 0550-11-100
55,00	78,00	10,00	x										HW..... 0550-12-100
55,00	80,00	5,00	x										HW..... 0550-13-100
55,00	80,00	6,00	x										HW..... 0550-14-100
55,00	80,00	8,00	x	x	x								HW..... 0550-15-100
55,00	80,00	10,00	x	x		x							HW..... 0550-16-100
55,00	80,00	13,00			x								HW..... 0550-17-100
55,00	85,00	8,00	x										HW..... 0550-18-100
55,00	85,00	10,00	x	x									HW..... 0550-19-100
55,00	85,00	14,00		x									HW..... 0550-20-100
55,00	90,00	8,00	x	x									HW..... 0550-21-100
55,00	90,00	10,00	x	x									HW..... 0550-22-100
55,00	100,00	10,00		x									HW..... 0550-23-100
55,00	100,00	12,00	x										HW..... 0550-24-100
55,00	100,00	13,00	x										HW..... 0550-25-100
56,00	70,00	8,00	x										HW..... 0560-01-100
56,00	72,00	8,00	x										HW..... 0560-02-100
56,00	80,00	8,00	x										HW..... 0560-03-100
56,00	85,00	8,00	x										HW..... 0560-04-100
56,00	90,00	10,00		x									HW..... 0560-05-100
57,00	85,00	13,00	x										HW..... 0570-01-100
57,10	76,20	12,70						x					HW..... 0571-01-100
57,94	84,93	7,93	x										HW..... 0579-01-100
58,00	72,00	8,00	x										HW..... 0580-01-100
58,00	72,00	10,00	x	x									HW..... 0580-02-100
58,00	75,00	12,00			x								HW..... 0580-03-100
58,00	80,00	8,00	x										HW..... 0580-04-100
58,00	80,00	9,00		x									HW..... 0580-05-100

ROTATION SEALS

HW 400 TO HW 500

Ø d h11	Ø D H8	E +0,3											Part N°.
58.00	80.00	10.00		x									HW..... 0580-06-100
58.00	80.00	12.00	x										HW..... 0580-07-100
58.00	85.00	10.00	x										HW..... 0580-08-100
58.00	90.00	10.00	x										HW..... 0580-09-100
58.00	90.00	13.00			x								HW..... 0580-10-100
60.00	70.00	7.00	x										HW..... 0600-01-100
60.00	70.00	10.00								x			HW..... 0600-02-100
60.00	75.00	7/7,5							x				HW..... 0600-03-100
60.00	75.00	8.00	x	x	x				x				HW..... 0600-04-100
60.00	80.00	7.00		x					x				HW..... 0600-05-100
60.00	80.00	8.00	x	x	x	x							HW..... 0600-06-100
60.00	80.00	10.00	x	x				x			x		HW..... 0600-07-100
60.00	80.00	12.00	x		x								HW..... 0600-08-100
60.00	85.00	8.00	x										HW..... 0600-09-100
60.00	85.00	10.00	x	x	x								HW..... 0600-10-100
60.00	85.00	13.00			x								HW..... 0600-11-100
60.00	85.10	12.00			x								HW..... 0600-12-100
60.00	90.00	7.00							x				HW..... 0600-13-100
60.00	90.00	8.00	x	x									HW..... 0600-14-100
60.00	90.00	10.00	x	x									HW..... 0600-16-100
60.00	110.00	13.00	x		x								HW..... 0600-17-100
60.33	88.90	12.70		x									HW..... 0603-01-100
62.00	70.00	10.00								x			HW..... 0620-01-100
62.00	80.00	12.00			x								HW..... 0620-03-100
62.00	82.00	10.00			x								HW..... 0620-04-100
62.00	85.00	7.00							x				HW..... 0620-05-100
62.00	85.00	10.00	x										HW..... 0620-06-100
62.00	90.00	10.00	x	x									HW..... 0620-07-100
62.00	100.00	12.00	x										HW..... 0620-08-100
63.00	80.00	9.00		x									HW..... 0630-01-100
63.00	85.00	10.00	x		x	x							HW..... 0630-02-100
63.00	90.00	10.00	x										HW..... 0630-03-100
63.00	90.00	13.00			x								HW..... 0630-04-100
63.50	85.72	6.35		x									HW..... 0635-01-100
63.50	85.72	12.70				x							HW..... 0635-02-100
64.00	80.00	8.00	x										HW..... 0640-01-100
64.00	85.00	13.00			x								HW..... 0640-02-100
65.00	75.00	8.00		x									HW..... 0650-01-100
65.00	80.00	8.00	x										HW..... 0650-02-100
65.00	80.00	10.00		x									HW..... 0650-03-100
65.00	85.00	8.00	x										HW..... 0650-04-100
65.00	85.00	10.00	x	x	x								HW..... 0650-05-100
65.00	90.00	10.00	x	x	x				x				HW..... 0650-06-100
65.00	90.00	12.00			x	x							HW..... 0650-07-100
65.00	95.00	10.00	x										HW..... 0650-08-100
65.00	100.00	10.00		x		x		x					HW..... 0650-09-100
65.00	125.00	12.00	x										HW..... 0650-10-100
65.09	88.90	12.70		x									HW..... 0651-01-100
66.00	90.00	10.00			x								HW..... 0660-01-100
68.00	90.00	10.00	x		x	x							HW..... 0680-01-100
68.00	95.00	13.00	x										HW..... 0680-02-100
68.00	97.00	8.00	x										HW..... 0680-03-100
68.00	100.00	10.00	x	x									HW..... 0680-04-100
68.00	100.00	12.00			x								HW..... 0680-05-100
68.00	100.00	13.00	x										HW..... 0680-06-100
68.00	110.00	13.00			x								HW..... 0680-07-100
70.00	78.00	5.00										x	HW..... 0700-01-100
70.00	81.50	6.00								x			HW..... 0700-02-100
70.00	85.00	7.00	x										HW..... 0700-03-100
70.00	85.00	8.00	x	x									HW..... 0700-04-100

Ø d h11	Ø D H8	E +0,3											Part N°.
70,00	85,00	10,00	x	x									HW..... 0700-05-100
70,00	90,00	7,00							x				HW..... 0700-06-100
70,00	90,00	10,00	x	x	x	x			x		x		HW..... 0700-07-100
70,00	90,00	12,00	x										HW..... 0700-08-100
70,00	90,00	13,00			x						x		HW..... 0700-09-100
70,00	95,00	10,00	x										HW..... 0700-10-100
70,00	95,00	12,00		x									HW..... 0700-11-100
70,00	95,00	13,00	x			x							HW..... 0700-12-100
70,00	100,00	10,00	x	x	x				x				HW..... 0700-13-100
70,00	100,00	12,00	x										HW..... 0700-14-100
70,00	105,00	10,00	x										HW..... 0700-15-100
70,00	110,00	10,00	x	x									HW..... 0700-16-100
70,00	110,00	12,00	x	x									HW..... 0700-17-100
70,00	120,00	12,00	x										HW..... 0700-18-100
70,00	120,00	13,00	x		x								HW..... 0700-19-100
70,00	150,00	12,00	x										HW..... 0700-20-100
72,00	85,00	10,00	x										HW..... 0720-01-100
72,00	90,00	10,00	x	x		x							HW..... 0720-02-100
72,00	95,00	10,00	x		x								HW..... 0720-03-100
72,00	95,00	12,00	x										HW..... 0720-04-100
72,00	95,00	13,00			x								HW..... 0720-05-100
72,00	100,00	10,00	x	x									HW..... 0720-06-100
72,00	101,60	12,50	x										HW..... 0720-07-100
72,00	110,00	12,00	x										HW..... 0720-08-100
72,00	130,00	12,00	x										HW..... 0720-09-100
75,00	90,00	8,00	x	x									HW..... 0750-01-100
75,00	90,00	10,00	x	x					x				HW..... 0750-02-100
75,00	90,00	12,00	x										HW..... 0750-03-100
75,00	95,00	9,00		x									HW..... 0750-04-100
75,00	95,00	10,00	x	x					x				HW..... 0750-05-100
75,00	95,00	12,00	x										HW..... 0750-06-100
75,00	100,00	10,00	x	x	x								HW..... 0750-07-100
75,00	100,00	13,00				x					x		HW..... 0750-08-100
75,00	105,00	12,00	x			x							HW..... 0750-09-100
75,00	107,00	10,00	x										HW..... 0750-10-100
75,00	110,00	12,00	x	x									HW..... 0750-11-100
75,00	115,00	13,00				x							HW..... 0750-12-100
75,00	120,00	12,00	x										HW..... 0750-13-100
75,00	130,00	13,00	x										HW..... 0750-14-100
76,00	100,00	16,00		x									HW..... 0760-01-100
76,20	98,43	11,11			x								HW..... 0760-02-100
76,20	104,78	12,70									x		HW..... 0762-01-100
78,00	90,00	8,00	x										HW..... 0780-01-100
78,00	95,00	13,00			x								HW..... 0780-02-100
78,00	95,50	12,70	x										HW..... 0780-03-100
78,00	100,00	10,00	x	x									HW..... 0780-04-100
78,00	110,00	12,00	x										HW..... 0780-05-100
80,00	90,00	5,00								x		x	HW..... 0800-01-100
80,00	90,00	6,00								x			HW..... 0800-02-100
80,00	90,00	12,00								x			HW..... 0800-03-100
80,00	95,00	5,00					x						HW..... 0800-05-100
80,00	95,00	8,00	x										HW..... 0800-06-100
80,00	100,00	7,00							x				HW..... 0800-07-100
80,00	100,00	10,00	x	x	x	x							HW..... 0800-08-100
80,00	100,00	12,00									x		HW..... 0800-09-100
80,00	100,00	13,00	x	x	x								HW..... 0800-10-100
80,00	105,00	10,00	x										HW..... 0800-11-100
80,00	105,00	13,00	x										HW..... 0800-12-100
80,00	108,00	10,00				x							HW..... 0800-13-100
80,00	110,00	10,00	x	x									HW..... 0800-14-100

Ø d h11	Ø D H8	E +0,3											Part N°.
80,00	110,00	12,00	x	x									HW..... 0800-15-100
80,00	110,00	13,00				x							HW..... 0800-16-100
80,00	110,00	14,00			x								HW..... 0800-17-100
80,00	120,00	13,00	x										HW..... 0800-18-100
80,00	125,00	10,00		x									HW..... 0800-19-100
80,00	125,00	12,00	x	x									HW..... 0800-20-100
80,00	150,50	13,00	x										HW..... 0800-21-100
82,00	105,00	10/12		x									HW..... 0820-01-100
82,00	105,00	12,00	x	x									HW..... 0820-02-100
82,00	105,00	13,00			x								HW..... 0820-03-100
82,00	110,00	12,00	x										HW..... 0820-04-100
83,50	105,00	13,00			x								HW..... 0835-01-100
84,00	105,00	13,00			x								HW..... 0840-01-100
84,00	110,00	12,00			x								HW..... 0840-02-100
85,00	100,00	9,00	x										HW..... 0850-01-100
85,00	102,00	13,00	x										HW..... 0850-02-100
85,00	105,00	12,00					x		x				HW..... 0850-03-100
85,00	105,00	13,00	x										HW..... 0850-04-100
85,00	110,00	12,00	x	x		x							HW..... 0850-05-100
85,00	110,00	13,00	x	x	x								HW..... 0850-06-100
85,00	110,00	15,00			x								HW..... 0850-07-100
85,00	115,00	15,00	x										HW..... 0850-08-100
85,00	120,00	7,50							x				HW..... 0850-09-100
85,00	120,00	12,00	x	x	x								HW..... 0850-10-100
85,00	120,00	13,00	x	x									HW..... 0850-11-100
85,00	120,00	15,00			x								HW..... 0850-12-100
85,00	125,00	13,00			x								HW..... 0850-13-100
85,00	130,00	12,00	x	x									HW..... 0850-14-100
85,00	140,00	12,00	x	x									HW..... 0850-15-100
87,00	110,00	10,00			x	x							HW..... 0870-01-100
88,00	105,00	12,00	x										HW..... 0880-01-100
88,00	110,00	12,00	x										HW..... 0880-02-100
88,00	113,00	8,00	x										HW..... 0880-03-100
88,00	120,00	10,00			x								HW..... 0880-04-100
88,00	120,00	13,00			x								HW..... 0880-05-100
88,00	140,00	12,00	x										HW..... 0880-06-100
88,00	150,00	13,00	x										HW..... 0880-07-100
88,80	114,28	12,70		x									HW..... 0888-01-100
88,90	114,30	11,90			x								HW..... 0889-01-100
88,90	120,70	10,00			x								HW..... 0889-02-100
88,90	127,00	12,70	x										HW..... 0889-03-100
89,00	120,00	13,00			x								HW..... 0890-01-100
89,70	105,00	6,00	x										HW..... 0897-01-100
90,00	105,00	10,00	x										HW..... 0900-01-100
90,00	110,00	7,50		x									HW..... 0900-02-100
90,00	110,00	8,00	x		x								HW..... 0900-03-100
90,00	110,00	10,00	x										HW..... 0900-04-100
90,00	110,00	12,00	x	x					x				HW..... 0900-05-100
90,00	110,00	13,00	x		x								HW..... 0900-06-100
90,00	115,00	9,00	x										HW..... 0900-07-100
90,00	115,00	13,00	x		x								HW..... 0900-08-100
90,00	118,00	12,00				x							HW..... 0900-09-100
90,00	120,00	12,00	x		x								HW..... 0900-10-100
90,00	120,00	13,00	x	x									HW..... 0900-11-100
90,00	120,00	15,00			x	x							HW..... 0900-12-100
90,00	125,00	12,00							x				HW..... 0900-13-100
90,00	130,00	12,00	x	x									HW..... 0900-14-100
90,00	130,00	13,00	x			x							HW..... 0900-15-100
90,00	160,00	12,00	x										HW..... 0900-16-100
92,00	120,00	10,00				x							HW..... 0920-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
92,00	120,00	13,00	x	x	x								HW..... 0920-02-100
92,08	111,13	11,10		x									HW..... 0921-01-100
92,20	126,70	11,60			x								HW..... 0922-01-100
93,00	130,20	10,00			x								HW..... 0930-01-100
95,00	110,00	10,00	x										HW..... 0950-01-100
95,00	110,00	12,00	x										HW..... 0950-02-100
95,00	115,00	9,00			x								HW..... 0950-03-100
95,00	115,00	10,00			x								HW..... 0950-04-100
95,00	115,00	13,00			x								HW..... 0950-05-100
95,00	120,00	8,00		x									HW..... 0950-06-100
95,00	120,00	12,00	x	x	x								HW..... 0950-07-100
95,00	120,00	13,00	x			x							HW..... 0950-08-100
95,00	120,00	15,00			x								HW..... 0950-09-100
95,00	125,00	10,00		x									HW..... 0950-10-100
95,00	125,00	12,00	x	x		x							HW..... 0950-11-100
95,00	130,00	13,00		x									HW..... 0950-12-100
95,00	133,00	14,00			x								HW..... 0950-13-100
95,25	127,00	11,00			x								HW..... 0953-01-100
96,00	112,00	10,00	x										HW..... 0960-01-100
98,00	120,00	12,00			x								HW..... 0980-01-100
98,00	125,00	10,00	x										HW..... 0980-02-100
98,00	125,00	13,00			x								HW..... 0980-03-100
98,40	125,00	13,00			x								HW..... 0984-01-100
100,00	115,00	9,00		x									HW..... 1000-01-100
100,00	120,00	10,00					x						HW..... 1000-02-100
100,00	120,00	12,00	x	x	x						x		HW..... 1000-03-100
100,00	120,00	13,00	x										HW..... 1000-04-100
100,00	120,00	14,00									x		HW..... 1000-05-100
100,00	125,00	12,00	x										HW..... 1000-06-100
100,00	125,00	13,00				x							HW..... 1000-07-100
100,00	130,00	12,00	x	x							x		HW..... 1000-08-100
100,00	130,00	13,00	x		x						x		HW..... 1000-09-100
100,00	130,00	14,00	x										HW..... 1000-10-100
100,00	136,53	12,70			x								HW..... 1000-11-100
100,00	140,00	13,00	x										HW..... 1000-12-100
100,00	150,00	13,00		x									HW..... 1000-13-100
100,00	160,00	12,00	x										HW..... 1000-14-100
100,00	160,00	15,00			x								HW..... 1000-15-100
100,00	180,00	13,00	x										HW..... 1000-16-100
101,60	127,00	12,70			x								HW..... 1016-01-100
101,60	127,10	12,70				x							HW..... 1016-02-100
101,60	136,68	11,13			x								HW..... 1016-03-100
101,60	139,70	12,70				x							HW..... 1016-04-100
101,60	139,70	14,29			x								HW..... 1016-05-100
101,60	146,05	14,28			x								HW..... 1016-06-100
102,00	115,00	10,00		x									HW..... 1020-01-100
102,00	125,00	13,00			x								HW..... 1020-02-100
102,00	130,00	13,00			x								HW..... 1020-03-100
104,00	130,00	10,00	x										HW..... 1040-01-100
105,00	125,00	13,00	x	x									HW..... 1050-01-100
105,00	130,00	12,00	x	x									HW..... 1050-02-100
105,00	130,00	13,00		x	x								HW..... 1050-03-100
105,00	130,00	15,00	x		x								HW..... 1050-04-100
105,00	135,00	15,00		x									HW..... 1050-05-100
105,00	140,00	12,00	x						x				HW..... 1050-06-100
105,00	150,00	15,00	x										HW..... 1050-07-100
105,00	150,00	15,00			x								HW..... 1050-08-100
105,00	160,00	12,00	x										HW..... 1050-09-100
106,40	130,00	10,00			x								HW..... 1064-01-100
107,95	136,45	12,70	x										HW..... 1079-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
108,00	130,00	13,00			x								HW..... 1080-01-100
108,00	133,40	13,00			x								HW..... 1080-02-100
108,00	140,00	13,00			x								HW..... 1080-03-100
110,00	130,00	8,00	x										HW..... 1100-01-100
110,00	130,00	12,00	x	x	x				x				HW..... 1100-02-100
110,00	130,00	13,00	x										HW..... 1100-03-100
110,00	130,00	14,50	x										HW..... 1100-04-100
110,00	135,00	12,00	x										HW..... 1100-05-100
110,00	140,00	10,00	x										HW..... 1100-06-100
110,00	140,00	12,00	x	x	x								HW..... 1100-07-100
110,00	140,00	13,00	x										HW..... 1100-08-100
110,00	140,00	13,00			x	x							HW..... 1100-09-100
110,00	140,00	15,00			x								HW..... 1100-10-100
110,00	150,00	13,00			x								HW..... 1100-11-100
110,00	150,00	15,00			x								HW..... 1100-12-100
110,00	152,00	15,00			x								HW..... 1100-13-100
112,00	140,00	13,00			x								HW..... 1120-01-100
112,00	200,00	10,00			x								HW..... 1120-02-100
113,00	140,00	13,00			x								HW..... 1130-01-100
114,30	139,70	12,70			x								HW..... 1143-01-100
115,00	140,00	10,00	x										HW..... 1150-01-100
115,00	140,00	12,00	x	x									HW..... 1150-02-100
115,00	140,00	13,00	x	x	x								HW..... 1150-03-100
115,00	145,00	16,00				x							HW..... 1150-04-100
115,00	150,00	12,00	x	x									HW..... 1150-05-100
115,00	150,00	13,00			x								HW..... 1150-06-100
115,00	150,00	16,00			x								HW..... 1150-07-100
118,00	150,00	12,00				x							HW..... 1180-01-100
118,00	150,00	15,00									x		HW..... 1180-02-100
119,00	140,00	15,00			x								HW..... 1190-01-100
120,00	140,00	10,00			x								HW..... 1200-01-100
120,00	140,00	13,00	x		x	x			x				HW..... 1200-02-100
120,00	150,00	10/12		x									HW..... 1200-03-100
120,00	150,00	10,00	x										HW..... 1200-04-100
120,00	150,00	12,00	x	x					x				HW..... 1200-05-100
120,00	150,00	13,00	x		x								HW..... 1200-06-100
120,00	150,00	15,00		x	x				x				HW..... 1200-07-100
120,00	152,00	16,00			x								HW..... 1200-08-100
120,00	155,00	12,00	x										HW..... 1200-09-100
120,00	155,00	16,00				x							HW..... 1200-10-100
120,00	160,00	12,00	x										HW..... 1200-11-100
120,00	160,00	13,00	x		x								HW..... 1200-12-100
120,00	160,00	15,00	x										HW..... 1200-13-100
120,00	200,00	15,00	x										HW..... 1200-14-100
122,00	150,00	12,00	x										HW..... 1220-01-100
122,00	150,00	15,00			x								HW..... 1220-02-100
124,00	150,00	15,00			x								HW..... 1240-01-100
125,00	140,00	10,00	x										HW..... 1250-01-100
125,00	143,00	13,00		x									HW..... 1250-02-100
125,00	150,00	10,00				x							HW..... 1250-03-100
125,00	150,00	12,00	x	x	x								HW..... 1250-04-100
125,00	150,00	13,00			x								HW..... 1250-05-100
125,00	155,00	12,00	x	x									HW..... 1250-06-100
125,00	160,00	12,00	x										HW..... 1250-07-100
125,00	160,00	15,00		x									HW..... 1250-08-100
125,00	162,00	12,00				x							HW..... 1250-09-100
125,00	162,00	15,00			x								HW..... 1250-10-100
126,00	158,00	10,00	x										HW..... 1260-01-100
127,00	152,40	12,70	x		x								HW..... 1270-01-100
128,00	146,00	13,50		x									HW..... 1280-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
128,00	150,00	13,00	x										HW..... 1280-02-100
128,00	150,00	15,00			x								HW..... 1280-03-100
128,00	158,00	20,00	x										HW..... 1280-04-100
128,00	160,00	13,00	x										HW..... 1280-05-100
130,00	150,00	10,00	x										HW..... 1300-01-100
130,00	150,00	12,00		x									HW..... 1300-02-100
130,00	150,00	14,00			x								HW..... 1300-03-100
130,00	150,00	15,00		x									HW..... 1300-04-100
130,00	155,00	12,00			x								HW..... 1300-05-100
130,00	160,00	12,00	x	x					x				HW..... 1300-06-100
130,00	160,00	13,00	x		x								HW..... 1300-07-100
130,00	160,00	14,00		x									HW..... 1300-08-100
130,00	160,00	15,00	x	x	x	x							HW..... 1300-09-100
130,00	170,00	12,00	x	x									HW..... 1300-10-100
130,00	170,00	13,00	x										HW..... 1300-11-100
130,00	170,00	15,00			x								HW..... 1300-12-100
130,00	170,00	16,00			x								HW..... 1300-13-100
132,50	155,60	13,00	x										HW..... 1325-01-100
133,30	158,70	12,70	x										HW..... 1333-01-100
134,50	155,50	9,52	x										HW..... 1345-01-100
135,00	160,00	12,00	x										HW..... 1350-01-100
135,00	160,00	13,00			x								HW..... 1350-02-100
135,00	160,00	15,00	x	x									HW..... 1350-03-100
135,00	170,00	12,00	x										HW..... 1350-04-100
135,00	170,00	15,00			x								HW..... 1350-05-100
135,00	180,00	15,00	x										HW..... 1350-06-100
138,00	160,00	15,00	x		x								HW..... 1350-07-100
139,70	165,10	12,70			x	x							HW..... 1397-01-100
139,70	171,60	15,87	x										HW..... 1397-02-100
139,70	174,60	14,28			x								HW..... 1397-03-100
140,00	160,00	12,00		x									HW..... 1400-01-100
140,00	160,00	13,00				x							HW..... 1400-02-100
140,00	165,00	12,00	x		x								HW..... 1400-03-100
140,00	165,00	12,50			x								HW..... 1400-04-100
140,00	165,00	15,00	x	x									HW..... 1400-05-100
140,00	170,00	8,00	x	x									HW..... 1400-06-100
140,00	170,00	12,00	x	x	x	x							HW..... 1400-07-100
140,00	170,00	14,00		x									HW..... 1400-08-100
140,00	170,00	15,00	x	x					x				HW..... 1400-09-100
140,00	180,00	12,00	x	x									HW..... 1400-10-100
140,00	180,00	13,00	x										HW..... 1400-11-100
140,00	180,00	15,00	x										HW..... 1400-12-100
140,00	190,00	15,00			x								HW..... 1400-13-100
143,00	170,00	10,00			x								HW..... 1430-01-100
144,00	160,00	12,00	x										HW..... 1440-01-100
144,80	175,00	12,00			x								HW..... 1448-01-100
145,00	165,00	15,00			x								HW..... 1450-01-100
145,00	167,00	13,00		x									HW..... 1450-02-100
145,00	170,00	10,00			x								HW..... 1450-03-100
145,00	170,00	13,00			x								HW..... 1450-04-100
145,00	170,00	15,00	x	x									HW..... 1450-05-100
145,00	180,00	12,00	x										HW..... 1450-06-100
145,00	180,00	13,00	x										HW..... 1450-07-100
145,00	180,00	14,00	x										HW..... 1450-08-100
145,00	180,00	15,00	x		x	x							HW..... 1450-09-100
146,00	163,00	7,00	x										HW..... 1460-01-100
146,00	170,00	15,00			x								HW..... 1460-02-100
148,00	170,00	14,50	x										HW..... 1480-01-100
149,00	170,00	14,50				x							HW..... 1480-02-100
149,00	180,00	15,00			x								HW..... 1490-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
150,00	168,00	12,00	x										HW..... 1500-01-100
150,00	170,00	12,00	x										HW..... 1500-02-100
150,00	170,00	15,00			x								HW..... 1500-03-100
150,00	178,00	12,00		x									HW..... 1500-04-100
150,00	180,00	8/8,5							x				HW..... 1500-05-100
150,00	180,00	12,00	x										HW..... 1500-06-100
150,00	180,00	13,00	x	x									HW..... 1500-07-100
150,00	180,00	14,00	x										HW..... 1500-08-100
150,00	180,00	15,00	x	x	x	x							HW..... 1500-09-100
150,00	180,00	20,00		x									HW..... 1500-10-100
150,00	195,00	15,00			x								HW..... 1500-11-100
150,81	178,05	12,70	x										HW..... 1508-01-100
152,00	190,00	15,00			x								HW..... 1520-01-100
152,00	195,00	15,00			x								HW..... 1520-02-100
152,40	182,56	19,05			x								HW..... 1524-01-100
152,40	187,32	19,00		x									HW..... 1524-02-100
152,40	190,70	15,00			x								HW..... 1524-03-100
155,00	175,00	12,00	x										HW..... 1550-01-100
155,00	180,00	15,00			x								HW..... 1550-02-100
155,00	185,00	15,00		x									HW..... 1550-03-100
155,00	193,90	15,50			x								HW..... 1550-04-100
155,00	200,00	15,00			x								HW..... 1550-05-100
157,00	190,50	16,00			x								HW..... 1570-01-100
158,00	180,00	13,00	x										HW..... 1580-01-100
158,80	190,00	12,00			x								HW..... 1588-01-100
159,00	185,00	16,00			x								HW..... 1590-01-100
160,00	180,00	10,00		x									HW..... 1600-01-100
160,00	180,00	12,00		x									HW..... 1600-02-100
160,00	180,00	15,00			x								HW..... 1600-03-100
160,00	185,00	10,00	x										HW..... 1600-04-100
160,00	190,00	8,00							x				HW..... 1600-05-100
160,00	190,00	13,00	x	x	x								HW..... 1600-06-100
160,00	190,00	15,00	x	x									HW..... 1600-07-100
160,00	190,00	15,00			x	x							HW..... 1600-08-100
160,00	200,00	12,00	x	x									HW..... 1600-09-100
160,00	200,00	14,00			x								HW..... 1600-10-100
162,00	190,00	10,00			x								HW..... 1620-01-100
162,00	190,00	12,00	x										HW..... 1620-02-100
165,00	190,00	8,00		x									HW..... 1650-01-100
165,00	190,00	13,00	x										HW..... 1650-02-100
165,00	190,00	15,00				x							HW..... 1650-03-100
165,00	200,00	15,00	x	x									HW..... 1650-04-100
165,10	190,50	14,29			x								HW..... 1651-01-100
165,10	234,95	19,05				x							HW..... 1651-02-100
135,20	203,30	19,05	x										HW..... 1652-01-100
168,00	200,00	12,00			x								HW..... 1680-01-100
168,00	200,00	15,00	x										HW..... 1680-02-100
169,00	190,00	10,00			x								HW..... 1690-01-100
170,00	190,00	15,00	x	x	x								HW..... 1700-01-100
170,00	200,00	12,00	x										HW..... 1700-02-100
170,00	200,00	13,00			x								HW..... 1700-03-100
170,00	200,00	15,00	x	x									HW..... 1700-04-100
170,00	200,00	16,00	x			x							HW..... 1700-05-100
170,00	225,00	16,00			x								HW..... 1700-06-100
170,00	245,00	16,00			x								HW..... 1700-07-100
171,40	209,50	15,80			x								HW..... 1714-01-100
175,00	200,00	10,00	x										HW..... 1750-01-100
175,00	200,00	15,00	x	x	x								HW..... 1750-02-100
175,00	200,00	16,00	x										HW..... 1750-03-100
175,00	210,00	14,00	x										HW..... 1750-04-100

Ø d h11	Ø D H8	E +0,3												Part N°.
175,00	210,00	15,00			x	x								HW..... 1750-05-100
177,80	203,20	15,88			x									HW..... 1778-01-100
177,80	222,25	19,05			x									HW..... 1778-02-100
178,00	200,00	12,00			x									HW..... 1780-01-100
180,00	200,00	13,00	x											HW..... 1800-01-100
180,00	200,00	15,00	x		x									HW..... 1800-02-100
180,00	200,00	16,00		x										HW..... 1800-03-100
180,00	210,00	15,00	x	x	x									HW..... 1800-04-100
180,00	215,00	15,00	x	x	x	x								HW..... 1800-05-100
180,00	215,00	16,00	x	x										HW..... 1800-06-100
180,00	220,00	15,00	x			x								HW..... 1800-07-100
184,15	222,25	14,50	x											HW..... 1842-01-100
185,00	210,00	13,00	x	x	x									HW..... 1850-01-100
185,00	210,00	15,00	x											HW..... 1850-02-100
185,00	215,00	15,00	x		x									HW..... 1850-03-100
185,00	215,00	16,00	x											HW..... 1850-04-100
185,00	220,00	15,00	x											HW..... 1850-05-100
185,00	230,00	16,00			x									HW..... 1850-06-100
186,00	215,90	12,00			x									HW..... 1860-01-100
186,00	216,00	12,00			x									HW..... 1860-02-100
188,00	215,00	16,00			x									HW..... 1880-01-100
190,00	215,00	15,00		x	x									HW..... 1900-01-100
190,00	215,00	16,00	x	x	x									HW..... 1900-02-100
190,00	220,00	12,00			x	x								HW..... 1900-03-100
190,00	220,00	15,00	x	x	x									HW..... 1900-04-100
190,00	220,00	16,00	x		x									HW..... 1900-05-100
190,00	225,00	16,00	x	x										HW..... 1900-06-100
190,00	230,00	15,00	x			x								HW..... 1900-07-100
190,00	230,00	16,00	x	x										HW..... 1900-08-100
190,50	215,90	15,75			x									HW..... 1905-01-100
190,50	222,25	15,00			x									HW..... 1905-02-100
190,50	228,60	19,05			x									HW..... 1905-03-100
192,00	210,00	10,00	x											HW..... 1920-01-100
193,70	219,10	12,70			x									HW..... 1937-01-100
194,00	222,00	12,00			x									HW..... 1940-01-100
195,00	215,00	15,00		x										HW..... 1950-01-100
195,00	220,00	16,00			x									HW..... 1950-02-100
195,00	230,00	15,00			x									HW..... 1950-03-100
195,00	230,00	16,00			x									HW..... 1950-04-100
196,85	241,30	19,05			x									HW..... 1971-01-100
200,00	225,00	12,50			x									HW..... 2000-01-100
200,00	225,00	15,00	x											HW..... 2000-02-100
200,00	230,00	13,00	x	x										HW..... 2000-03-100
200,00	230,00	15,00	x	x	x	x								HW..... 2000-04-100
200,00	230,00	16,00			x									HW..... 2000-05-100
200,00	230,00	18,00				x								HW..... 2000-06-100
200,00	235,00	15,00	x											HW..... 2000-07-100
200,00	240,00	15,00	x		x		x							HW..... 2000-08-100
200,00	240,00	20,00				x								HW..... 2000-09-100
200,00	250,00	15,00	x		x									HW..... 2000-10-100
200,00	250,00	16,00	x											HW..... 2000-11-100
203,00	230,00	12,00				x								HW..... 2030-01-100
203,00	230,00	14,00			x									HW..... 2030-02-100
203,20	241,30	19,05			x									HW..... 2032-01-100
203,20	254,00	15,87				x								HW..... 2032-02-100
205,00	230,00	15,00			x									HW..... 2050-01-100
205,00	230,00	16,00	x		x									HW..... 2050-02-100
205,00	250,00	16,00			x									HW..... 2050-03-100
207,00	240,00	16,00		x										HW..... 2070-01-100
209,60	235,00	12,70			x									HW..... 2096-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
210,00	230,00	16,00			x								HW..... 2100-01-100
210,00	235,00	12,00			x								HW..... 2100-02-100
210,00	240,00	13,00	x										HW..... 2100-03-100
210,00	240,00	15,00	x	x									HW..... 2100-04-100
210,00	240,00	16,00			x								HW..... 2100-05-100
210,00	250,00	15,00	x		x	x							HW..... 2100-06-100
210,00	250,00	16,00			x								HW..... 2100-07-100
210,00	250,00	20,00				x							HW..... 2100-08-100
210,00	260,00	15,00	x		x								HW..... 2100-09-100
210,00	260,00	25,00			x								HW..... 2100-10-100
210,00	290,00	20,00	x	x									HW..... 2100-11-100
214,00	241,50	15,00			x								HW..... 2140-01-100
215,00	240,00	12,00	x		x								HW..... 2150-01-100
215,00	245,00	16,00			x								HW..... 2150-02-100
215,00	248,00	15,00	x										HW..... 2150-03-100
215,00	250,00	15,00			x								HW..... 2150-04-100
215,00	250,00	16,00			x								HW..... 2150-05-100
215,90	241,30	12,70			x								HW..... 2159-01-100
215,90	247,65	19,05			x								HW..... 2159-02-100
215,90	254,10	14,28		x									HW..... 2159-03-100
215,90	254,10	19,05		x									HW..... 2159-04-100
219,10	244,50	12,70			x								HW..... 2191-01-100
220,00	250,00	12,00	x										HW..... 2200-01-100
220,00	250,00	15,00	x	x	x	x							HW..... 2200-02-100
220,00	250,00	16,00	x			x					x		HW..... 2200-03-100
220,00	250,00	18,00				x							HW..... 2200-03-100
220,00	255,00	16,00	x										HW..... 2200-04-100
220,00	255,00	18,00	x										HW..... 2200-05-100
220,00	260,00	15,00	x										HW..... 2200-06-100
220,00	260,00	16,00	x										HW..... 2200-07-100
220,00	260,00	18,00			x								HW..... 2200-08-100
220,00	260,00	22,00			x	x							HW..... 2200-09-100
220,00	270,00	15,00			x								HW..... 2200-10-100
220,00	280,00	20,00	x										HW..... 2200-11-100
225,00	250,00	12,50			x								HW..... 2250-01-100
225,00	250,00	16,00			x								HW..... 2250-02-100
228,60	254,00	19,05			x								HW..... 2286-01-100
229,00	255,00	15,00			x								HW..... 2290-01-100
230,00	260,00	12,50	x										HW..... 2300-01-100
230,00	260,00	15,00	x	x	x								HW..... 2300-02-100
230,00	270,00	15,00	x		x								HW..... 2300-03-100
230,00	270,00	16,00			x	x							HW..... 2300-04-100
230,00	280,00	15,00	x										HW..... 2300-05-100
230,00	280,00	16,00	x		x								HW..... 2300-06-100
230,00	285,00	23,00			x								HW..... 2300-07-100
235,00	265,00	15,00	x										HW..... 2350-01-100
235,00	270,00	15,00			x								HW..... 2350-02-100
235,00	270,00	16,00			x								HW..... 2350-03-100
240,00	270,00	15,00	x	x	x	x							HW..... 2400-01-100
240,00	270,00	16,00			x								HW..... 2400-02-100
240,00	270,00	18,50							x				HW..... 2400-03-100
240,00	275,00	16,00	x										HW..... 2400-04-100
240,00	280,00	15,00	x										HW..... 2400-05-100
240,00	280,00	16,00	x		x								HW..... 2400-06-100
240,00	280,00	18,50							x				HW..... 2400-07-100
240,00	280,00	20,00				x							HW..... 2400-08-100
240,00	290,00	16,00			x								HW..... 2400-09-100
241,30	292,30	25,40	x										HW..... 2413-01-100
241,30	317,70	20,60			x								HW..... 2413-02-100
245,00	270,00	16,00			x								HW..... 2450-01-100

Ø d h11	Ø D H8	E +0,3											Part N°.
245,00	285,00	16,50			x								HW..... 2450-02-100
250,00	280,00	15,00	x	x	x	x							HW..... 2500-01-100
250,00	280,00	16,00			x								HW..... 2500-02-100
250,00	285,00	18,00		x									HW..... 2500-03-100
250,00	290,00	15,00			x								HW..... 2500-04-100
250,00	290,00	16,00	x		x								HW..... 2500-05-100
250,00	310,00	25,00			x								HW..... 2500-06-100
254,00	279,40	12,70			x								HW..... 2540-01-100
254,00	292,10	19,05			x								HW..... 2540-02-100
254,00	304,80	15,88			x								HW..... 2540-03-100
255,00	290,00	16,00			x								HW..... 2550-01-100
259,00	300,00	20,00									x		HW..... 2600-01-100
260,00	280,00	16,00			x								HW..... 2600-02-100
260,00	290,00	15,00	x										HW..... 2600-03-100
260,00	290,00	16,00	x		x	x							HW..... 2600-04-100
260,00	290,00	20,00			x								HW..... 2600-05-100
260,00	300,00	16,00			x								HW..... 2600-06-100
260,00	300,00	20,00	x		x	x							HW..... 2600-07-100
260,00	310,00	16,00			x								HW..... 2600-08-100
260,00	320,00	25,00			x	x							HW..... 2600-09-100
265,00	290,00	16,00	x		x								HW..... 2650-01-100
265,00	300,00	16,00			x								HW..... 2650-02-100
265,00	310,00	16,00			x								HW..... 2650-03-100
266,70	304,80	19,05			x	x							HW..... 2667-01-100
266,70	317,50	15,88			x								HW..... 2667-02-100
267,00	300,00	20,00			x								HW..... 2670-01-100
267,00	318,00	19,00		x									HW..... 2670-02-100
268,00	300,00	16,00			x								HW..... 2680-01-100
270,00	300,00	15,00	x										HW..... 2700-01-100
270,00	310,00	16,00	x		x								HW..... 2700-02-100
270,00	330,00	25,00			x								HW..... 2700-03-100
272,00	310,00	16,00			x								HW..... 2720-01-100
275,00	310,00	16,00			x								HW..... 2750-01-100
275,00	320,00	15,00	x										HW..... 2750-02-100
279,40	304,80	12,70			x								HW..... 2794-01-100
279,40	304,80	16,66	x										HW..... 2794-02-100
279,40	330,00	19,05				x							HW..... 2794-03-100
280,00	210,00	15,00	x										HW..... 2800-01-100
280,00	310,00	16,00	x	x	x	x							HW..... 2800-02-100
280,00	315,00	15,00		x									HW..... 2800-11-100
280,00	315,00	16,00	x										HW..... 2800-03-100
280,00	316,00	18,00			x								HW..... 2800-04-100
280,00	320,00	15,00	x										HW..... 2800-05-100
280,00	320,00	16,00	x		x	x							HW..... 2800-06-100
280,00	320,00	20,00	x	x	x	x							HW..... 2800-07-100
280,00	324,00	25,00			x								HW..... 2800-08-100
280,00	380,00	20,00			x								HW..... 2800-09-100
280,00	400,00	15,00			x								HW..... 2800-10-100
285,00	310,00	16,00			x								HW..... 2850-01-100
285,00	320,00	16,00			x								HW..... 2850-02-100
285,00	325,00	15,00			x								HW..... 2850-03-100
285,00	325,00	16,00			x								HW..... 2850-04-100
285,00	330,00	20,00			x								HW..... 2850-05-100
285,75	336,55	23,81	x										HW..... 2857-01-100
290,00	320,00	15,00	x										HW..... 2900-01-100
290,00	321,00	19,00	x										HW..... 2900-02-100
290,00	330,00	15,00			x								HW..... 2900-03-100
290,00	330,00	16,00			x								HW..... 2900-04-100
290,00	330,00	18,00	x	x	x								HW..... 2900-05-100
290,00	334,00	20,00			x								HW..... 2900-06-100

Ø d h11	Ø D H8	E +0,3											Part N°.
290,00	350,00	25,00			x								HW..... 2900-07-100
295,00	335,00	16,00			x								HW..... 2950-01-100
295,00	335,00	18,00			x								HW..... 2950-02-100
300,00	332,00	16,00	x		x	x							HW..... 3000-01-100
300,00	335,00	18,00			x								HW..... 3000-02-100
300,00	340,00	16,00	x		x								HW..... 3000-03-100
300,00	340,00	18,00	x	x	x								HW..... 3000-04-100
300,00	340,00	20,00	x	x	x	x							HW..... 3000-05-100
300,00	342,00	16,00			x								HW..... 3000-06-100
300,00	344,00	20,50			x								HW..... 3000-07-100
300,00	350,00	18,00			x								HW..... 3000-08-100
300,00	350,00	19,00			x								HW..... 3000-09-100
300,00	350,00	20,00			x								HW..... 3000-10-100
300,00	360,00	18,00			x								HW..... 3000-11-100
300,00	400,00	18,00			x								HW..... 3000-12-100
300,00	420,00	20,00			x								HW..... 3000-13-100
304,80	330,20	12,70			x								HW..... 3048-01-100
304,80	355,60	25,40			x								HW..... 3048-02-100
305,00	340,00	18,00			x								HW..... 3050-01-100
305,00	345,00	20,00			x								HW..... 3050-02-100
310,00	340,00	15,00		x									HW..... 3100-01-100
310,00	350,00	18,00			x								HW..... 3100-02-100
310,00	350,00	20,00	x										HW..... 3100-03-100
310,00	370,00	28,00			x								HW..... 3100-04-100
315,00	355,00	16,50			x								HW..... 3150-01-100
315,00	355,00	18,00			x								HW..... 3150-02-100
315,00	365,00	20,00			x								HW..... 3150-03-100
316,00	360,00	20,00	x										HW..... 3160-01-100
317,10	368,30	18,00		x									HW..... 3171-01-100
317,50	349,25	19,50			x								HW..... 3175-01-100
320,00	350,00	16,00			x								HW..... 3200-01-100
320,00	350,00	18,00			x								HW..... 3200-02-100
320,00	360,00	15,00			x								HW..... 3200-03-100
320,00	360,00	18,00	x		x								HW..... 3200-04-100
320,00	360,00	20,00	x		x	x							HW..... 3200-05-100
320,00	360,00	25,00			x								HW..... 3200-06-100
320,00	360,00	32,00			x								HW..... 3200-07-100
320,00	363,00	20,00	x										HW..... 3200-08-100
320,00	380,00	20,00			x								HW..... 3200-09-100
320,00	380,00	25,00			x								HW..... 3200-10-100
325,00	360,00	16,00			x								HW..... 3250-01-100
325,00	365,00	16,00			x								HW..... 3250-02-100
325,00	365,00	20,00									x		HW..... 3250-03-100
330,00	360,00	15,00			x								HW..... 3300-01-100
330,00	370,00	18,00	x		x	x							HW..... 3300-02-100
330,00	370,00	20,00	x		x								HW..... 3300-03-100
330,00	380,00	20,00			x								HW..... 3300-04-100
330,00	385,00	18,00			x								HW..... 3300-05-100
330,20	381,00	23,79			x								HW..... 3302-01-100
340,00	370,00	20,00	x										HW..... 3400-01-100
340,00	372,00	16,00	x		x								HW..... 3400-02-100
340,00	380,00	15,00	x										HW..... 3400-03-100
340,00	380,00	16,00			x								HW..... 3400-04-100
340,00	380,00	18,00	x		x								HW..... 3400-05-100
340,00	380,00	20,00	x	x	x								HW..... 3400-06-100
340,00	390,00	20,00			x								HW..... 3400-07-100
340,00	400,00	25,00			x								HW..... 3400-08-100
342,90	368,30	12,70				x							HW..... 3429-01-100
350,00	380,00	15,00	x										HW..... 3500-01-100
350,00	380,00	16,00			x								HW..... 3500-02-100

Ø d h11	Ø D H8	E +0,3											Part N°.
350,00	390,00	18,00	x		x	x							HW..... 3500-03-100
350,00	390,00	20,00				x							HW..... 3500-04-100
355,00	395,00	32,00			x								HW..... 3550-01-100
355,00	405,00	15,00			x								HW..... 3550-02-100
360,00	390,00	15,00		x									HW..... 3600-01-100
360,00	390,00	20,00			x								HW..... 3600-02-100
360,00	392,00	20,00			x	x							HW..... 3600-03-100
360,00	400,00	18,00			x								HW..... 3600-04-100
360,00	400,00	20,00	x		x	x							HW..... 3600-05-100
360,00	404,00	20,00	x										HW..... 3600-06-100
360,00	425,00	20,00			x								HW..... 3600-07-100
365,00	395,00	15,00			x								HW..... 3650-01-100
365,00	405,00	18,00			x								HW..... 3650-02-100
365,00	410,00	20,00			x								HW..... 3650-03-100
368,30	406,40	17,45	x										HW..... 3683-01-100
370,00	400,00	10,00			x								HW..... 3700-01-100
370,00	410,00	15,00	x		x								HW..... 3700-02-100
370,00	410,00	20,00			x	x							HW..... 3700-03-100
370,00	415,00	15,00			x								HW..... 3700-04-100
375,00	420,00	18,00			x								HW..... 3750-01-100
375,00	430,00	18,00			x								HW..... 3750-02-100
380,00	420,00	18,00			x								HW..... 3800-01-100
380,00	420,00	20,00	x	x	x								HW..... 3800-02-100
380,00	430,00	19,00			x								HW..... 3800-03-100
381,00	431,80	25,40			x								HW..... 3810-01-100
381,00	438,15	22,22			x								HW..... 3810-02-100
385,00	430,00	25,00	x										HW..... 3850-01-100
390,00	425,00	18,00				x							HW..... 3900-01-100
390,00	430,00	16,00	x										HW..... 3900-02-100
390,00	430,00	18,00			x								HW..... 3900-03-100
390,00	430,00	20,00	x										HW..... 3900-04-100
390,00	435,00	18,00				x							HW..... 3900-05-100
390,00	440,00	25,00			x								HW..... 3900-06-100
393,70	444,50	20,57			x								HW..... 3937-01-100
394,00	420,00	16,00	x	x	x								HW..... 3940-01-100
395,00	430,00	15,00			x								HW..... 3950-01-100
395,00	430,00	18,00			x								HW..... 3950-02-100
400,00	430,00	26,00			x								HW..... 4000-01-100
400,00	438,50	17,00			x								HW..... 4000-02-100
400,00	440,00	15,00			x								HW..... 4000-03-100
400,00	440,00	18,00			x								HW..... 4000-04-100
400,00	440,00	20,00	x		x								HW..... 4000-05-100
400,00	450,00	18,00			x								HW..... 4000-06-100
400,00	450,00	20,00			x								HW..... 4000-07-100
400,00	450,00	25,00				x							HW..... 4000-08-100
400,00	451,00	17,45	x		x								HW..... 4000-09-100
400,00	470,00	20,00			x								HW..... 4000-10-100
400,00	500,00	25,00			x								HW..... 4000-11-100
404,00	438,00	19,05	x										HW..... 4040-01-100
410,00	454,00	20,50			x								HW..... 4100-01-100
410,00	460,00	15,00			x								HW..... 4100-02-100
410,00	460,00	22,00			x								HW..... 4100-03-100
420,00	460,00	15,00			x								HW..... 4200-01-100
420,00	460,00	16,00	x										HW..... 4200-02-100
420,00	460,00	18,00	x		x								HW..... 4200-03-100
420,00	460,00	20,00	x		x								HW..... 4200-04-100
420,00	470,00	20,00		x									HW..... 4200-05-100
420,00	480,00	15,00			x								HW..... 4200-06-100
425,00	475,00	22,00			x								HW..... 4250-01-100
425,00	480,00	15,00			x								HW..... 4250-02-100

Ø d h11	Ø D H8	E +0,3											Part N°.
430,00	480,00	22,00			x								HW..... 4300-01-100
430,00	480,00	25,00			x								HW..... 4300-02-100
430,00	495,00	25,00			x								HW..... 4300-03-100
431,80	469,90	19,05				x							HW..... 4318-01-100
435,00	485,00	17,45	x										HW..... 4350-01-100
440,00	470,00	20,00			x								HW..... 4400-01-100
440,00	480,00	20,00	x	x	x								HW..... 4400-02-100
440,00	490,00	17,00			x								HW..... 4400-03-100
440,00	490,00	20,00			x								HW..... 4400-04-100
445,00	480,00	16,00		x	x								HW..... 4450-01-100
445,00	480,00	18,00			x								HW..... 4450-02-100
448,00	480,00	15,00			x								HW..... 4480-01-100
450,00	490,00	18,00			x								HW..... 4500-01-100
450,00	490,00	20,00			x								HW..... 4500-02-100
450,00	500,00	22,00	x										HW..... 4500-03-100
450,00	500,00	25,00			x								HW..... 4500-04-100
455,00	495,00	20,00			x								HW..... 4550-01-100
457,00	508,00	25,40			x								HW..... 4570-01-100
457,20	495,30	19,05			x								HW..... 4572-01-100
460,00	500,00	20,00	x		x								HW..... 4600-01-100
460,00	510,00	25,00			x								HW..... 4600-02-100
460,00	520,00	26,00			x								HW..... 4600-03-100
461,00	500,00	20,00			x								HW..... 4610-01-100
467,00	510,00	20,00			x								HW..... 4670-01-100
470,00	510,00	20,00			x								HW..... 4700-01-100
470,00	520,00	18,00			x								HW..... 4700-02-100
470,00	520,00	20,00			x								HW..... 4700-03-100
470,00	520,00	22,00			x								HW..... 4700-04-100
475,00	530,00	18,00			x								HW..... 4750-01-100
480,00	520,00	20,00	x	x	x	x							HW..... 4800-01-100
480,00	530,00	25,00	x										HW..... 4800-02-100
480,00	550,00	25,00			x								HW..... 4800-03-100
490,00	530,00	20,00			x								HW..... 4900-01-100
490,00	540,00	25,00	x										HW..... 4900-02-100
500,00	520,00	12,00			x								HW..... 5000-01-100
500,00	535,00	12,00			x								HW..... 5000-02-100
500,00	540,00	20,00	x	x	x								HW..... 5000-03-100
500,00	550,00	20,00			x								HW..... 5000-04-100
500,00	550,00	22,00	x		x								HW..... 5000-05-100
500,00	560,00	20,00			x								HW..... 5000-06-100
508,00	558,80	25,40	x		x								HW..... 5080-01-100
510,00	550,00	20,00			x								HW..... 5100-01-100
510,00	572,00	20,00			x								HW..... 5100-02-100
520,00	580,00	20,00			x								HW..... 5207-01-100
520,70	571,50	22,50			x								HW..... 5207-02-100
525,00	575,00	25,00	x										HW..... 5250-01-100
530,00	565,00	20,00			x								HW..... 5300-01-100
530,00	570,00	20,00			x								HW..... 5300-02-100
530,00	580,00	20,00			x								HW..... 5300-03-100
533,40	584,20	22,22			x								HW..... 5334-01-100
540,00	580,00	20,00			x								HW..... 5400-01-100
540,00	590,00	22,00			x								HW..... 5400-02-100
540,00	590,00	25,50			x								HW..... 5400-03-100
546,00	596,90	19,05			x								HW..... 5460-01-100
550,00	590,00	20,00			x								HW..... 5500-01-100
550,00	600,00	22,00			x								HW..... 5500-02-100
555,00	600,00	20,00			x								HW..... 5550-01-100
560,00	610,00	20,00	x		x								HW..... 5600-01-100
560,00	620,00	20,00			x								HW..... 5600-02-100
560,00	620,00	25,00			x								HW..... 5600-03-100

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Example for ordering:

HW 400 - 0360 - 03 - 100 - ...
 Profile _____
 Nominal diameter x 10 _____
 Dimension variant _____
 Standard material _____
 HME internal code _____

Material Key:

Profile overview

HW400 - Form A
 HW410 - Form AS
 HW420 - Form C
 HW430 - Form CS
 HW440 - Form B
 HW450 - Form BS
 HW460 - Form P
 HW470 - Form O
 HW480 - Form DUO
 HW500 - Form DINA

Material overview

100 - NBR
 120 - FPM
 180 - Silicon

Issue

01	05
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WARNING: Limits of application stated herein are standard values. They could be individually transgressed with due consideration to respective service conditions. In the event of a large duty cycle, pulsating operation and other complex operational conditions, simultaneous transgression of these values is not recommended. Due to a large variety of service conditions that may arise in course of actual use, the company does not take responsibility of or guarantee the functional accuracy of the individual components. Rights for changes are reserved.