2 Rollers

Summary

2.1 - Various industry uses

Rollers, very often, represent a high investment in the overall requirements of the project design of a belt conveyor installation. The choice of high quality rollers that guarantee an adequate working life with the result that equipment may function without the business of the plant being interrupted.

It has been well proven that considering the overall economies in todays modern conveyors, their life and efficiency depends to a great deal on the choice of quality rollers, accurately manufactured using highly selected materials.

Of particular importance in the search for efficiency is the sealing system that protects the roller bearings.

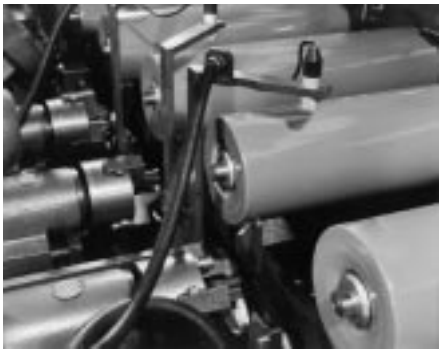
Rulmeca, keenly aware of this requirement, has subjected and examined their design of manufactured rollers to severe laboratory tests.
Numerous examples of plant and equipment used in material handling, all over the world, operating in the most severe environmental conditions, use for many years Rulmeca rollers of various types for many years.

Rollers produced by Rulmeca are manufactured according to all known national and international standards : ISO, UNI, DIN, AFNOR, FEM, BS, JIS and CEMA.

- Mineral industry
- Chemical and fertiliser industry
- Iron and steel industry
- Cement industry
- Glass industry
- Quarry industry
- Warehousing and storage of various materials.

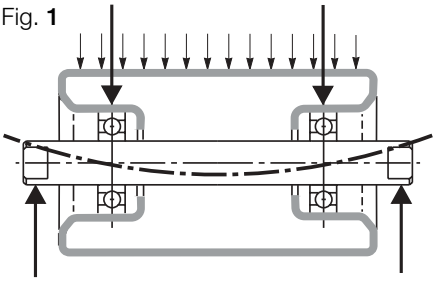
2.2 - Rollers, technical design and data

The principal characteristics that typify all the Rulmeca rollers are : long service life, quality of all components, high efficiency and economy of use.



Roller body
Consists of a steel tube of adequate thickness and diameter to match the required use, machined at either end to allow maximum precision in the assembly of the roller. Bearing housings are positioned at either end by welding or by deep swaging.

Fig. **1**

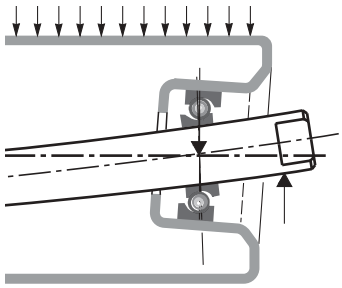


The design of the housings, of strong and rigid construction, has been developed using a computerised system that determines their thickness in relation to the maximum load required for various types of rollers.

The housing for the bearing has been studied and designed in a way that reduces the angle between the bearing and spindle caused by the deflection of the spindle under load. The positioning of the bearing in all the housings has been calibrated to the tolerance “M7” which is an optimum fit for the bearing in all working conditions.

The precision bearings of radial rigidity with a spherical ball race, have a maximum play of C3 fit, which is the most suitable class of fit to guarantee perfect function under serious load conditions or where the spindle is deflected a lot.

Fig. **2**



This type of bearing is today the most utilised in conveyor rollers, because it has a high tolerance to axial load and a low resistance to movement and rotation.
In all, together with lubrication, permanent and for life, a long working life results.

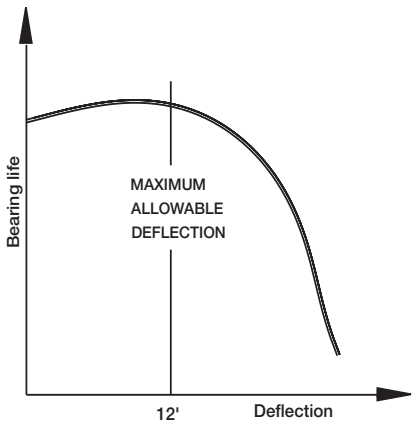


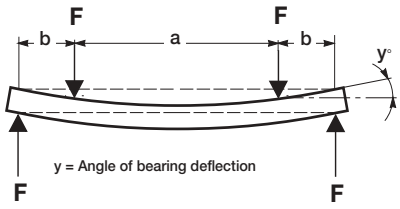
Fig. **3** - Deflection curve of bearings with C3 play.

Spindle

The spindle is the load carrying component of the roller and must be sized in relation to the load and the roller length.

It is important not to overload the roller due to the resultant excessive deflection of the spindle which in turn places irregular pressure on the bearing, and reduces, as a consequence, the roller life.

Fig. **4** - Deflection of spindle under load

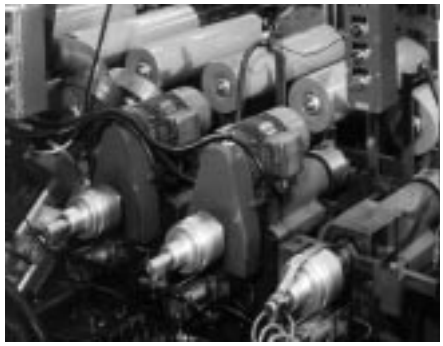


Rulmeca rollers are designed to sustain (to the maximum load conditions as stated in the relevant tables) a dynamic load, calculated according to the roller type, of 30,000 or 10,000 hours of life (for greater life see the relevant tables), with a spindle that is designed to be underloaded and which does not deflect excessively, avoiding damaging the bearing.

Balance

At high conveyor speed, the balance of the roller is of particular importance, especially when we consider the requirements of todays conveyor equipment.

The out of balance force of a roller at low speed does not have a great effect, but when medium speeds (1,5/2 m/sec) are used, vibrations may be induced which may damage the bearings and which may some times make the roller jump out of its transom supports.



The high quality end machining of the roller and of the roller body, the numerically controlled machine welding, the accuracy of assembly and the live testing, are all guarantees of the optimum balancing of Rulmeca rollers.

Sealing and lubrication

A quality roller is characterised by its effective sealing system.

Scrupulous research and laboratory tests and above all the practical plant experience in the most variable environmental situations, has enabled Rulmeca to develop a particular sealing that guarantees the optimum bearing performance.

Rulmeca sealing combines the confirmed protection effectiveness with low resistance to movement and to rotation, important factors that directly influence the conveyor absorbed power.

All Rulmeca rollers are self-lubricated for life.

Adequate quantities of lithium grease per bearing, with its characteristics of high resistance to ageing, to corrosion and to water, are introduced into the spaces particularly designed into the sealing system.

Rulmeca has prepared over many years a laboratory test room, with specially designed machines that permit testing to verify the designs and developments of rollers for belt conveyors.

These machines allow the examination of the following characteristics for each roller type :

- load capacity and life;
- hermetic sealing of rollers ; stationary and in rotation ;
- hermetic sealing against dust ;
- resistance to rotation and to start up ;
- tests to withstand ambient temperatures -70°C a + 200°C;
- inspection of the welding by tests using magnetoscope and penetrating liquids.

In the following photos we may show some of the more important machines and equipment that are situated in the test room.

- Computerised machines for load and life testing, in which load cells, digitised by signals from a personal computer, produce a typed report on the behaviour of the roller, and common to all the tests, to different speeds and imposed loads.

Machine for the dynamic hermetic test against water or dust ingress.

The seal is immersed in water or dust and the subsequent test with the roller inclined simulates the real situation of the working transom.

Machines that test the resistance to rotation. Here a load cell is utilised that feeds an electronic display where the resistance values are shown, at differing speeds or with different loads applied to the roller.

Tests are carried out periodically on all types of rollers bringing together all the gained experience of testing, that allow us to constantly control our production quality and to experiment with differing solutions relative to new projects.

2.3 - Selection method

The choice of roller type, most suitable for a certain application, will be dealt with in the following section but should also take into account other factors such as :

- the abrasive and corrosive characteristics of the conveyed material
- the environmental working conditions of the plant in which the rollers will be installed.

Abrasive materials (clay, granite, ferrous minerals) may influence the roller choice towards the heaviest series (PSV, MPS) and the choice of a large tube diameter as this results in only a minor contact of the roller surface with the conveyor belt itself.

The conveyor transport of corrosive materials (salt, chemicals etc....) requires the chosen rollers to be protected or manufactured from the appropriate materials that are time resistant to the corrosive substance.

The rollers may be in steel, covered with several layers of a particular specification of paint, or covered in rubber or in other anti corrosive materials.

Otherwise the rollers may be entirely manufactured from plastic materials that are resistant to corrosion (see PL rollers).

Environmental conditions where, in particular, dusty conditions prevail (cement, limestone, ash) rollers with the very best sealing systems that offer the highest possible protection are required (PSV).

2.3.1 - Choice of diameter in relation to speed

It has already been stated that one of the important factors to consider in the project design of a conveyor is the speed of the belt, in relation to the required conditions of transport.

From the speed of the belt and the roller diameter one is able to establish the number of revolutions of the roller from the formula :

$$n = \frac{v \times 1000 \times 60}{D \times \pi} \text{ [revs/min]}$$

where:

D = roller diameter [mm]
v = belt speed [m/s]

Tab.**15** shows the relationship between the maximum belt speed, the roller diameter and its relative numbers of revolutions.

It is interesting, in the choice of the roller to note that a roller of large diameter will also imply a major start up inertia but may still be the choice, because there are many other advantages to satisfy other conditions.

Tab. **15 - Maximum speed and roller revolutions**

Roller diameter mm	Belt speed m/s	rpm n
50	1.5	573
63	2.0	606
76	2.5	628
89	3.0	644
102	3.5	655
108	4.0	707
133	5.0	718
159	6.0	720
194	7.0	689

The correct choice of diameter must take into account the belt width. *Tab*.**16** indicates our advice for roller diameters.

*Tab.***16 - Recommended roller diameter**

Belt width mm	for speed ≤ 2 m/s Ø roller mm			2 ÷ 4 m/s Ø roller mm			≥ 4 m/s Ø roller mm		
500	**89**			**89**					
650	**89**			**89**	**108**				
800	**89**	**108**		**89**	**108**	**133**	**133**		
1000	**108**	**133**		**108**	**133**		**133**	**159**	
1200	**108**	**133**		**108**	**133**	**159**	**133**	**159**	
1400	**133**	**159**		**133**	**159**		**133**	**159**	
1600	**133**	**159**		**133**	**159**	**194**	**133**	**159**	**194**
1800	**159**	**159**	**194**	**159**	**194**				
2000	**159**	**194**		**159**	**194**		**159**	**194**	
2200 e oltre	**194**			**194**			**194**		

Where more diameters of roller are indicated the choice will be made in relation to the lump size of material and to the severity of plant conditions.

2.3.2 - Choice of the type in relation to load

The type and size of rollers to use in a belt conveyor depends essentially on the belt width, the pitch of troughing sets, and above all the maximum load on the roller under the greatest forces, notwithstanding other corrective factors.

The calculation of this load is normally made by the plant project designer. Nevertheless, as a check or as in the case of straightforward conveyors, we would like to give you the following helpful fundamental concepts.

The first value to define is the load on the troughing set transom. Following this, according to the type of troughing set their angle, the lump size of material and various other operating factors which are listed below ; one is able to determine the load that exists on the most stressed roller for each type of troughing set.

Besides this, we may provide various corrective coefficients that take into account the number of daily working hours of the equipment (service factors), the environment conditions and the speed for different roller diameters.
The load values obtained in this way may then be compared to the indicated roller load from the catalogue, valid for a project life of 30,000 hours.

For a theoretically different life, the load capacity may be multiplied by the determined coefficient from T*ab*.**22** that corresponds to the required life.

Principal operating factors:

Iv	=	belt load	t/h
v	=	belt speed	m/s
a_o	=	pitch of carrying trough set	m
a_u	=	pitch of return set	m
q_b	=	weight of belt per linear metre	Kg/m
Fp	=	participating factor of the highest stressed roller see *Tab*.**17** (depends on the side angle of the roller in transom)	
Fd	=	shock factor see *Tab*.**20** (depends on lump size of material)	
Fs	=	service factor see *Tab*.**18**	
Fm	=	ambient factor see *Tab*.**19**	
Fv	=	speed factor see *Tab*. **21**	

Tab. **17 - Participation factor Fp**

0°	20°	20°	30°	35°	45°
1,00	0.50	0.60	0.65	0.67	0.72

Tab. **18 - Service factors**

Working life	Fs
Less than 6 hours per day	0.8
From 6 to 9 hours per day	1.0
From 10 to 16 hours per day	1.1
Over 16 hours per day	1.2

Tab. **19 - Environmental factors**

Conditions	Fm
Clean and with regular maintenance	0.9
Presence of abrasive or corrosive materials	1.0
Presence of very abrasive or very corrosive materials	1.1

Tab. **20 - Shock factor Fd**

Lump size	Belt speed m/s 2	2.5	3	3.5	4	5	6
0 ÷ 100 mm	1	1	1	1	1	1	1
100 ÷ 150 mm	1.02	1.03	1.05	1.07	1.09	1.13	1.18
150 ÷ 300 mm with layers of fine material	1.04	1.06	1.09	1.12	1.16	1.24	1.33
150 ÷ 300 mm without layers of fine material	1.06	1.09	1.12	1.16	1.21	1.35	1.5
300 ÷ 450 mm	1.2	1.32	1.5	1.7	1.9	2.3	2.8

Tab. **21 - Speed factors Fv**

Belt speed	Roller diameter mm						
m/s	60	76	89-90	102	108-110	133-140	159
0.5	0.81	0.80	0.80	0.80	0.80	0.80	0.80
1.0	0.92	0.87	0.85	0.83	0.82	0.80	0.80
1.5	0.99	0.99	0.92	0.89	0.88	0.85	0.82
2.0	1.05	1.00	0.96	0.95	0.94	0.90	0.86
2.5			1.01	0.98	0.97	0.93	0.91
3.0			1.05	1.03	1.01	0.96	0.92
3.5					1.04	1.00	0.96
4.0					1.07	1.03	0.99
4.5					1.14	1.05	1.02
5.0					1.17	1.08	1.0

Tab. **22 - Coefficient of theoretical bearing life**

Project theoretical working life of bearings	10'000	20'000	30'000	40'000	50'000	100'000
Coefficient based on 30'000 hours	1.440	1.145	1.000	0.909	0.843	0.670
Coefficient based on 10'000 hours	1	0.79	0.69	0.63	---	---

Load determination

Having defined the diameter of the roller in relation to the speed and therefore the number of revolutions, one may now proceed to determine the static load Ca on the carrying troughing set, using the following formula:

$$Ca = a_o \times \left(q_b + \frac{lv}{3.6 \times v} \right) 0{,}981 \quad [daN]$$

Multiplying them using the operating factors we have the dynamic load Ca_1 on the transom:

$$Ca_1 = Ca \times Fd \times Fs \times Fm \quad [daN]$$

Multiplying them by the participation factors one obtains the load ca on the highest stressed roller (central roller in the case of troughing set with rollers of equal length).

$$ca = Ca_1 \times Fp \quad [daN]$$

The static load on the return set, Cr (not needing to take account of the material weight) is determined from the following formula :

$$Cr = a_u \times q_b \times 0{,}981 \quad [daN]$$

The dynamic load on the return set will be :

$$Cr_1 = Cr \times Fs \times Fm \times Fv \quad [daN]$$

and the load on the single return roller or on a pair will be :

$$cr = Cr_1 \times Fp \quad [daN]$$

Having established the values of “ca” and “cr” one may find in the roller catalogue (the diameter being found first) the roller that provides a sufficient load capacity.

Example :
One wishes to select a troughing set and rollers for a belt conveyor to convey crushed limestone, with a load requirement Q = 2000 t/h at a speed v = 2 m / s and with the following additional data :

lump size	100-150 mm
working function	8 h for day
belt width	1200 mm
belt weight	16 Kg/m
carrying transom pitch	1 m
return set pitch	3 m
roller diameter	133 mm

Choosing a transom at 30° satisfies the load requirements on the 1200 mm.belt.
The static load on the carrying trough set is given by:

$$Ca = a_o \times \left(q_b + \frac{l_V}{3.6 \times v} \right) 0{,}981 \quad [daN]$$

$$Ca = 1 \times \left(16 + \frac{2000}{3.6 \times 2}\right) 0{,}981 = 288 \quad daN$$

The dynamic load will be:

$$Ca_1 = Ca \times Fs \times Fd \times Fm \quad [daN]$$

$$Ca_1 = 288 \times 1 \times 1.02 \times 1 = 294$$

On the central roller of the troughing set we have a load :

$$ca = Ca_1 \times Fp \quad [daN]$$

$$ca = 294 \times 0.65 = 191 \text{ daN}$$

On the return set the static load is given by:

$$Cr = a_u \times q_b \times 0{,}981 \quad [daN]$$

$$Cr = 3 \times 16 \times 0{,}981 = 47 \text{ daN}$$

The dynamic load will be:

$$Cr_1 = Cr \times Fs \times Fm \times Fv \quad [daN]$$

$$Cr_1 = 47 \times 1 \times 1 \times 0.9 = 42{,}3 \text{ daN}$$

therefore the roller load will be :

$$cr = Cr_1 \times Fp \quad [daN]$$

$$cr = 42.3 \times 1 = 42.3$$

where:
Fp = 1 see ***Tab.*16**

For each type of application, in an environment with the presence of dust and water, one should choose from the series PSV for which the load is equal to or immediately higher than the calculated value (for a carrying trough set).

Analysing the load tables of rollers ø 133, one may choose the type PSV-2, with a sufficient load capacity:
PSV-2, 25F18, 133N, 473 (Chapter 2).

To select the transom for these rollers, reference is made to the chapter in the catalogue on troughing sets, and tipe A3P is selected (Chapter 3.3.3)

For the return roller, we select it with rubber rings, so that the formation of scale on the belt or the roller itself is discouraged.

We therefore select the series PSV with rings that have sufficient load capacity.
The basic roller will be ø 89 with rings øe 133 and the ordering code is PSV-1, 20F14, 133NL, 1408 (see section 2.6.2)

As frames for these rollers we should utilise the type: R1P (see chapter 3.3.3).

In the case where the conveyor is very long (let us say over 300 m) we advise the choice of a double roller “V” return set that helps the belt to self-centralise. In this case we may select rollers type PSV-1, 20F14, 133NC, 708.

The frames for these return rollers as a " V " will be type R2S (see chapter 3.3.4).

2.4 - Ordering codes

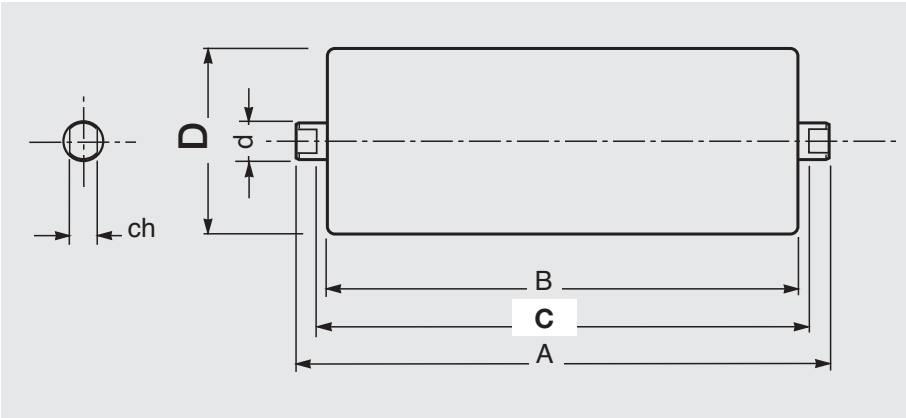
The rollers are identified to indicate :

- the series and type

- the spindle : as standard design or according to the basic abbreviation which corresponds to the required design as indicated in the relative table;

- roller diameter and the abbreviation according to the basic design or to supplementary abbreviations as shown in the relative tables.

- roller length **C**



Example : PSV 1 20 F ★ _ 108 N _ _ _ _323

Series
Type
Spindle diameter
Spindle design
Special spindle design
Roller diameter
Basic tube design
Special tube design
Length **C**

★ Note : Specify the dimension of “ch” if it is non-standard.

In the first column of the table abbreviations are indicated according to the basic roller designs.
There are supplementary designs possible as indicated in the table, as long as the corresponding abbreviations are not represented in the same column.
In the indication of the ordering code abbreviations are listed according to the horizontal column order.

Tube designs

Basic Abbrev.	Supplementary		Description	Note
N			steel S 235 JR (EN10027-1), ex Fe 360 (EN 10025), St37 (DIN 17100)	Standard
I			stainless steel AISI 304	Optional
V			rigid PVC - colour grey - RAL 7011	Standard
S			spiral metal cage	Standard
J			electrolytic zinc - colour grey - 10 micron thickness	Standard
	T		rilsan coated - colour grey - PA 11- thickness 100/150 micron	Optional
	Y		degreased - painted: one coat antirust and sprayed colour dark red - thickness 40 micron	Optional
		A	flat rubber rings for impact rollers	Standard
		G	pointed rubber rings for flat return rollers	Standard
		L	mixed design rubber rings for flat return rollers	Standard
		C	mixed design rubber rings for "V" design return rollers	Standard
		M	helical form rubber rings	Standard
		P	rubber sheath in soft PVC - colour grey - hardness 68 Sh A	Optional
		R	rubber covered - anti ageing - anti ozone - colour black - black vulcanised - hardness 70/75 Sh A - turned - thickness as required	Optional

On request standard design N may be supplied with the application of Tectyl 100 (valvoline) waxing oil that protects for transport and the initial period of storage (about 6 months).

In the table basic designs of spindle are indicated in varying arrangements

Basic design: spindle in steel S 235 JR (UNI Fe 360, DIN St 37)
Supplementary design: **J** = spindle in steel S 235 JR (Fe 360) zinc plated
I = stainless steel spindle

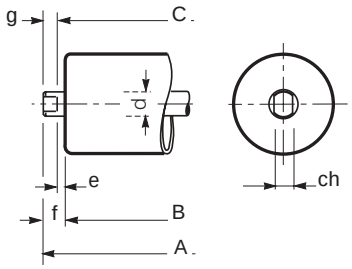
Spindle design

Basic abbreviation

F with flats

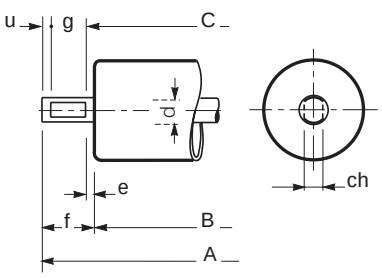
d	=	20	25	30	40
ch	=	14	18	22	32
e	=	4	4	4	4
g	=	9	12	12	12
f	=	13	16	16	16

arrangements



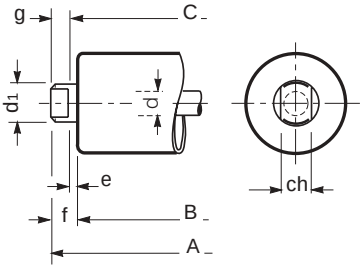
Y with internal flats

d	=	15	20	25	30	40
ch	=	11	14	18	22	32
e	=	4	4	4	4	4
g	=	5	8,5	11,5	11,5	11,5
u	=	4	4	4	4	4
f	=	13	16,5	19,5	19,5	19,5



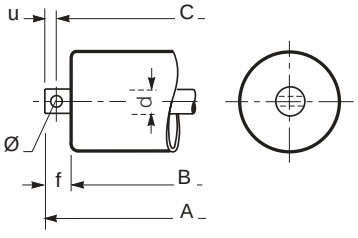
B with bush * / N / G & Q

		B	B	N	G	Q
d	=	15	15	20	20	15
ch	=	14	17	30	30	30
d_1	=	20	20	35	37	37
e	=	4	4	5	4	4
g	=	9	9	10	9	9
f	=	13	13	15	13	13



K with hole

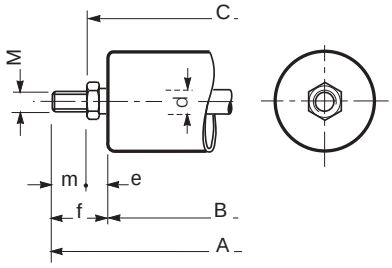
d	=	15	20	25	30	40
u	=	7	10	12	16	16
f	=	17	24	28	36	38
ø	=	6,3	8,3	10,3	14,5	16,5



* **B** = metal bush **N** = polycarbonate bush **G** = nylon bush **Q** = nylon bush

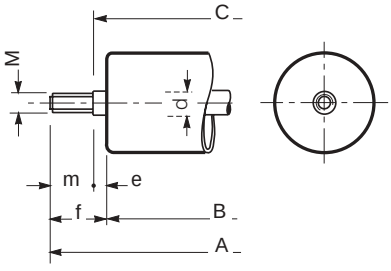
L **threaded with nut**

d	=	15	20	25	30	
e	=	16	16	17	18	
m	=	25	27	26	30	
f	=	41	43	43	48	
M	=	14	16	20	24	



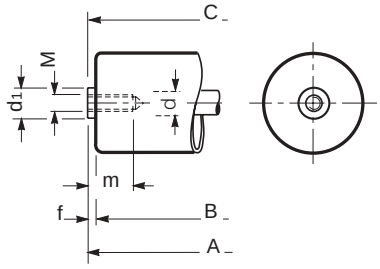
M **projection threaded**

d	=	15	20	25	30	
e	=	8	8	8	8	
m	=	33	35	35	40	
f	=	41	43	43	48	
M	=	14	16	20	24	



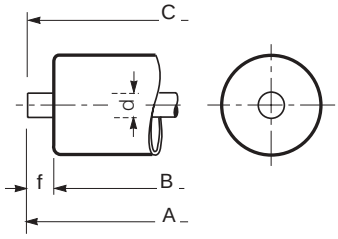
R **with internal thread**

d	=	15	20	25	30	40	
d_1	=	20	20	25	30	40	
f	=	8	13	16	16	16	
m	=	18	20	25	25	25	
M	=	10	12	16	16	16	



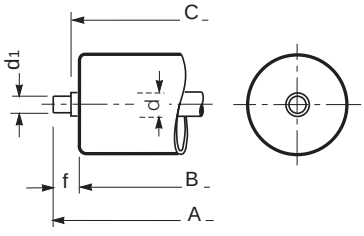
S **plain**

d	=	15	20	25	30	40
f	=	13	13	13	16	16



S_1 **with diameter reduction**

d	=	15	20	25	30	40	
d_1	=	as required					
f	=	as required					



Spindle extensions that are not symmetrical, dimensions of flats “ch” that are different to the designs shown in the table, are all possible but should be specified clearly in the order with a sketch.

Choice of roller in relation to load capacity in daN, to diameter, to belt width and speed

ROLLER Ø mm	Belt Width Arrangements			C mm	PSV 1 belt speed m/s							PSV 2 belt speed m/s								PSV 3 belt speed m/s							
					1	1.5	2	2.5	3	3.5	4	1	1.5	2	2.5	3	3.5	4	4.5	1	1.5	2	2.5	3	3.5	4	4.5
			400	168	179	157	142	132	124																		
		300	500	208	179	157	142	132	124			274	240	218	202	190											
		400	650	258	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
		500	800	323	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
	300	650	1000	388	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
		800	1200	473	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
	400			508	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
			1400	538	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
89	500	1000	1600	608	179	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
		1200		708	173	157	142	132	124			274	240	218	202	190				404	353	321	298	280			
	650			758	161	157	142	132	124			274	240	218	202	190				392	353	321	298	280			
		1400		808	150	150	142	132	124			274	240	218	202	190				367	353	321	298	280			
		1600		908	133	133	133	132	124			274	240	218	202	190				327	327	321	298	280			
	800			958	126	126	126	126	124			274	240	218	202	190				310	310	310	298	280			
	1000			1158	104	104	104	104	104			267	240	218	202	190				259	259	259	259	259			
	1200			1408	85	85	85	85	85			224	224	218	202	190				218	218	218	218	218			
	1400			1608	75	75	75	75	75			201	201	201	201					194	194	194	194	194			
	1600			1808								183	183	183	183					177	177	177	177	177			
			400	168	191	167	152	141	133	126																	
		300	500	208	191	167	152	141	133	126		293	256	232	216	203	193										
		400	650	258	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
		500	800	323	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
	300	650	1000	388	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
		800	1200	473	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
	400			508	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
			1400	538	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
108	500	1000	1600	608	191	167	152	141	133	126		293	256	232	216	203	193			431	376	342	317	299	284		
		1200		708	170	167	152	141	133	126		293	256	232	216	203	193			404	376	342	317	299	284		
	650			758	158	158	152	141	133	126		293	256	232	216	203	193			375	375	342	317	299	284		
		1400		808	147	147	147	141	133	126		293	256	232	216	203	193			351	351	342	317	299	284		
		1600		908	130	130	130	130	130	126		293	256	232	216	203	193			310	310	310	310	299	284		
	800			958	123	123	123	123	123	123		293	256	232	216	203	193			294	294	294	294	294	284		
	1000			1158	101	101	101	101	101	101		249	249	232	216	203	193			242	242	242	242	242	242		
	1200			1408	82	82	82	82	82	82		205	205	205	205	203	193			199	199	199	199	199	199		
	1400			1608	72	72	72	72	72	72		180	180	180	180	180	180			175	175	175	175	175	175		
	1600			1808								161	161	161	161	161				157	157	157	157	157			
			500	208	205	179	163	151	142	135	129																
			650	258	205	179	163	151	142	135	129	314	274	249	231	217	207	198									
		500	800	323	205	179	163	151	142	135	129	314	274	249	231	217	207	198		462	403	366	340	320	305	291	
		650	1000	388	205	179	163	151	142	135	129	314	274	249	231	217	207	198		462	403	366	340	320	305	291	
		800	1200	473	205	179	163	151	142	135	129	314	274	249	231	217	207	198		462	403	366	340	320	305	291	
			1400	538	205	179	163	151	142	135	129	314	274	249	231	217	207	198		462	403	366	340	320	305	291	
	500	1000	1600	608	200	179	163	151	142	135	129	314	274	249	231	217	207	198		462	403	366	340	320	305	291	
			1800	678								314	274	249	231	217	207	198		416	403	366	340	320	305	291	
		1200		708	169	169	163	151	142	135	129	314	274	249	231	217	207	198		397	397	366	340	320	305	291	
	650		2000	758	157	157	157	151	142	135	129	314	274	249	231	217	207	198		368	368	366	340	320	305	291	
133		1400		808	146	146	146	146	142	135	129	314	274	249	231	217	207	198		343	343	343	340	320	305	291	
		1600		908	129	129	129	129	129	129	129	310	274	249	231	217	207	198		303	303	303	303	303	305	291	
	800			958	122	122	122	122	122	122	122	293	274	249	231	217	207	198		286	286	286	286	286	286	286	
		1800		1008								278	274	249	231	217	207	198		271	271	271	271	271	271	271	
		2000		1108								278	274	249	231	217	207	198		245	245	245	245	245	245	245	
	1000			1158	99	99	99	99	99	99	99	240	240	240	231	217	207	198		234	234	234	234	234	234	234	
	1200			1408	81	81	81	81	81	81	81	197	197	197	197	197	197	197		192	192	192	192	192	192	192	
	1400			1608	71	71	71	71	71	71	71	172	172	172	172	172	172	172		167	167	167	167	167	167	167	
	1600			1808	63	63	63	63	63	63	63	153	153	153	153	153	153			149	149	149	149	149	149	149	
	1800			2008								138	138	138	138	138				134	134	134	134	134			
	2000			2208																							
			650	258								333	291	264	245	231	220	210	202								
			800	323								333	291	264	245	231	220	210	202								
		650	1000	388								333	291	264	245	231	220	210	202	490	428	389	361	340	324	309	297
		800	1200	473								333	291	264	245	231	220	210	202	490	428	389	361	340	324	309	297
			1400	538								333	291	264	245	231	220	210	202	490	428	389	361	340	324	309	297
		1000	1600	608								333	291	264	245	231	220	210	202	467	428	389	361	340	324	309	297
			1800	678								333	291	264	245	231	220	210	202	413	419	389	361	340	324	309	297
		1200		708								333	291	264	245	231	220	210	202	393	393	389	361	340	324	309	297
	650		2000	758								333	291	264	245	231	220	210	202	365	365	365	361	340	324	309	297
		1400	2200	808								333	291	264	245	231	220	210	202	340	340	340	340	340	324	309	297
159		1600		908								307	291	264	245	231	220	210	202	300	300	300	300	300	300	300	297
	800			958								290	290	264	245	231	220	210	202	283	283	283	283	283	283	283	283
		1800		1008								275	275	264	245	231	220	210	202	268	268	268	268	268	268	268	268
		2000		1108								242	242	242	242	231	220	210	202	242	242	242	242	242	242	242	242
	1000			1158								237	237	237	237	231	220	210	202	231	231	231	231	231	231	231	231
		2200		1258								217	217	217	217	217	217	210	202	212	212	212	212	212	212	212	212
	1200			1408								193	193	193	193	193	193	193	193	188	188	188	188	188	188	188	188
	1400			1608								169	169	169	169	169	169	169	169	164	164	164	164	164	164	164	164
	1600			1808								150	150	150	150	150	150	150	150	146	146	146	146	146	146	146	146
	1800			2008								134	134	134	134	134	134	134	134	131	131	131	131	131	131	131	
	2000			2208																119	119	119	119	119	119	119	
			1600	608																							
			1800	678																							
			2000	758																							
			2200	808																							
		1600		908																							
		1800		1008																							
194		2000		1108																							
		2200		1258																							
	1600			1808																							
	1800			2008																							
	2000			2208																							
	2200			2508																							

(for a project life of bearings of 30.000 hours)

PSV 4								PSV 5							PSV 7							C	Belt Width Arrangements			ROLLER Ø
belt speed m/s								belt speed m/s							belt speed m/s							mm				mm
1	1.5	2	2.5	3	3.5	4	5	1	2	3	4	4.5	5	6	1	2	3	4	4.5	5	6					
																						168			400	
																						208		300	500	
																						258		400	650	
381	333	302	281	264				549	435	380													323		500	800
381	333	302	281	264				549	435	380												388	300	650	1000	
381	333	302	281	264				549	435	380												473		800	1200	
381	333	302	281	264				549	435	380												508	400			
381	333	302	281	264				549	435	380												538			1400	
381	333	302	281	264				549	435	380												608	500	1000	1600	**89**
381	333	302	281	264				549	435	380												708		1200		
381	333	302	281	264				549	435	380												758	650			
381	333	302	281	264				549	435	380												808		1400		
381	333	302	281	264				549	435	380												908		1600		
381	333	302	281	264				549	435	380												958	800			
381	333	302	281	264				549	435	380												1158	1000			
381	333	302	281	264				512	435	380												1408	1200			
337	333	302	281	264				337	377	377												1608	1400			
233	233	233	233	233				233	233	233												1808	1600			
																						168			400	
																						208		300	500	
																						258		400	650	
406	355	323	299	282	268			585	465	406	369											323		500	800	
406	355	323	299	282	268			585	465	406	369				853	677	592	538				388	300	650	1000	
406	355	323	299	282	268			585	465	406	369				853	677	592	538				473		800	1200	
406	355	323	299	282	268			585	465	406	369				853	677	592	538				508	400			
406	355	323	299	282	268			585	465	406	369				853	677	592	538				538			1400	
406	355	323	299	282	268			585	465	406	369				853	677	592	538				608	500	1000	1600	**108**
406	355	323	299	282	268			585	465	406	369				853	677	592	538				708		1200		
406	355	323	299	282	268			585	465	406	369				853	677	592	538				758	650			
406	355	323	299	282	268			585	465	406	369				853	677	592	538				808		1400		
406	355	323	299	282	268			585	465	406	369				853	677	592	538				908		1600		
406	355	323	299	282	268			585	465	406	369				853	677	592	538				958	800			
406	355	323	299	282	268			529	465	406	369				853	677	592	538				1158	1000			
406	355	323	299	282	268			442	442	406	369				853	677	592	538				1408	1200			
402	355	323	299	282	268			393	393	393	369				727	677	592	538				1608	1400			
366	355	323	299	282	268			356	356	356					501	501	501	501				1808	1600			
																						208			500	
																						258			650	
436	381	346	321	302	287	274		627	498	435	395	380	367									323		500	800	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		388		650	1000	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		473		800	1200	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		538			1400	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		608	500	1000	1600	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		678			1800	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		708		1200		
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		758	650		2000	
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		808		1400		**133**
436	381	346	321	302	287	274		627	498	435	395	380	367		915	726	634	576	554	535		908		1600		
436	381	346	321	302	287	274		608	498	435	395	380	367		915	726	634	576	554	535		958	800			
436	381	346	321	302	287	274		577	498	435	395	380	367		915	726	634	576	554	535		1008		1800		
436	381	346	321	302	287	274		524	498	435	395	380	367		915	726	634	576	554	535		1108		2000		
436	381	346	321	302	287	274		501	498	435	395	380	367		915	726	634	576	554	535		1158	1000			
412	381	346	321	302	287	274		412	412	412	395	380	367		915	726	634	576	554	535		1408	1200			
363	363	346	321	302	287	274		363	363	363	363	363	363		915	726	634	576	554	535		1608	1400			
324	324	324	321	302	287	274		324	324	324	324	324			915	726	634	576	554	535		1808	1600			
294	294	294	294	294	287			294	294	294	294	294			774	726	634	576	554	535		2008	1800			
270	270	270	270	270				270	270	270	270	270			575	575	575	575	554			2208	2000			
																						258			650	
462	404	367	341	321	305	291	270															323			800	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	388		650	1000	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	473		800	1200	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	538			1400	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	608		1000	1600	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	678			1800	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	708		1200		
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	758	650		2000	
462	404	367	341	321	305	291	270	666	528	462	419	403	389	366	971	771	673	612	588	568	534	808		1400	2200	
462	404	367	341	321	305	291	270	630	528	462	419	403	389	366	971	771	673	612	588	568	534	908		1600		**159**
462	404	367	341	321	305	291	270	564	528	462	419	403	389	366	971	771	673	612	588	568	283	958	800			
462	404	367	341	321	305	291	270	564	528	462	419	403	389	366	971	771	673	612	588	568	534	1008		1800		
462	404	367	341	321	305	291	270	511	511	462	419	403	389	366	971	771	673	612	588	568	534	1108		2000		
462	404	367	341	321	305	291	270	488	488	462	419	403	389	366	971	771	673	612	588	568	534	1158	1000			
417	404	367	341	321	305	291	270	449	449	449	419	403	389	366	971	771	673	612	588	568	534	1258		2200		
398	398	367	341	321	305	291	270	400	400	400	400	379	379	366	971	771	673	612	588	568	534	1408	1200			
348	348	348	341	321	305	291	270	350	350	350	350	350	350	350	971	771	673	612	588	568	534	1608	1400			
310	310	310	310	310	305	291	270	311	311	311	311	311	311		898	771	673	612	588	568		1808	1600			
279	279	279	279	279	279	279		281	281	281	281	281	281		819	771	673	612	588			2008	1800			
254	254	254	254	254	254	254		256	256	256	256	256			755	755	673	612				2208	2000			
																823	719	654	628	607	571	608			1600	
																823	719	654	628	607	571	678			1800	
																823	719	654	628	607	571	758			2000	
																823	719	654	628	607	571	808			2200	
																823	719	654	628	607	571	908		1600		
																823	719	654	628	607	571	1008		1800		
																823	719	654	628	607	571	1108		2000		**194**
																823	719	654	628	607	571	1258		2200		
																817	719	654	628	607	571	1808	1600			
																736	719	654	628	607	571	2008	1800			
																671	671	654	628	607		2208	2000			
																593	593	593	593	593		2508	2200			

Choice of roller in relation to the roller capacity in daN, to diameter, to belt

ROLLER Ø mm	Belt Width Arrangements			roller C mm	PL 2 - PL 3 - PL 4 belt speed m/s								PLF 1 - PLF 5 - PLF 20 belt speed m/s							
					1	1.25	1.5	1.75	2	2.5	3.0	4	1	1.25	1.5	1.75	2	2.5	3.0	4
			400	168									129	116	107	99	93	84		
			500	208									129	116	107	99	93	84		
		400	650	258									129	116	107	99	93	84		
		500	800	323									129	116	107	99	93	84		
		650	1000	388									129	116	107	99	93	84		
		800	1200	473									129	116	107	99	93	84		
89	400			508									129	116	107	99	93	84		
	500	1000		608									129	116	107	99	93	84		
		1200		708									129	116	107	99	93	84		
	650			758									129	116	107	99	93	84		
	800			958									129	116	107	99	93	84		
	1000			1158									117	116	107	99	93	84		
	1200			1408									96	96	96	96	93	84		
			400	168	97	88	80	75	70	63										
			500	208	97	88	80	75	70	63										
		400	650	258	97	88	80	75	70	63										
		500	800	323	97	88	80	75	70	63										
		650	1000	388	97	88	80	75	70	63										
		800	1200	473	97	88	80	75	70	63										
90	400			508	97	88	80	75	70	63										
	500	1000		608	97	88	80	75	70	63										
		1200		708	97	88	80	75	70	63										
	650			758	97	88	80	75	70	63										
	800			958	50	50	50	50	50	50										
	1000			1158	28	28	28	28	28	28										
	1200			1408	16	16	16	16	16	16										
			400	168									142	127	117	109	102	92	84	
			500	208									142	127	117	109	102	92	84	
		400	650	258									142	127	117	109	102	92	84	
		500	800	323									142	127	117	109	102	92	84	
		650	1000	388									142	127	117	109	102	92	84	
		800	1200	473									142	127	117	109	102	92	84	
	400			508									142	127	117	109	102	92	84	
108	500	1000		608									142	127	117	109	102	92	84	
		1200		708									142	127	117	109	102	92	84	
	650			758									142	127	117	109	102	92	84	
	800			958									137	127	113	109	102	92	84	
	1000			1158									113	113	113	109	102	92	84	
	1200			1408									93	93	93	93	93	92	84	
	1400			1608									79	79	79	79	79	79	79	
			400	168	107	96	88	82	77	69	64									
			500	208	107	96	88	82	77	69	64									
		400	650	258	107	96	88	82	77	69	64									
		500	800	323	107	96	88	82	77	69	64									
		650	1000	388	107	96	88	82	77	69	64									
		800	1200	473	107	96	88	82	77	69	64									
110	400			508	107	96	88	82	77	69	64									
	500	1000		608	107	96	88	82	77	69	64									
		1200		708	107	96	88	82	77	69	64									
	650			758	107	96	88	82	77	69	64									
	800			958	107	96	88	82	77	69	64									
	1000			1158	62	62	62	62	62	62	62									
	1200			1408	35	35	35	35	35	35	35									
			400	168									156	142	129	120	112	101	93	81
			500	208									156	142	129	120	112	101	93	81
		400	650	258									156	142	129	120	112	101	93	81
		500	800	323									156	142	129	120	112	101	93	81
		650	1000	388									156	142	129	120	112	101	93	81
		800	1200	473									156	142	129	120	112	101	93	81
	400			508									156	142	129	120	112	101	93	81
133			1400	538									156	142	129	120	112	101	93	81
	500	1000		608									156	142	129	120	112	101	93	81
		1200		708									156	142	129	120	112	101	93	81
	650			758									156	142	129	120	112	101	93	81
		1400		808									156	142	129	120	112	101	93	81
	800			958									156	142	129	120	112	101	93	81
	1000			1158									111	111	111	111	111	101	93	81
	1200			1408									91	91	91	91	91	91	91	81
	1400			1608									79	79	79	79	79	79	79	79
			400	168	120	104	99	88	78	76	71	62								
			500	208	120	104	99	88	78	76	71	62								
		400	650	258	120	104	99	88	78	76	71	62								
		500	800	323	120	104	99	88	78	76	71	62								
		650	1000	388	120	104	99	88	78	76	71	62								
		800	1200	473	120	104	99	88	78	76	71	62								
140	400			508	120	104	99	88	78	76	71	62								
	500	1000		608	120	104	99	88	78	76	71	62								
		1200		708	120	104	99	88	78	76	71	62								
	650			758	120	104	99	88	78	76	71	62								
	800			958	120	104	99	88	78	76	71	62								
	1000			1158	120	104	99	88	78	76	71	62								
	1200			1408	107	104	99	88	78	76	71	62								

width and speed (for a project life of bearings of 10.000 hours)

ROLLER Ø mm	Belt Width Arrangements			roller C mm	MPS belt speed m/s						M1 belt speed m/s						MPR belt speed m/s						RTL belt speed m/s					
					0.75	1	1.5	2	2.5	3	0.75	1	1.5	1.75	2	2.5	0.75	1	1.5	1.75	2	2.5	0.5	0.75	1	1.50	1.75	2
			400	168	121	110	96				44	40																
		300	500	208	121	110	96				44	40																
		400	650	258	121	110	96				44	40																
		500	800	323	121	110	96				44	40																
	300	650	1000	388	121	110	96				44	40																
50		800		473	117	110	96				44	40																
	400			508	109	109	96				44	40																
	500	1000		608	91	91	91				44	40																
	650			758	73	73	73				44	40																
	800			958	58	58	58				44	40																
	1000			1158	49	49	49				44	40																
			400	168	128	117	102	93			49	43	35				128	117	102	97			56	49	43	35		
		300	500	208	128	117	102	93			49	43	35				128	117	102	97			56	49	43	35		
		400	650	258	128	117	102	93			49	43	35				128	117	102	97			56	49	43	35		
		500	800	323	128	117	102	93			49	43	35				128	117	102	97			56	49	43	35		
	300	650	1000	388	128	117	102	93			49	43	35				128	117	102	97			56	49	43	35		
60		800		473	114	114	102	93			49	43	35				114	114	102	97			56	49	43	35		
	400			508	106	106	102	93			49	43	35				106	106	102	97			56	49	43	35		
	500	1000		608	88	88	88	88			49	43	35				88	88	88	88			56	49	43	35		
	650			758	70	70	70	70			49	43	35				70	70	70	70			56	49	43	35		
	800			958	55	55	55	55			49	43	35				55	55	55	55			55	49	43	35		
	1000			1158	46	46	46	46			46	43	35				46	46	46	46			46	46	43	35		
			400	168		126	110	100	93		56	49	40	37			139	126	110	105	100		69	56	49	40	37	
		300	500	208		126	110	100	93		56	49	40	37			139	126	110	105	100		69	56	49	40	37	
		400	650	258		126	110	100	93		56	49	40	37			139	126	110	105	100		69	56	49	40	37	
		500	800	323		126	110	100	93		56	49	40	37			139	126	110	105	100		69	56	49	40	37	
	300	650	1000	388		126	110	100	93		56	49	40	37			139	126	110	105	100		69	56	49	40	37	
76		800		473		113	110	100	93		56	49	40	37			113	113	110	105	100		69	56	49	40	37	
	400			508		104	104	100	93		56	49	40	37			104	104	104	104	100		69	56	49	40	37	
	500	1000		608		86	86	86	86		56	49	40	37			86	86	86	86	86		69	56	49	40	37	
	650			758		68	68	68	68		56	49	40	37			68	68	68	68	68		68	56	49	40	37	
	800			958		53	53	53	53		53	49	40	37			53	53	53	53	53		53	53	49	40	37	
	1000			1158		44	44	44	44		44	44	40	37			44	44	44	44	44		44	44	44	40	37	
			400	168		133	116	106	98	92	61	53	43	40	37			133	116	110	106	98		61	53	43	40	37
			500	208		133	116	106	98	92	61	53	43	40	37			133	116	110	106	98		61	53	43	40	37
		400	650	258		133	116	106	98	92	61	53	43	40	37			133	116	110	106	98		61	53	43	40	37
		500	800	323		133	116	106	98	92	61	53	43	40	37			133	116	110	106	98		61	53	43	40	37
		650	1000	388		133	116	106	98	92	61	53	43	40	37			133	116	110	106	98		61	53	43	40	37
		800	1200	473		112	112	106	98	92	61	53	43	40	37			112	112	110	106	98		61	53	43	40	37
89	400			508		103	103	103	98	92	61	53	43	40	37			103	103	103	103	98		61	53	43	40	37
	500	1000		608		85	85	85	85	85	61	53	43	40	37			85	85	85	85	85		61	53	43	40	37
		1200		708		72	72	72	72	72								72	72	72	72	72							
	650			758		67	67	67	67	67	61	53	43	40	37			67	67	67	67	67		61	53	43	40	37
	800			958		53	53	53	53	53	53	53	43	40	37			53	53	53	53	53		53	53	43	40	37
	1000			1158		43	43	43	43	43	43	43	43	40	37			43	43	43	43	43		43	43	43	40	37
	1200			1408		35	35	35	35	35								35	35	35	35	35							
			400	168		139	129	122	103	97		57	46	43	40	36													
			500	208		139	129	122	103	97		57	46	43	40	36													
		400	650	258		139	129	122	103	97		57	46	43	40	36													
		500	800	323		139	129	122	103	97		57	46	43	40	36													
		650	1000	388		139	129	122	103	97		57	46	43	40	36													
		800	1200	473		112	112	112	103	97		57	46	43	40	36													
102	400			508		103	103	103	103	97		57	46	43	40	36													
	500	1000		608		85	85	85	85	85		57	46	43	40	36													
		1200		708		72	72	72	72	72																			
	650			758		67	67	67	67	67		57	46	43	40	36													
	800			958		52	52	52	52	52		52	46	43	40	36													
	1000			1158		43	43	43	43	43			43	43	40	36													
	1200			1408		35	35	35	35	35																			

Note : for the definitive load capacity, at different possible speeds, see the page relative to each series, type and diameter

2.5 - Programme

The experience of Rulmeca for 40 years producing belt conveyor rollers, has perfected and expanded the range of products we offer, so that the user will find the correct answer to the most diverse and difficult applications,

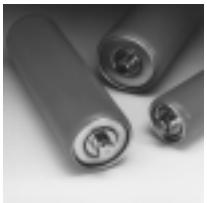
This catalogue presents the different series of rollers in production and their relative utilisation criteria :

1

2

1 - Rollers in steel series PSV
2 - Rollers in plastic series PL
3 - Rollers in steel series MPS
4 - Rollers in steel series MPR
5 - Rollers in steel series RTL

3



4

5

2.5.1 - Rollers series PSV

Where used

Rollers PSV are particularly suited to conveyors that operate in very difficult conditions, where working loads are high, and large lump size material is conveyed ; and yet, despite these characteristics, they require minimal maintenance.

Typical types of application are : mines, caves, cement works, coal-fired electric utilities and dock installations,

The effectiveness of the PSV roller sealing system provides the solution to the environmental challenges of dust, dirt, water, low and high temperatures or applications where there is a large temperature imbalance between day and night.

The working temperature, with standard greased components is defined as between -20°C and + 100°C.
It is possible to reach temperatures outside of this range using special grease, bearings and seals.

series
PSV

Characteristics

The rollers series PSV offer the highest quality and the maximum load capacity of Rulmeca's production.

The unique design of our hermetic seal system not only protects the bearings but offers maximum effectiveness and long life, even in the presence of the most severe pollutants.

The control of all roller materials from incoming inspection, through manufacture and assembly in the automatic cycle, with on line function tests on 100% of production, allows us to state that the function and life of this roller is among the highest in the world.

Attention to detail, whether at the design stage or in the various manufacturing phases, observing close limits of starting resistance, of eccentricity and axial play, results in notable savings in energy and a reduction in maintenance over time.

These factors give rise to business economies, confidence and high productivity, objectives pursued by all users of belt conveyors.

The Quality System certified ISO 9001 got from Rulmeca attest to their continuous quality standards, and their stated performance.

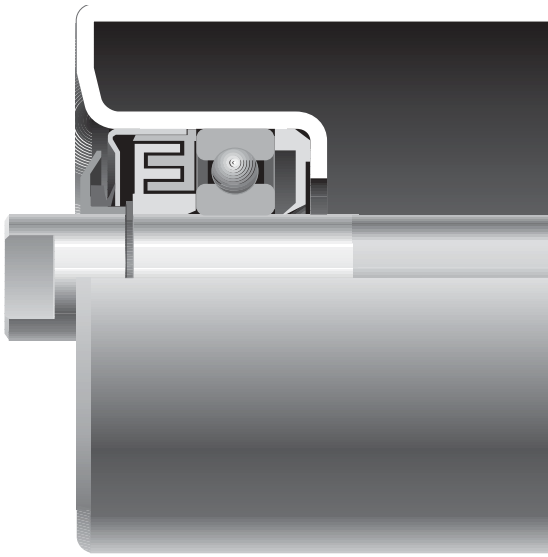
Roller shell
It is the external diameter of the roller that is in contact with the conveyor belt. It consists of a steel tube produced according to Rulmeca standards, with particular reference to tight tolerances and specific particulars.
The tube is cut and machined using automatic numerically controlled machines, that guarantee and maintain the tolerances and the precision of the square cut.

Bearing housing
It is a steel monolithic structure, deep drawn and sized to a fine tolerance ISO M7 at the bearing position, This tolerance is necessary to guarantee the optimum assembly of the bearing by ensuring that it is square to the spindle of the roller.

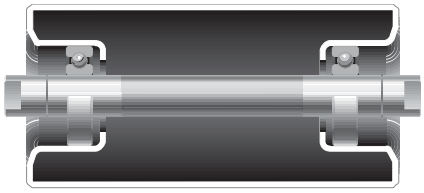
The thickness of the housings is proportional to the spindle diameter and to the bearing type, with thicknesses that are up to 5 mm, to guarantee the maximum strength for each application, including the heaviest.

Monobloc
The bearing housings of the PSV rollers are welded to the tube body using autocentralising automatic welding machines utilising a continuous wire feed : our patented system "UNIBLOC".

Tube and bearing housing form a monolithic structure of exceptional strength which itself reduces to the minimum any imbalance in the roller, This guarantees the alignment and concentricity with respect to the external diameter of the component parts of the sealing system.



The optimum balance and concentricity thus obtained allows these rollers to be used at the highest speeds, eliminating harmful vibration to the conveyor structure and the “hammer effect” on the bearings of the rollers.



Spindle
This is the component which sustains the roller when it is assembled into the troughing set supports. It is made from drawn steel, cut and machined by automatic numerically controlled machines.

The spindle is centreless ground to a tolerance ISO h6 at the extremities, corresponding to where the bearings and seals are fitted, to guarantee a perfect match and optimum performance.

Bearings
These are the parts which give virtually frictionless rotation to the tube body with respect to the fixed spindle.
Precision bearings only are used. They are the radial ball race type of the series : 6204, 6205, 6305, 6206, 6306, 6308 with internal play tolerance C3, ideal for applications of rollers used for belt conveyors.

Connecting spindle / bearing, bearing housing
PSV rollers require particular tolerances for the bearing housing, for the spindle and the bearing itself, that enables the roller to function optimally for a long life, whilst under pressure.
In fact the bearing housing has the very strict precision tolerance of M7, the spindle is precision ground to tolerance h6 and the bearing has internal play tolerance maximum C3.

These three tolerances functionally guarantees the autoalignment of the internal and outer bearing rings of the ball race resulting in a good performance even when the spindle deflection is extreme due to overloading.

Sealing
The seals comprise the most important components in the design of the PSV rollers.

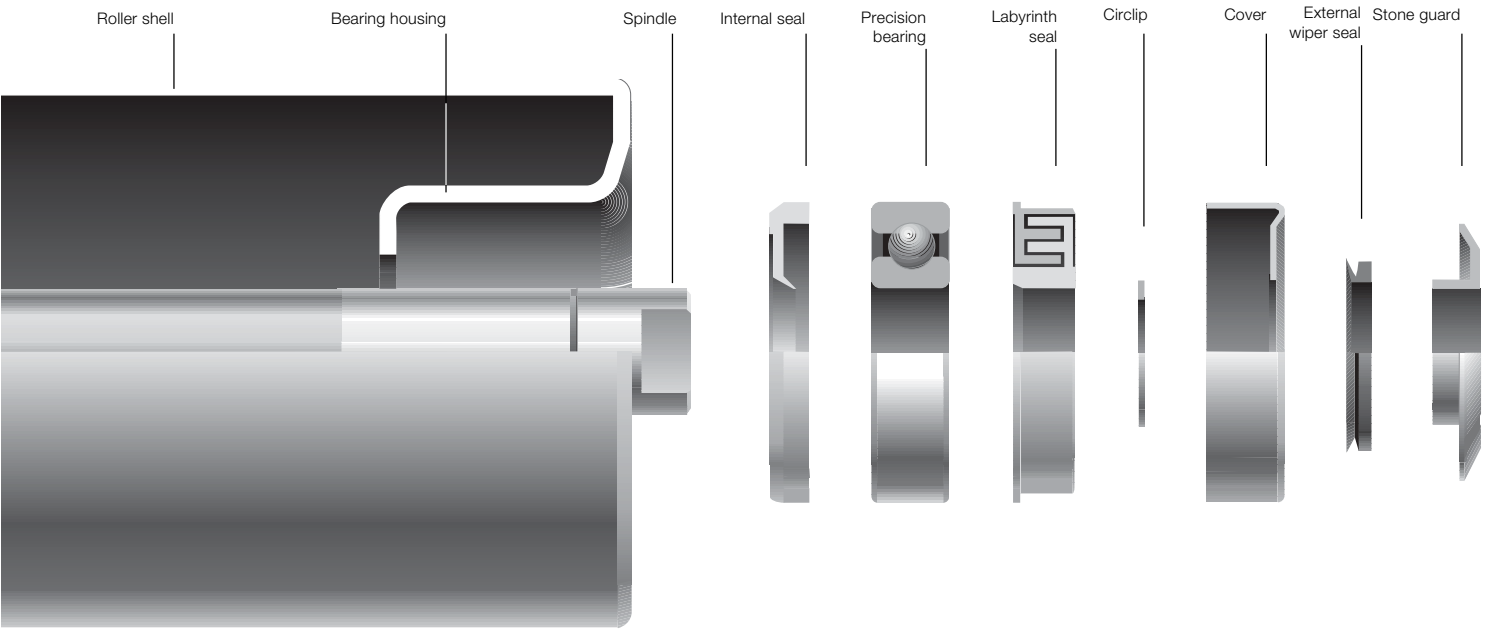
The principal task of the seals is to protect the bearing from harmful elements that may impinge from the outside or the inside of the roller.

The working conditions of these rollers is very often the most severe, with the presence of dust, abrasive sand, water, and various other pollutants.

On the inside of the roller there may be particles formed by the rusting of the internal tube body or condensation caused by the thermal changes that arise between day and night in particular climates.

The seal must also contain and retain a good quantity of grease for the bearing lubrication.

As a guarantee and to complete the PSV roller sealing system the final components are assembled at either end :
- strong external stone guards formed as a



series
PSV

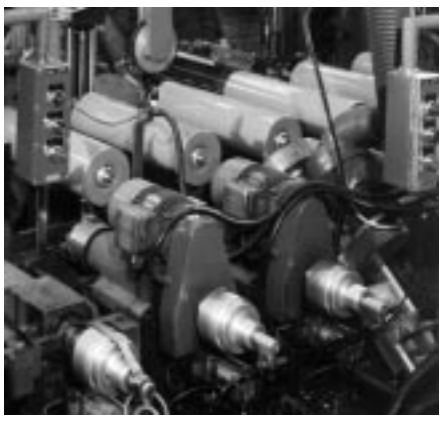
shield, in anti-corrosive material, to protect the seals from the fall of material onto the end cap of the roller.
- seal with two principal sections; one external and one internal.
- external section : self cleaning in that it centrifugally repels water and dust naturally towards the outside. Comprises a lip ring seal made from soft anti-abrasive rubber with a large contact surface that provides an effective hermetic seal of long working life.
The self cleaning effect is principally due to the particular design of the cover cap and the shape of the bearing housing which when rotating, tends to expel all pollutants, centrifugally.

- internal section : triple lip labyrinth in nylon PA6 greased to give further bearing protection.
Behind the bearing a sealing ring in nylon PA6 is positioned that provides an ample grease reservoir and also retains the grease near to the bearing even when there is a depression due to an abrupt change in temperature (pumping effect).
This ring acts also as a seal to counteract the eventual formation of condensation and oxidation which could take place inside the tube.

- locking system, provided by means of the correctly located circlips, which today is the best and the strongest system implemented in heavy rollers for belt conveyors.

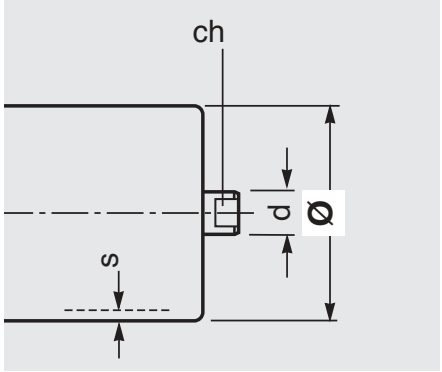
Lubrication
PSV rollers are lubricated for life with an abundant quantity of lithium based water repellent grease, that guarantees the correct lubrication for the working life of the roller.

Final inspection
All PSV rollers are assembled on automatic assembly machines with live test stations that maintains roller rotation for a sufficient time to distribute the grease into the bearings and all the other internal components. 100% of the rollers are tested to verify their low-torque characteristics.



The table indicates the type and diameter of standard rollers in production according to European standards to DIN 15207-ISO 1537.

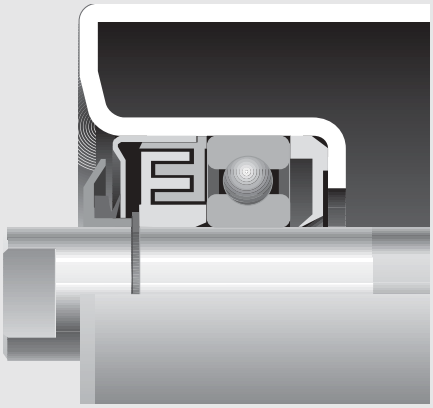
Upon request rollers may be supplied with varying dimensions, tube thickness end diameters according to standards CEMA, BS, JIS, AFNOR and FEM .



Programme of production series PSV

Roller type	Ø mm	basic design	s	spindle d	ch	bearing	note
PSV 1	**63**	**N**	3	20	14	6204	with tube and spindle in steel S 235 JR (EN 10027-1) ex Fe 360 (EN 10025) St 37 (DIN 17100)
	89	**N**	3				
	108	**N**	3,5				
	133	**N**	4				
PSV 2	**89**	**N**	3	25	18	6205	
	108	**N**	3,5				
	133	**N**	4				
	159	**N**	4,5				
PSV 3	**89**	**N**	3	25	18	6305	
	108	**N**	3,5				
	133	**N**	4				
	159	**N**	4,5				
PSV 4	**89**	**N**	3	30	22	6206	
	108	**N**	3,5				
	133	**N**	4				
	159	**N**	4,5				
PSV 5	**89**	**N**	3	30	22	6306	
	108	**N**	3,5				
	133	**N**	4				
	159	**N**	4,5				
PSV 7	**108**	**N**	3,5	40	32	6308	
	133	**N**	4				
	159	**N**	4,5				
	194	**N**	6,3				

series
PSV 1



Section through sealing

Ø 63 N

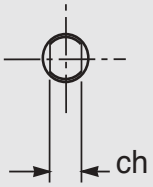
Bearing 6204
(20 X 47 X 14)

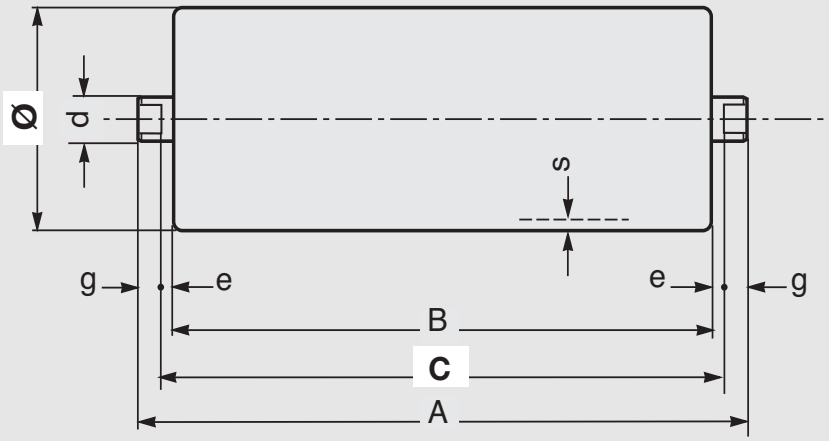
d = 20
ch = 14
s = 3
e = 4
g = 9

Belt			roller					load capacity daN					
width mm			dimensions mm			weight Kg							
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	1	1.25	1.5	1.75	2
		400	160	**168**	186	1.3	**1.8**	201	160	148	140	133	127
	300	500	200	**208**	226	1.5	**2.1**	201	160	148	140	133	127
	400	650	250	**258**	276	1.7	**2.4**	201	160	148	140	133	127
	500	800	315	**323**	341	2.0	**2.9**	201	160	148	140	133	127
300	650	1000	380	**388**	406	2.3	**3.3**	201	160	148	140	133	127
	800	1200	465	**473**	491	2.7	**3.9**	201	160	148	140	133	127
400			500	**508**	526	2.9	**4.1**	201	160	148	140	133	127
500	1000		600	**608**	626	3.3	**4.8**	201	160	148	140	133	127
	1200		700	**708**	726	3.8	**5.5**	184	160	148	140	133	127
650			750	**758**	776	4.0	**5.9**	172	160	148	140	133	127
800			950	**958**	976	4.9	**7.3**	138	138	138	138	133	127
1000			1150	**1158**	1176	5.8	**8.7**	116	116	116	116	116	116
1200			1400	**1408**	1426	6.9	**10.4**	99	99	99	99	99	99

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV1,20F,63N,608
for special design
see pages 80-81





Ø 89 N

Bearing 6204
(20 X 47 X 14)

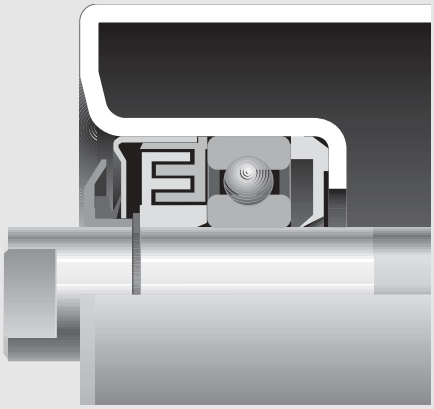
d = 20
ch = 14
s = 3
e = 4
g = 9

Belt			roller										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements						rotating		belt speed m/s					
			B	**C**	A	parts	**total**	0.5	1	1.5	2	2.5	3
		400	160	**168**	186	1.7	**2.2**	226	179	157	142	132	124
	300	500	200	**208**	226	2.0	**2.5**	226	179	157	142	132	124
	400	650	250	**258**	276	2.3	**3.0**	226	179	157	142	132	124
	500	800	315	**323**	341	2.7	**3.6**	226	179	157	142	132	124
300	650	1000	380	**388**	406	3.1	**4.1**	226	179	157	142	132	124
	800	1200	465	**473**	491	3.7	**4.9**	226	179	157	142	132	124
400			500	**508**	526	3.9	**5.2**	226	179	157	142	132	124
		1400	530	**538**	556	4.1	**5.5**	226	179	157	142	132	124
500	1000		600	**608**	626	4.6	**6.1**	204	179	157	142	132	124
	1200		700	**708**	726	5.2	**7.0**	173	173	157	142	132	124
650			750	**758**	776	5.5	**7.4**	161	161	157	142	132	124
	1400		800	**808**	826	5.8	**7.9**	150	150	150	142	132	124
800			950	**958**	976	6.8	**9.2**	126	126	126	126	126	124
1000			1150	**1158**	1176	8.1	**11.0**	104	104	104	104	104	104
1200			1400	**1408**	1426	9.7	**13.2**	85	85	85	85	85	85
1400			1600	**1608**	1626	11.0	**15.0**	75	75	75	75	75	75

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV1,20F,89N,608
for special design
see pages 80-81

series
PSV 1



Section through sealing

Ø 108 N

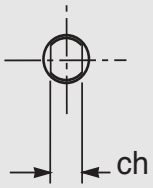
Bearing 6204
(20 X 47 X 14)

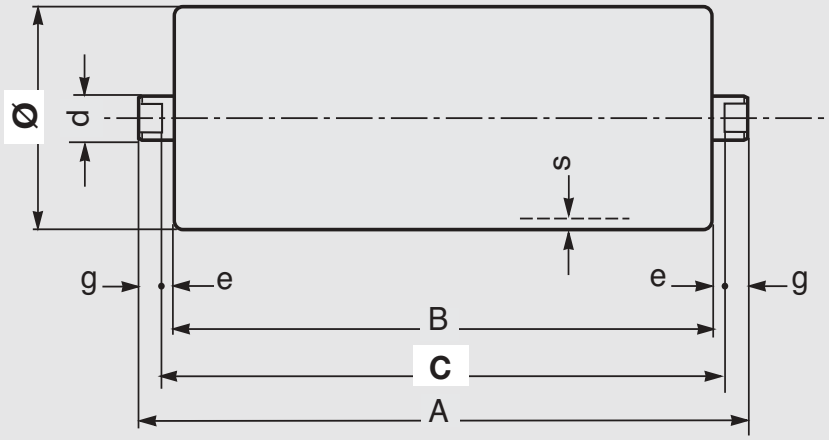
d = 20
ch = 14
s = 3,5
e = 4
g = 9

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements						rotating		belt speed m/s					
			B	**C**	A	parts	**total**	1	1.5	2	2.5	3	3.5
		400	160	**168**	186	2.3	**2.7**	191	167	152	141	133	126
	300	500	200	**208**	226	2.6	**3.2**	191	167	152	141	133	126
	400	650	250	**258**	276	3.1	**3.8**	191	167	152	141	133	126
	500	800	315	**323**	341	3.7	**4.5**	191	167	152	141	133	126
300	650	1000	380	**388**	406	4.3	**5.3**	191	167	152	141	133	126
	800	1200	465	**473**	491	5.0	**6.2**	191	167	152	141	133	126
400			500	**508**	526	5.3	**6.6**	191	167	152	141	133	126
		1400	530	**538**	556	5.6	**7.0**	191	167	152	141	133	126
500	1000		600	**608**	626	6.2	**7.8**	191	167	152	141	133	126
	1200		700	**708**	726	7.1	**8.9**	170	167	152	141	133	126
650			750	**758**	776	7.6	**9.5**	158	158	152	141	133	126
	1400		800	**808**	826	8.1	**10.1**	147	147	147	141	133	126
800			950	**958**	976	9.4	**11.8**	123	123	123	123	123	123
1000			1150	**1158**	1176	11.2	**14.1**	101	101	101	101	101	101
1200			1400	**1408**	1426	13.5	**17.0**	82	82	82	82	82	82
1400			1600	**1608**	1626	15.3	**19.3**	72	72	72	72	72	72

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV1,20F,108N,323
for special design
see pages 80-81





Ø 133 N

Bearing 6204
(20 X 47 X 14)

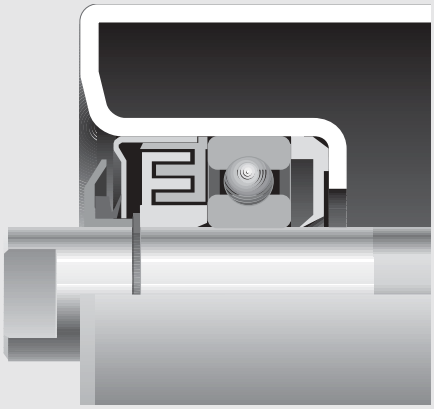
d = 20
ch = 14
s = 4
e = 4
g = 9

Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
		500	200	**208**	226	3.6	**4.1**	205	179	163	151	142	129
		650	250	**258**	276	4.2	**4.9**	205	179	163	151	142	129
	500	800	315	**323**	341	5.0	**5.9**	205	179	163	151	142	129
	650	1000	380	**388**	406	5.9	**6.9**	205	179	163	151	142	129
	800	1200	465	**473**	491	6.9	**8.1**	205	179	163	151	142	129
		1400	530	**538**	556	7.8	**9.1**	205	179	163	151	142	129
500	1000	1600	600	**608**	626	8.7	**10.2**	200	179	163	151	142	129
	1200		700	**708**	726	9.9	**11.7**	169	169	163	151	142	129
650			750	**758**	776	10.6	**12.5**	157	157	157	151	142	129
	1400		800	**808**	826	11.2	**13.2**	146	146	146	146	142	129
	1600		900	**908**	926	12.5	**14.8**	129	129	129	129	129	129
800			950	**958**	976	13.1	**15.5**	122	122	122	122	122	122
1000			1150	**1158**	1176	15.7	**18.6**	99	99	99	99	99	99
1200			1400	**1408**	1426	18.9	**22.4**	81	81	81	81	81	81
1400			1600	**1608**	1626	21.4	**25.4**	71	71	71	71	71	71
1600			1800	**1808**	1826	24.0	**28.4**	63	63	63	63	63	63

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV1,20F,133N,388
for special design
see pages 80-81

series
PSV 2



Section through sealing

Ø 89 N

Bearing 6205
(25 X 52 X 15)

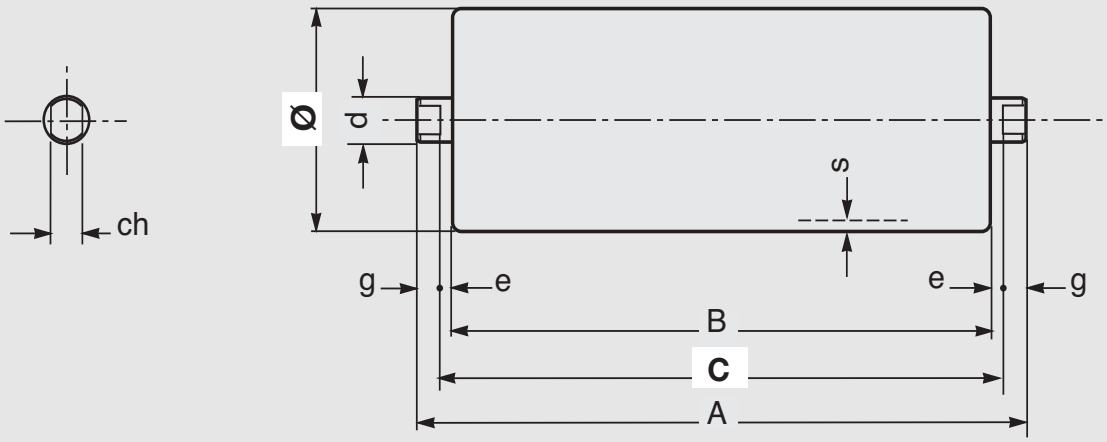
d = 25
ch = 18
s = 3
e = 4
g = 12

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	1	1.5	2	2.5	3
		500	200	**208**	232	2.1	**3.0**	346	274	240	218	202	190
		650	250	**258**	282	2.4	**3.5**	346	274	240	218	202	190
	500	800	315	**323**	347	2.9	**4.2**	346	274	240	218	202	190
	650	1000	380	**388**	412	3.3	**4.9**	346	274	240	218	202	190
	800	1200	465	**473**	497	3.8	**5.7**	346	274	240	218	202	190
		1400	530	**538**	562	4.2	**6.4**	346	274	240	218	202	190
500	1000	1600	600	**608**	632	4.7	**7.1**	346	274	240	218	202	190
	1200		700	**708**	732	5.3	**8.1**	346	274	240	218	202	190
650			750	**758**	782	5.7	**8.6**	346	274	240	218	202	190
	1400		800	**808**	832	6.0	**9.2**	346	274	240	218	202	190
	1600		900	**908**	932	6.6	**10.2**	336	274	240	218	202	190
800			950	**958**	982	6.9	**10.7**	319	274	240	218	202	190
1000			1150	**1158**	1182	8.2	**12.7**	267	267	240	218	202	190
1200			1400	**1408**	1432	9.8	**15.3**	224	224	224	218	202	190
1400			1600	**1608**	1632	11.1	**17.4**	201	201	201	201	201	
1600			1800	**1808**	1832	12.4	**19.4**	183	183	183	183	183	

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV2,25F,89N,323
for special design

see pages 80-81



Ø 108 N

Bearing 6205
(25 X 52 X 15)

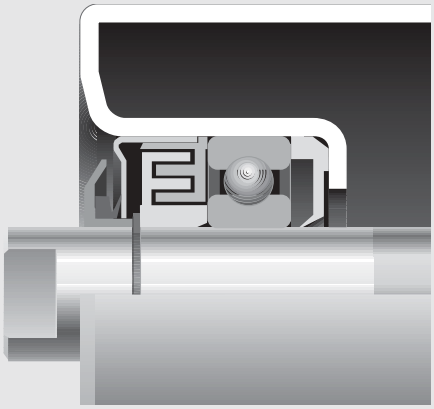
d = 25
ch = 18
s = 3,5
e = 4
g = 12

Belt			roller					load capacity daN					
Width mm			dimensions mm			weight Kg							
arrangements			B	**C**	A	rotating part	**total**	belt speed m/s 1	1.5	2	2.5	3	3.5
		500	200	**208**	232	2.7	**3.6**	293	256	232	216	203	193
		650	250	**258**	282	3.2	**4.3**	293	256	232	216	203	193
	500	800	315	**323**	347	3.8	**5.1**	293	256	232	216	203	193
	650	1000	380	**388**	412	4.4	**6.0**	293	256	232	216	203	193
	800	1200	465	**473**	497	5.1	**7.0**	293	256	232	216	203	193
		1400	530	**538**	562	5.7	**7.9**	293	256	232	216	203	193
500	1000	1600	600	**608**	632	6.4	**8.8**	293	256	232	216	203	193
	1200		700	**708**	732	7.3	**10.1**	293	256	232	216	203	193
650			750	**758**	782	7.7	**10.7**	293	256	232	216	203	193
	1400		800	**808**	832	8.2	**11.4**	293	256	232	216	203	193
	1600		900	**908**	932	9.1	**12.6**	293	256	232	216	203	193
800			950	**958**	982	9.5	**13.3**	293	256	232	216	203	193
1000			1150	**1158**	1182	11.3	**15.9**	249	249	232	216	203	193
1200			1400	**1408**	1432	13.6	**19.1**	205	205	205	205	203	193
1400			1600	**1608**	1632	15.4	**21.7**	180	180	180	180	180	180
1600			1800	**1808**	1832	17.2	**24.2**	161	161	161	161	161	

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV2,25F,108N,958
for special design
see pages 80-81

series
PSV 2



Section through sealing

Ø 133 N

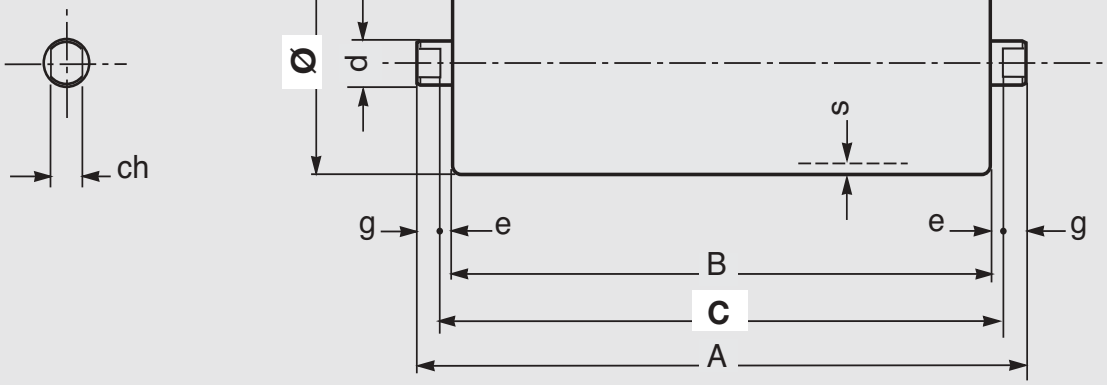
Bearing 6205
(25 X 52 X 15)

d = 25
ch = 18
s = 4
e = 4
g = 12

Example of ordering
standard design
PSV2,25F,133N,473
for special design
see pages 80-81

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
	650	250	**258**	282	4.5	**5.5**	314	274	249	231	217	198
	800	315	**323**	347	5.3	**6.5**	314	274	249	231	217	198
650	1000	380	**388**	412	6.1	**7.6**	314	274	249	231	217	198
800	1200	465	**473**	497	7.2	**9.0**	314	274	249	231	217	198
	1400	530	**538**	562	8.0	**10.1**	314	274	249	231	217	198
1000	1600	600	**608**	632	8.9	**11.3**	314	274	249	231	217	198
	1800	670	**678**	702	9.8	**12.4**	314	274	249	231	217	198
1200		700	**708**	732	10.2	**12.9**	314	274	249	231	217	198
650		750	**758**	782	10.9	**13.8**	314	274	249	231	217	198
1400		800	**808**	832	11.5	**14.6**	314	274	249	231	217	198
1600		900	**908**	932	12.8	**16.2**	310	274	249	231	217	198
800		950	**958**	982	13.4	**17.1**	293	274	249	231	217	198
1800		1000	**1008**	1032	14.0	**17.9**	278	274	249	231	217	198
1000		1150	**1158**	1182	16.0	**20.4**	240	240	240	231	217	198
1200		1400	**1408**	1432	19.1	**24.5**	197	197	197	197	197	197
1400		1600	**1608**	1632	21.7	**27.9**	172	172	172	172	172	172
1600		1800	**1808**	1832	24.2	**31.2**	153	153	153	153	153	
1800		2000	**2008**	2032	26.8	**34.5**	138	138	138	138	138	

The indicated load capacity relates to a project working life of 30000 hours.



Ø 159 N

Bearing 6205
(25 X 52 X 15)

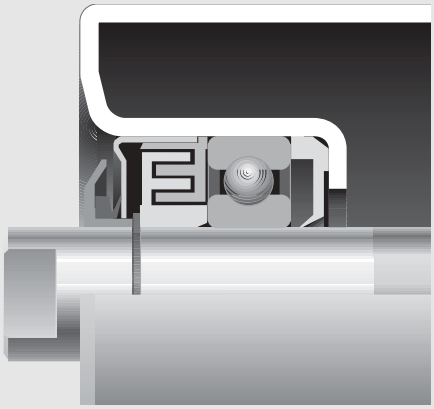
d = 25
ch = 18
s = 4,5
e = 4
g = 12

Example of ordering
standard design
PSV2,25F,159N,1158
for special design
see pages 80-81

Belt		**roller**										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	4.5	5
	650	250	**258**	282	5.3	**6.3**	333	264	231	210	202	195
	800	315	**323**	347	6.3	**7.6**	333	264	231	210	202	195
650	1000	380	**388**	412	7.3	**8.8**	333	264	231	210	202	195
800	1200	465	**473**	497	8.6	**10.5**	333	264	231	210	202	195
	1400	530	**538**	562	9.6	**11.7**	333	264	231	210	202	195
1000	1600	600	**608**	632	10.6	**13.1**	333	264	231	210	202	195
	1800	670	**678**	702	11.7	**14.4**	333	264	231	210	202	195
1200		700	**708**	732	12.2	**15.0**	333	264	231	210	202	195
650		750	**758**	782	12.9	**15.9**	333	264	231	210	202	195
1400		800	**808**	832	13.7	**16.9**	333	264	231	210	202	195
1600		900	**908**	932	15.2	**18.8**	307	264	231	210	202	195
800		950	**958**	982	16.0	**19.8**	290	264	231	210	202	195
1800		1000	**1008**	1032	16.8	**20.7**	275	264	231	210	202	195
1000		1150	**1158**	1182	19.1	**23.6**	237	237	231	210	202	195
1200		1400	**1408**	1432	22.9	**28.4**	193	193	193	193	193	193
1400		1600	**1608**	1632	26.0	**32.2**	169	169	169	169	169	169
1600		1800	**1808**	1832	29.0	**36.0**	150	150	150	150	150	
1800		2000	**2008**	2032	32.1	**39.9**	134	134	134	134	134	

The indicated load capacity relates to a project working life of 30000 hours.

series
PSV 3



Section through sealing

Ø 89 N

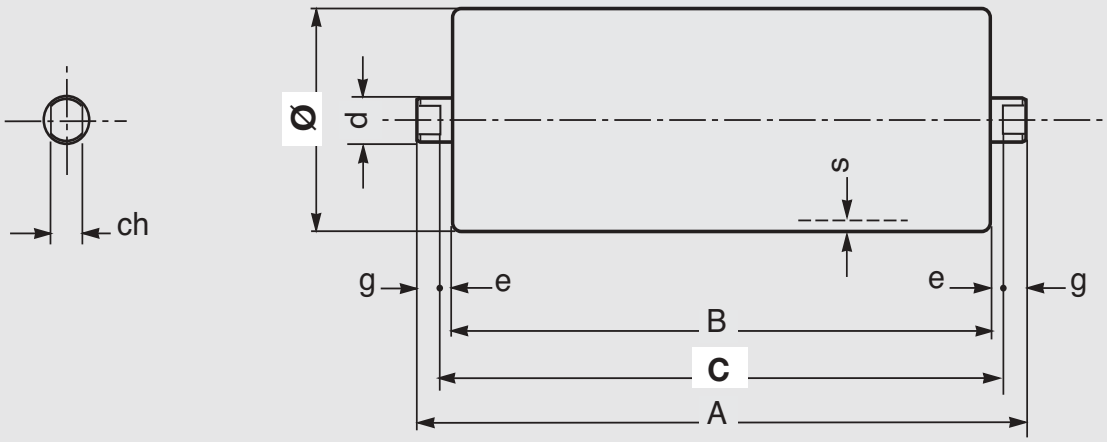
Bearing 6305
(25 X 62 X 17)

d = 25
ch = 18
s = 3
e = 4
g = 12

Belt		roller											
width mm		dimensions mm			weight Kg		load capacity daN						
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	1	1.5	2	2.5	3
	650	250	**258**	282	2.8	**3.9**	509	404	353	321	298	280
	800	315	**323**	347	3.2	**4.5**	509	404	353	321	298	280
650	1000	380	**388**	412	3.6	**5.2**	509	404	353	321	298	280
800	1200	465	**473**	497	4.2	**6.1**	509	404	353	321	298	280
	1400	530	**538**	562	4.6	**6.7**	509	404	353	321	298	280
1000	1600	600	**608**	632	5.0	**7.5**	493	404	353	321	298	280
1200		700	**708**	732	5.7	**8.5**	420	404	353	321	298	280
650		750	**758**	782	6.0	**9.0**	392	392	353	321	298	280
1400		800	**808**	832	6.3	**9.5**	367	367	353	321	298	280
1600		900	**908**	932	7.0	**10.5**	327	327	327	321	298	280
800		950	**958**	982	7.3	**11.1**	310	310	310	310	298	280
1000		1150	**1158**	1182	8.6	**13.1**	259	259	259	259	259	259
1200		1400	**1408**	1432	10.2	**15.7**	218	218	218	218	218	218
1400		1600	**1608**	1632	11.5	**17.7**	194	194	194	194	194	194
1600		1800	**1808**	1832	12.8	**19.8**	177	177	177	177	177	177

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV3,25F,89N,323
for special design
see pages 80-81



Ø 108 N

Bearing 6305
(25 X 62 X 17)

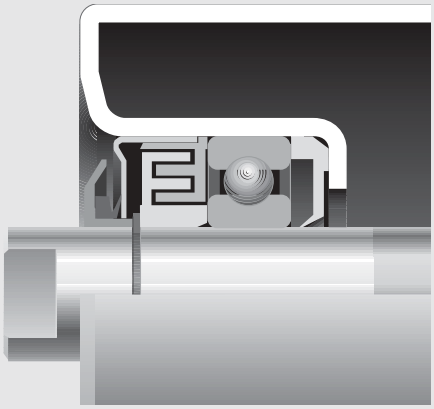
d = 25
ch = 18
s = 3,5
e = 4
g = 12

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	3.5
	650	250	**258**	282	3.6	**4.7**	431	376	342	317	299	284
	800	315	**323**	347	4.2	**5.5**	431	376	342	317	299	284
650	1000	380	**388**	412	4.8	**6.4**	431	376	342	317	299	284
800	1200	465	**473**	497	5.5	**7.5**	431	376	342	317	299	284
	1400	530	**538**	562	6.1	**8.3**	431	376	342	317	299	284
1000	1600	600	**608**	632	6.8	**9.2**	431	376	342	317	299	284
1200		700	**708**	732	7.7	**10.5**	404	376	342	317	299	284
650		750	**758**	782	8.1	**11.1**	375	375	342	317	299	284
1400		800	**808**	832	8.6	**11.8**	351	351	342	317	299	284
1600		900	**908**	932	9.5	**13.0**	310	310	310	310	299	284
800		950	**958**	982	9.9	**13.7**	294	294	294	294	294	284
1000		1150	**1158**	1182	11.7	**16.3**	242	242	242	242	242	242
1200		1400	**1408**	1432	14.0	**19.5**	199	199	199	199	199	199
1400		1600	**1608**	1632	15.8	**22.1**	175	175	175	175	175	175
1600		1800	**1808**	1832	17.6	**24.6**	157	157	157	157	157	

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV3,25F,108N,958
for special design
see pages 80-81

series
PSV 3



Section through sealing

Ø 133 N

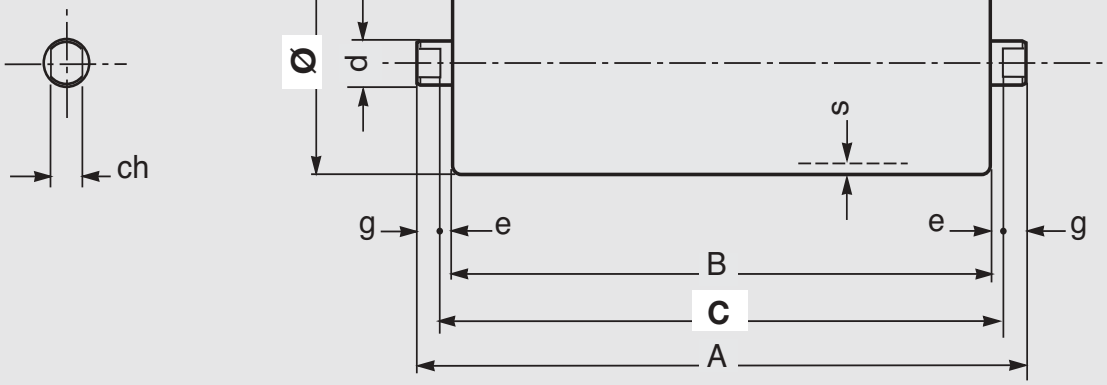
Bearing 6305
(25 X 62 X 17)

d = 25
ch = 18
s = 4
e = 4
g = 12

Example of ordering
standard design
PSV3,25F,133N,473
for special design
see pages 80-81

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
	800	315	**323**	347	5.7	**7.0**	462	403	366	340	320	291
	1000	380	**388**	412	6.5	**8.1**	462	403	366	340	320	291
800	1200	465	**473**	497	7.6	**9.5**	462	403	366	340	320	291
	1400	530	**538**	562	8.4	**10.6**	462	403	366	340	320	291
1000	1600	600	**608**	632	9.3	**11.7**	462	403	366	340	320	291
	1800	670	**678**	702	10.2	**12.9**	416	403	366	340	320	291
1200		700	**708**	732	10.6	**13.4**	397	397	366	340	320	291
	2000	750	**758**	782	11.2	**14.2**	368	368	366	340	320	291
1400		800	**808**	832	11.9	**15.1**	343	343	343	340	320	291
1600		900	**908**	932	13.1	**16.7**	303	303	303	303	303	291
800		950	**958**	982	13.8	**17.5**	286	286	286	286	286	286
1800		1000	**1008**	1032	14.4	**18.4**	271	271	271	271	271	271
2000		1100	**1108**	1132	15.7	**20.0**	245	245	245	245	245	245
1000		1150	**1158**	1182	16.3	**20.9**	234	234	234	234	234	234
1200		1400	**1408**	1432	19.5	**25.0**	192	192	192	192	192	192
1400		1600	**1608**	1632	22.1	**28.3**	167	167	167	167	167	167
1600		1800	**1808**	1832	24.6	**31.6**	149	149	149	149	149	149
1800		2000	**2008**	2032	27.2	**35.0**	134	134	134	134	134	

The indicated load capacity relates to a project working life of 30000 hours.



Ø 159 N

Bearing 6305
(25 X 62 X 17)

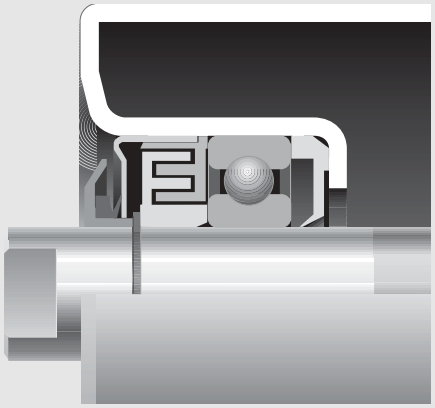
d = 25
ch = 18
s = 4,5
e = 4
g = 12

Belt width mm		roller dimensions mm			weight Kg		load capacity daN belt speed m/s					
arrangements		B	**C**	A	rotating parts	**total**	1	2	3	4	4.5	5
	1000	380	**388**	412	7.8	**9.4**	490	389	340	309	297	287
	1200	465	**473**	497	9.1	**11.0**	490	389	340	309	297	287
	1400	530	**538**	562	10.1	**12.3**	490	389	340	309	297	287
1000	1600	600	**608**	632	11.2	**13.6**	467	389	340	309	297	287
	1800	670	**678**	702	12.3	**15.0**	413	389	340	309	297	287
1200		700	**708**	732	12.7	**15.5**	393	389	340	309	297	287
	2000	750	**758**	782	13.5	**16.5**	365	365	340	309	297	287
1400		800	**808**	832	14.3	**17.4**	340	340	340	309	297	287
1600		900	**908**	932	15.8	**19.4**	300	300	300	300	297	287
1800		1000	**1008**	1032	17.3	**21.3**	268	268	268	268	268	268
2000		1100	**1108**	1132	18.9	**23.2**	242	242	242	242	242	242
1000		1150	**1158**	1182	19.6	**24.1**	231	231	231	231	231	231
1200		1400	**1408**	1432	23.5	**28.9**	188	188	188	188	188	188
1400		1600	**1608**	1632	26.5	**32.8**	164	164	164	164	164	164
1600		1800	**1808**	1832	29.6	**36.6**	146	146	146	146	146	146
1800		2000	**2008**	2032	32.6	**40.4**	131	131	131	131	131	
2000		2200	**2208**	2232	35.7	**44.3**	119	119	119	119	119	

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV3,25F,159N,1158
for special design
see pages 80-81

series
PSV 4



Section through sealing

Ø 89 N

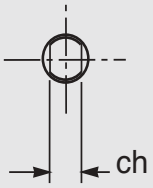
Cuscinetto 6206
(30 X 62 X 16)

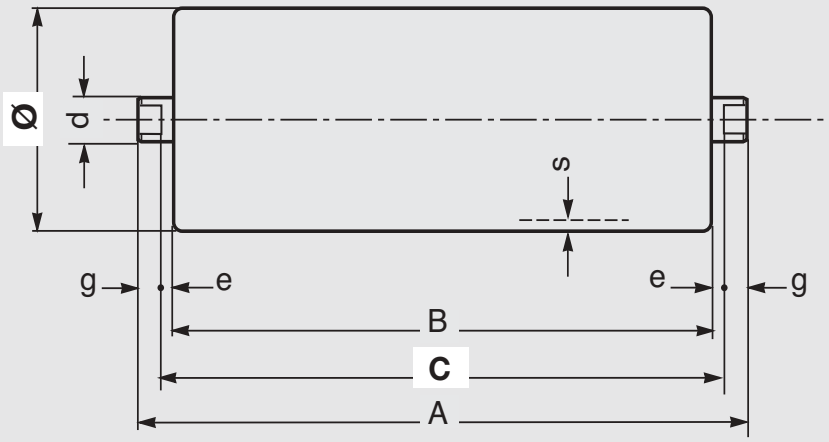
d = 30
ch = 22
s = 3
e = 4
g = 12

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	bel speed m/s 0.5	1	1.5	2	2.5	3
	800	315	**323**	347	3.4	**5.3**	480	381	333	302	281	264
	1000	380	**388**	412	3.8	**6.1**	480	381	333	302	281	264
800	1200	465	**473**	497	4.3	**7.1**	480	381	333	302	281	264
	1400	530	**538**	562	4.8	**7.9**	480	381	333	302	281	264
1000	1600	600	**608**	632	5.2	**8.7**	480	381	333	302	281	264
1200		700	**708**	732	5.9	**9.9**	480	381	333	302	281	264
1400		800	**808**	832	6.5	**11.1**	480	381	333	302	281	264
1600		900	**908**	932	7.1	**12.3**	480	381	333	302	281	264
800		950	**958**	982	7.5	**12.9**	480	381	333	302	281	264
1000		1150	**1158**	1182	8.7	**15.3**	480	381	333	302	281	264
1200		1400	**1408**	1432	10.4	**18.3**	480	381	333	302	281	264
1400		1600	**1608**	1632	11.6	**20.6**	337	337	333	302	281	264
1600		1800	**1808**	1832	12.9	**23.0**	233	233	233	233	233	233

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV4,30F,89N,323
for special design
see pages 80-81





Ø 108 N

Bearing 6206
(30 X 62 X 16)

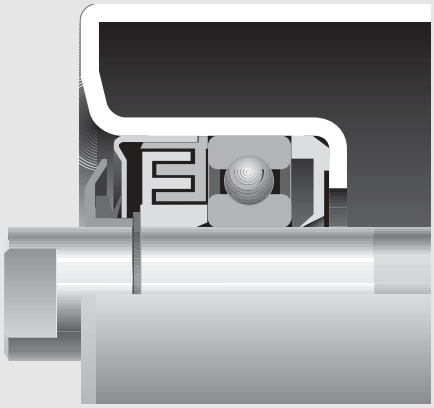
d = 30
ch = 22
s = 3,5
e = 4
g = 12

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	3.5
	800	315	**323**	347	4.3	**6.3**	406	355	323	299	282	268
	1000	380	**388**	412	4.9	**7.2**	406	355	323	299	282	268
800	1200	465	**473**	497	5.7	**8.4**	406	355	323	299	282	268
	1400	530	**538**	562	6.3	**9.4**	406	355	323	299	282	268
1000	1600	600	**608**	632	6.9	**10.4**	406	355	323	299	282	268
1200		700	**708**	732	7.8	**11.9**	406	355	323	299	282	268
1400		800	**808**	832	8.7	**13.3**	406	355	323	299	282	268
1600		900	**908**	932	9.6	**14.8**	406	355	323	299	282	268
800		950	**958**	982	10.1	**15.5**	406	355	323	299	282	268
1000		1150	**1158**	1182	11.9	**18.4**	406	355	323	299	282	268
1200		1400	**1408**	1432	14.2	**22.1**	406	355	323	299	282	268
1400		1600	**1608**	1632	16.0	**25.0**	402	355	323	299	282	268
1600		1800	**1808**	1832	17.8	**27.9**	366	355	323	299	282	268

The indicated load capacity relates to a project working life of 30000 hours.

Example of ordering
standard design
PSV4,30F,108N,958
for special design
see pages 80-81

series
PSV 4



Section through sealing

Ø 133 N

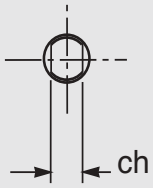
Bearing 6206
(30 X 62 X 16)

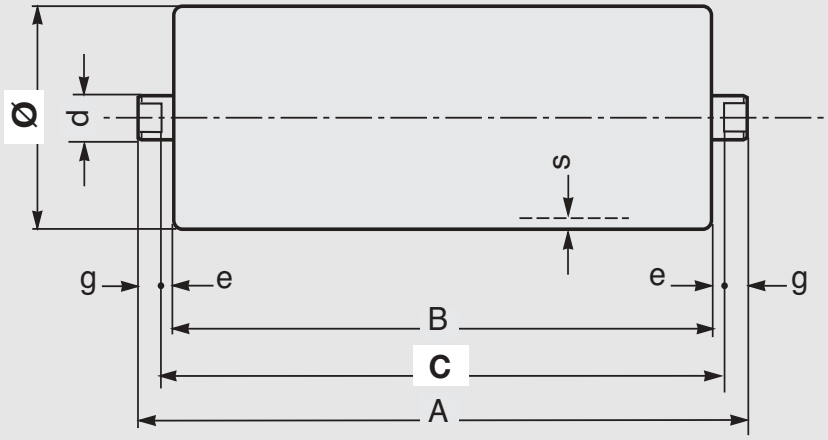
d = 30
ch = 22
s = 4
e = 4
g = 12

Example of ordering
standard design
PSV4,30F,133N,473
for special design
see pages 80-81

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
	800	315	**323**	347	5.8	**7.8**	436	381	346	321	302	274
	1000	380	**388**	412	6.7	**8.9**	436	381	346	321	302	274
800	1200	465	**473**	497	7.8	**10.5**	436	381	346	321	302	274
	1400	530	**538**	562	8.6	**11.7**	436	381	346	321	302	274
1000	1600	600	**608**	632	9.5	**13.0**	436	381	346	321	302	274
	1800	670	**678**	702	10.4	**14.2**	436	381	346	321	302	274
1200		700	**708**	732	10.8	**14.8**	436	381	346	321	302	274
	2000	750	**758**	782	11.4	**15.7**	436	381	346	321	302	274
1400		800	**808**	832	12.0	**16.6**	436	381	346	321	302	274
1600		900	**908**	932	13.3	**18.5**	436	381	346	321	302	274
800		950	**958**	982	14.0	**19.4**	436	381	346	321	302	274
1800		1000	**1008**	1032	14.6	**20.3**	436	381	346	321	302	274
2000		1100	**1108**	1132	15.9	**22.1**	436	381	346	321	302	274
1000		1150	**1158**	1182	16.5	**23.0**	436	381	346	321	302	274
1200		1400	**1408**	1432	19.7	**27.6**	412	381	346	321	302	274
1400		1600	**1608**	1632	22.3	**31.3**	363	363	346	321	302	274
1600		1800	**1808**	1832	24.8	**34.9**	324	324	324	321	302	274
1800		2000	**2008**	2032	27.4	**38.6**	294	294	294	294	294	
2000		2200	**2208**	2232	29.9	**42.2**	270	270	270	270	270	

The indicated load capacity relates to a project working life of 30000 hours.





Ø 159 N

Bearing 6206
(30 X 62 X 16)

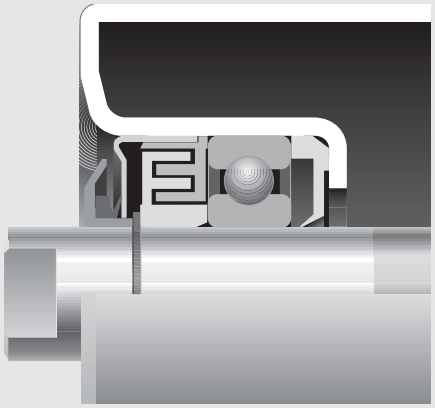
d = 30
ch = 22
s = 4,5
e = 4
g = 12

Example of ordering
standard design
PSV4,30F,159N,473
for special design
see pages 80-81

Belt		**roller**										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	4.5	5
	800	315	**323**	347	7.0	**8.9**	462	367	321	291	280	270
	1000	380	**388**	412	8.0	**10.3**	462	367	321	291	280	270
800	1200	465	**473**	497	9.3	**12.1**	462	367	321	291	280	270
	1400	530	**538**	562	10.3	**13.4**	462	367	321	291	280	270
1000	1600	600	**608**	632	11.4	**14.9**	462	367	321	291	280	270
	1800	670	**678**	702	12.5	**16.3**	462	367	321	291	280	270
1200		700	**708**	732	12.9	**17.0**	462	367	321	291	280	270
	2000	750	**758**	782	13.7	**18.0**	462	367	321	291	280	270
1400		800	**808**	832	14.5	**19.1**	462	367	321	291	280	270
1600		900	**908**	932	16.0	**21.1**	462	367	321	291	280	270
800		950	**958**	982	16.8	**22.2**	462	367	321	291	280	270
1800		1000	**1008**	1032	17.5	**23.2**	462	367	321	291	280	270
2000		1100	**1108**	1132	19.1	**25.3**	462	367	321	291	280	270
1000		1150	**1158**	1182	19.8	**26.4**	462	367	321	291	280	270
1200		1400	**1408**	1432	23.7	**31.6**	398	367	321	291	280	270
1400		1600	**1608**	1632	26.7	**35.7**	348	348	321	291	280	270
1600		1800	**1808**	1832	29.8	**39.9**	310	310	310	291	280	270
1800		2000	**2008**	2032	32.9	**44.1**	279	279	279	279	279	
2000		2200	**2208**	2232	35.9	**48.2**	254	254	254	254	254	

The indicated load capacity relates to a project working life of 30000 hours.

series
PSV 5



Section through sealing

Ø 89 N

Bearing 6306
(30 X 72 X 19)

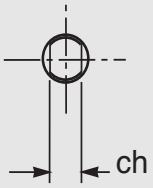
d = 30
ch = 22
s = 3 *
e = 4
g = 12

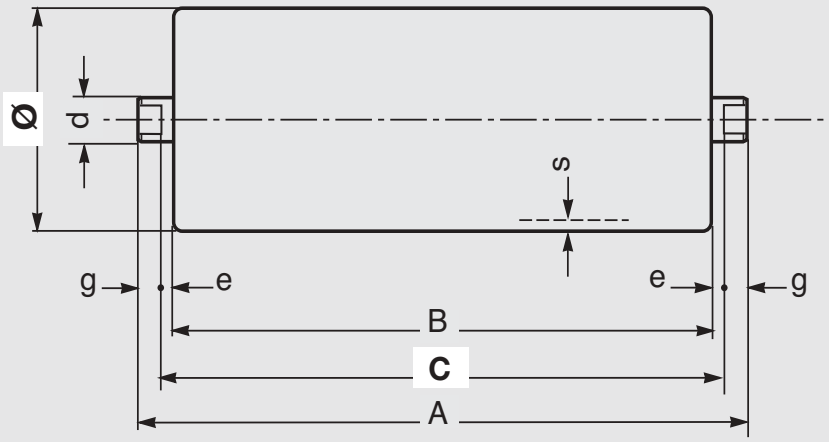
*s = 4 for basic rollers with impact rings

Example of ordering
standard design
PSV5,30F,89N,323
for special design
see pages 80-81

belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements						rotating	belt speed m/s					
		B	**C**	A	parts	**total**	1	1.5	2	2.5	3	3,5
	800	315	**323**	347	6.5	**8.4**	549	479	435	404	380	361
	1000	380	**388**	412	7.3	**9.6**	549	479	435	404	380	361
800	1200	465	**473**	497	8.4	**11.1**	549	479	435	404	380	361
	1400	530	**538**	562	9.2	**12.3**	549	479	435	404	380	361
1000	1600	600	**608**	632	10.1	**13.6**	549	479	435	404	380	361
	1800	670	**678**	702	11.0	**14.9**	549	479	435	404	380	361
1200		700	**708**	732	11.4	**15.5**	549	479	435	404	380	361
	2000	750	**758**	782	12.0	**16.3**	549	479	435	404	380	361
1400		800	**808**	832	12.7	**17.2**	549	479	435	404	380	361
1600		900	**908**	932	13.9	**19.1**	549	479	435	404	380	361
800		950	**958**	982	14.6	**20.0**	549	479	435	404	380	361
1800		1000	**1008**	1032	15.2	**20.9**	549	479	435	404	380	361
2000		1100	**1108**	1132	16.5	**22.7**	549	479	435	404	380	361
1000		1150	**1158**	1182	17.1	**23.6**	549	479	435	404	380	361
1200		1400	**1408**	1432	20.3	**28.2**	512	479	435	404	380	361
1400		1600	**1608**	1632	22.9	**31.9**	337	479	435	404	380	361
1600		1800	**1808**	1832	25.4	**35.5**	233	233	233	233	233	
1800		2000	**2008**	2032	28.0	**39.2**	168	168	168	168		
2000		2200	**2208**	2232	30.5	**42.8**	125	125	125			

The indicated load capacity relates to a project working life of 30000 hours.





Ø 108 N

Bearing 6306
(30 X 72 X 19)

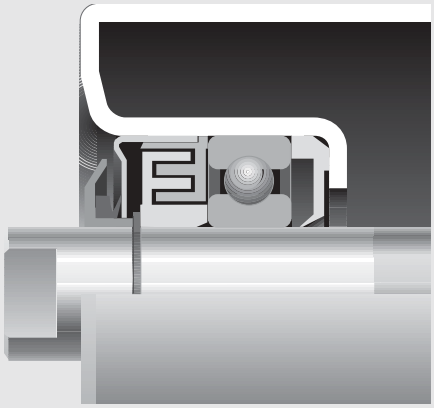
d = 30
ch = 22
s = 3,5
e = 4
g = 12

Example of ordering
standard design
PSV5,30F,108N,473
for special design
see pages 80-81

belt		roller											
width mm		dimensions mm			weight Kg		load capacity daN						
arrangements						rotating	belt speed m/s						
		B	**C**	A	parts	total	1	2	2,5	3	3.5	4
	800	315	**323**	347	6.5	**8.4**	585	465	431	406	385	369
	1000	380	**388**	412	7.3	**9.6**	585	465	431	406	385	369
800	1200	465	**473**	497	8.4	**11.1**	585	465	431	406	385	369
	1400	530	**538**	562	9.2	**12.3**	585	465	431	406	385	369
1000	1600	600	**608**	632	10.1	**13.6**	585	465	431	406	385	369
	1800	670	**678**	702	11.0	**14.9**	585	465	431	406	385	369
1200		700	**708**	732	11.4	**15.4**	585	465	431	406	385	369
	2000	750	**758**	782	12.0	**16.3**	585	465	431	406	385	369
1400		800	**808**	832	12.7	**17.2**	585	465	431	406	385	369
1600		900	**908**	932	13.9	**19.1**	585	465	431	406	385	369
800		950	**958**	982	14.6	**20.0**	585	465	431	406	385	369
1800		1000	**1008**	1032	15.2	**20.9**	585	465	431	406	385	369
2000		1100	**1108**	1132	16.5	**22.7**	552	465	431	406	385	369
1000		1150	**1158**	1182	17.1	**23.6**	529	465	431	406	385	369
1200		1400	**1408**	1432	20.3	**28.2**	442	442	431	406	385	369
1400		1600	**1608**	1632	22.9	**31.9**	393	393	393	393	385	369
1600		1800	**1808**	1832	25.4	**35.5**	356	356	356	356	356	
1800		2000	**2008**	2032	28.0	**39.2**	327	327	327	327		
2000		2200	**2208**	2232	30.5	**42.8**	295	295	295			

The indicated load capacity relates to a project working life of 30000 hours.

series
PSV 5



Section through sealing

Ø 133 N

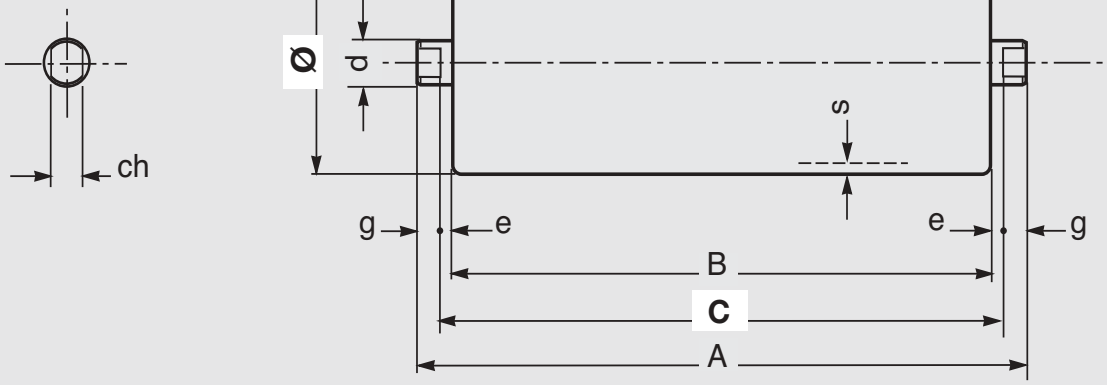
Bearing 6306
(30 X 72 X 1`9)

d = 30
ch = 22
s = 4
e = 4
g = 12

Example of ordering
standard design
PSV5,30F,133N,473
for special design
see pages 80-81

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	4.5	5
	800	315	**323**	347	6.4	**8.3**	627	498	435	395	380	367
	1000	380	**388**	412	7.2	**9.5**	627	498	435	395	380	367
800	1200	465	**473**	497	8.3	**11.1**	627	498	435	395	380	367
	1400	530	**538**	562	9.2	**12.3**	627	498	435	395	380	367
1000	1600	600	**608**	632	10.1	**13.5**	627	498	435	395	380	367
	1800	670	**678**	702	10.9	**14.8**	627	498	435	395	380	367
1200		700	**708**	732	11.3	**15.4**	627	498	435	395	380	367
	2000	750	**758**	782	12.0	**16.3**	627	498	435	395	380	367
1400		800	**808**	832	12.6	**17.2**	627	498	435	395	380	367
1600		900	**908**	932	13.9	**19.0**	627	498	435	395	380	367
800		950	**958**	982	14.5	**19.9**	608	498	435	395	380	367
1800		1000	**1008**	1032	15.2	**20.8**	577	498	435	395	380	367
2000		1100	**1108**	1132	16.4	**22.7**	524	498	435	395	380	367
1000		1150	**1158**	1182	17.1	**23.6**	501	498	435	395	380	367
1200		1400	**1408**	1432	20.3	**28.2**	412	412	412	395	380	367
1400		1600	**1608**	1632	22.8	**31.8**	363	363	363	363	363	363
1600		1800	**1808**	1832	25.4	**35.5**	324	324	324	324	324	
1800		2000	**2008**	2032	27.9	**39.1**	294	294	294	294	294	
2000		2200	**2208**	2232	30.5	**42.8**	270	270	270	270	270	

The indicated load capacity relates to a project working life of 30000 hours.



Ø 159 N

Bearing 6306
(30 X 72 X 19)

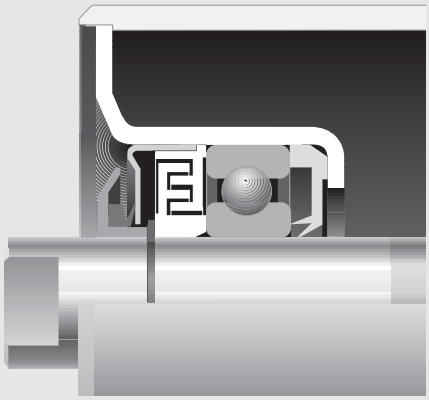
d = 30
ch = 22
s = 4,5
e = 4
g = 12

Example of ordering
standard design
PSV5,30F,159N,1158
for special design
see pages 80-81

Belt		**roller**											
width mm		dimensions mm			weight Kg		load capacity daN						
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	5	6
	1000	380	**388**	412	8.6	**10.9**	666	528	462	419	389	366
	1200	465	**473**	497	9.9	**12.6**	666	528	462	419	389	366
	1400	530	**538**	562	10.9	**14.0**	666	528	462	419	389	366
1000	1600	600	**608**	632	12.0	**15.4**	666	528	462	419	389	366
	1800	670	**678**	702	13.0	**16.9**	666	528	462	419	389	366
1200		700	**708**	732	13.5	**17.5**	666	528	462	419	389	366
	2000	750	**758**	782	14.3	**18.6**	666	528	462	419	389	366
1400	2200	800	**808**	832	15.0	**19.6**	666	528	462	419	389	366
1600		900	**908**	932	16.6	**21.7**	630	528	462	419	389	366
1800		1000	**1008**	1032	18.1	**23.8**	564	528	462	419	389	366
2000		1100	**1108**	1132	19.6	**25.9**	511	511	462	419	389	366
1000		1150	**1158**	1182	20.4	**26.9**	488	488	462	419	389	366
2200		1250	**1258**	1282	21.9	**29.0**	449	449	449	419	389	366
1200		1400	**1408**	1432	24.2	**32.1**	400	400	400	400	389	366
1400		1600	**1608**	1632	27.3	**36.3**	350	350	350	350	350	350
1600		1800	**1808**	1832	30.4	**40.5**	311	311	311	311	311	
1800		2000	**2008**	2032	33.4	**44.6**	281	281	281	281	281	
2000		2200	**2208**	2232	36.5	**48.8**	256	256	256	256		
2200		2500	**2508**	2532	41.1	**55.1**	227	227	227	227		

The indicated load capacity relates to a project working life of 30000 hours.

series
PSV 7



Section through sealing

Ø 108 N

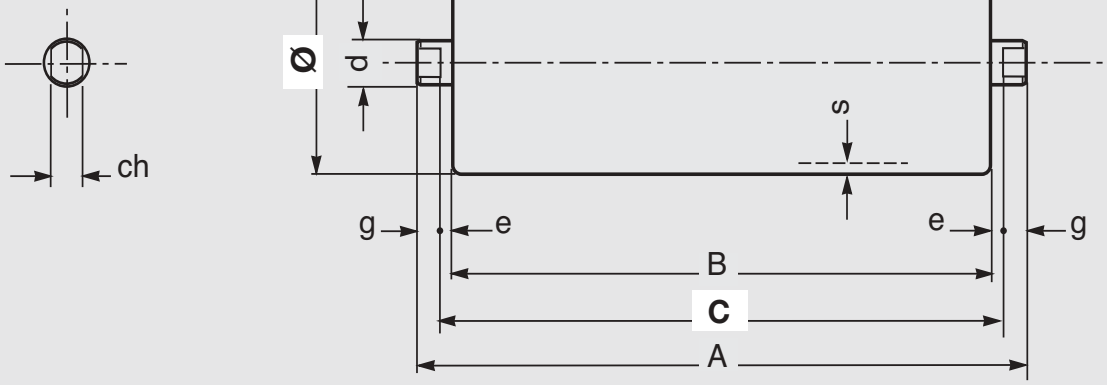
Bearing 6308
(40 X 90 X 23)

d = 40
ch = 32
s = 4
e = 4
g = 12

Example of ordering
standard design
PSV7,40F,133N,473
for special design
see pages 80-81

Belt		**roller**										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1,5	2	2,5	3	4
	1000	380	**388**	412	7.6	**11.6**	853	746	677	629	592	538
	1200	465	**473**	497	8.3	**13.2**	853	746	677	629	592	538
	1400	530	**538**	562	8.9	**14.5**	853	746	677	629	592	538
1000	1600	600	**608**	632	9.6	**15.8**	853	746	677	629	592	538
	1800	670	**678**	702	10.2	**17.1**	853	746	677	629	592	538
1200		700	**708**	732	10.5	**17.6**	853	746	677	629	592	538
	2000	750	**758**	782	10.9	**18.6**	853	746	677	629	592	538
1400	2200	800	**808**	832	11.4	**19.5**	853	746	677	629	592	538
1600		900	**908**	932	12.3	**21.4**	853	746	677	629	592	538
1800		1000	**1008**	1032	13.4	**23.4**	853	746	677	629	592	538
2000		1100	**1108**	1132	14.1	**25.1**	853	746	677	629	592	538
1000		1150	**1158**	1182	14.5	**26.1**	853	746	677	629	592	538
2200		1250	**1258**	1282	15.4	**28.0**	853	746	677	629	592	538
1200		1400	**1408**	1432	16.7	**30.8**	853	746	677	629	592	538
1400		1600	**1608**	1632	18.5	**34.5**	727	727	677	629	592	538
1600		1800	**1808**	1832	20.3	**38.3**	501	501	501	501	501	501
1800		2000	**2008**	2032	22.1	**42.0**	360	360	360	360	360	360
2000		2200	**2208**	2232	23.9	**45.8**	267	267	267	267	267	267
2200		2500	**2508**	2532	26.6	**51.4**	180	180	180	180	180	180

The indicated load capacity relates to a project working life of 30000 hours.



Ø 133 N

Bearing 6308
(40 X 90 X 23)

d = 40
ch = 32
s = 4 *
e = 4
g = 12

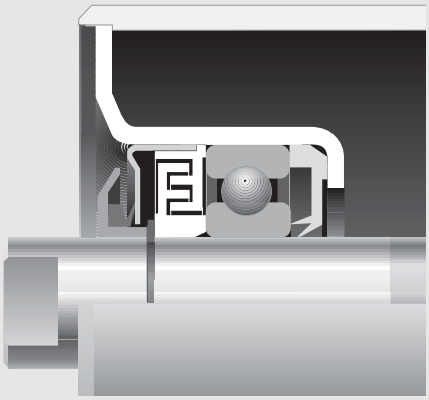
*s = 6 for basic rollers with impact rings

Example of ordering
standard design
PSV7,40F,133N,473
for special design
see pages 80-81

Belt		**roller**											
width mm		dimensions mm			weight Kg		load capacity daN						
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	4.5	5
	1000	380	**388**	412	9.3	**13.3**	915	726	634	576	554	535
	1200	465	**473**	497	10.4	**15.2**	915	726	634	576	554	535
	1400	530	**538**	562	11.2	**16.7**	915	726	634	576	554	535
1000	1600	600	**608**	632	12.1	**18.3**	915	726	634	576	554	535
	1800	670	**678**	702	13.0	**19.9**	915	726	634	576	554	535
1200		700	**708**	732	13.4	**20.5**	915	726	634	576	554	535
	2000	750	**758**	782	14.0	**21.7**	915	726	634	576	554	535
1400	2200	800	**808**	832	14.6	**22.8**	915	726	634	576	554	535
1600		900	**908**	932	15.9	**25.1**	915	726	634	576	554	535
1800		1000	**1008**	1032	17.2	**27.3**	915	726	634	576	554	535
2000		1100	**1108**	1132	18.5	**29.6**	915	726	634	576	554	535
1000		1150	**1158**	1182	19.1	**30.7**	915	726	634	576	554	535
2200		1250	**1258**	1282	20.4	**33.0**	915	726	634	576	554	535
1200		1400	**1408**	1432	22.3	**36.3**	915	726	634	576	554	535
1400		1600	**1608**	1632	24.9	**40.9**	915	726	634	576	554	535
1600		1800	**1808**	1832	27.4	**45.4**	915	726	634	576	554	535
1800		2000	**2008**	2032	30.0	**49.9**	774	726	634	576	554	535
2000		2200	**2208**	2232	32.5	**54.4**	575	575	575	575	554	
2200		2500	**2508**	2532	36.4	**61.2**	386	386	386	386	386	

The indicated load capacity relates to a project working life of 30000 hours.

series
PSV 7



Section through sealing

Ø 159 N

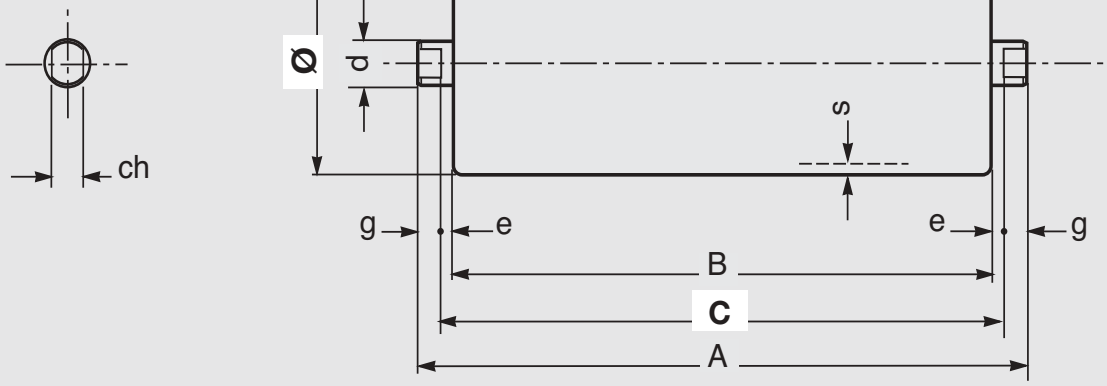
Bearing 6308
(40 X 90 X 23)

d = 40
ch = 32
s = 4,5
e = 4
g = 12

Example of ordering
standard design
PSV7,40F,159N,1158
for special design
see pages 80-81

Belt		roller										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	2	3	4	5	6
	1000	380	**388**	412	10.6	**14.7**	971	771	673	612	568	534
	1200	465	**473**	497	11.9	**16.8**	971	771	673	612	568	534
	1400	530	**538**	562	12.9	**18.4**	971	771	673	612	568	534
1000	1600	600	**608**	632	14.0	**20.2**	971	771	673	612	568	534
	1800	670	**678**	702	15.1	**22.0**	971	771	673	612	568	534
1200		700	**708**	732	15.5	**22.7**	971	771	673	612	568	534
	2000	750	**758**	782	16.3	**24.0**	971	771	673	612	568	534
1400	2200	800	**808**	832	17.1	**25.2**	971	771	673	612	568	534
1600		900	**908**	932	18.6	**27.7**	971	771	673	612	568	534
1800		1000	**1008**	1032	20.1	**30.3**	971	771	673	612	568	534
2000		1100	**1108**	1132	21.7	**32.8**	971	771	673	612	568	534
1000		1150	**1158**	1182	22.4	**34.0**	971	771	673	612	568	534
2200		1250	**1258**	1282	24.0	**36.6**	971	771	673	612	568	534
1200		1400	**1408**	1432	26.3	**40.3**	971	771	673	612	568	534
1400		1600	**1608**	1632	29.4	**45.4**	971	771	673	612	568	534
1600		1800	**1808**	1832	32.4	**50.4**	898	771	673	612	568	
1800		2000	**2008**	2032	35.5	**55.4**	819	771	673	612	568	
2000		2200	**2208**	2232	38.6	**60.5**	755	755	673	612		
2200		2500	**2508**	2532	43.2	**68.0**	670	670	670	612		

The indicated load capacity relates to a project working life of 30000 hours.



Ø 194 N

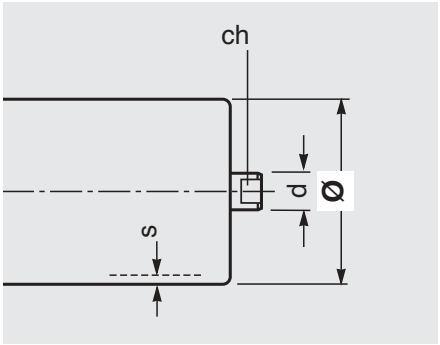
Bearing 6308
(40 X 90 X 23)

d = 40
ch = 32
s = 6,3
e = 4
g = 12

Example of ordering
standard design
PSV7,40F,194N,758
for special design
see pages 80-81

Belt		**roller**										
width mm		dimensions mm			weight Kg		load capacity daN					
arrangements					rotating		belt speed m/s					
		B	**C**	A	parts	**total**	2	3	4	5	6	7
	1600	600	**608**	632	23.2	**29.4**	823	719	654	607	571	542
	1800	670	**678**	702	25.2	**32.1**	823	719	654	607	571	542
	2000	750	**758**	782	27.6	**35.2**	823	719	654	607	571	542
	2200	800	**808**	832	29.0	**37.2**	823	719	654	607	571	542
1600	2400	900	**908**	932	31.9	**41.1**	823	719	654	607	571	542
	2600	950	**958**	982	33.4	**43.0**	823	719	654	607	571	542
1800		1000	**1008**	1032	34.9	**45.0**	823	719	654	607	571	542
	2800	1050	**1058**	1082	36.3	**46.9**	823	719	654	607	571	542
2000		1100	**1108**	1132	37.8	**48.9**	823	719	654	607	571	542
	3000	1120	**1128**	1152	38.4	**49.6**	823	719	654	607	571	542
2200		1250	**1258**	1282	42.1	**54.7**	823	719	654	607	571	542
2400		1400	**1408**	1432	46.5	**60.6**	823	719	654	607	571	
2800		1600	**1608**	1632	52.3	**68.3**	823	719	654	607	571	
3000		1700	**1708**	1732	55.3	**72.2**	823	719	654	607	571	
1600		1800	**1808**	1832	58.2	**76.1**	817	719	654	607	571	
1800		2000	**2008**	2032	64.0	**83.9**	736	719	654	607	571	
2000		2200	**2208**	2232	69.8	**91.7**	671	671	654	607		
2200		2500	**2508**	2532	78.6	**103.4**	593	593	593	593		
2400		2800	**2808**	2832	87.3	**115.1**	532	532	532	532		
2600		3000	**3008**	3032	93.2	**122.9**	498	498	498	498		

The indicated load capacity relates to a project working life of 30000 hours.



The table indicates rollers with non standard diameters that we are already producing.

Upon request rollers may be supplied with varying dimensions, tube thickness end diameters according to standards CEMA, BS, JIS, AFNOR and ISO-FEM .

Production programme of non standard PSV

roller type	Ø mm	basic design	s	spindle d	spindle ch	bearing	note
PSV 1	**76**	**N**	3	20	14	6204	with tube and spindle in steel S 235 JR (EN 10027-1) ex Fe 360 (EN 10025) St 37 (DIN 17100)
	102	**N**	3				
	114	**N**	3,5				
	127	**N**	4				
	140	**N**	4				
PSV 2	**76**	**N**	3	25	18	6205	
	102	**N**	3				
	114	**N**	3,5				
	127	**N**	4				
	140	**N**	4				
	152	**N**	4				
	168	**N**	4,5				
PSV 3	**102**	**N**	3	25	18	6305	
	127	**N**	4				
	152	**N**	4				
	168	**N**	4,5				
PSV 4	**102**	**N**	3	30	22	6206	
	127	**N**	4				
	152	**N**	4				
	168	**N**	4,5				

2.5.2 Series PL/PLF

Where used

In conveyors used to transport very corrosive materials ; and where difficult working conditions prevail : the extraction industries and in the mining of salt, chemical industries, fertiliser manufacture and in marine environments which require corrosion resistant rollers.

These rollers demonstrate particular resistance to the presence of high humidity and water, and also to corrosive elements present in the environment or in the conveyed material itself.

The design of the rollers utilises plastic materials for the most critical parts, which, excellently and economically, substitute for traditional materials such as stainless steel, bronze and aluminium.

Testing and actual plant trials have well demonstrated the efficiency and versatility of these rollers. The characteristics designed into them provide a long working life even in the most severe environment, and when one considers their low purchasing and maintenance cost, PL/PLF rollers provide the ideal solution for severe applications.

The functioning temperatures recommended are:
-10° to +50°C for rollers with PVC endcaps
-10° to + 70° for rollers with steel endcaps.

series PL-PLF

Characteristics
The PL roller has been designed with two important principles : to offer the maximum resistance to a corrosive environment, together with mechanical properties sufficient to sustain heavy loads on the belt conveyor or caused by the material being conveyed.

The first characteristic has been achieved utilising, for all the external parts of the roller, materials resistant to corrosion.
The second, is the design of the roller itself as a precision arrangement and generously dimensioned (whether it is the thickness of the load carrying parts or in the items in contact with the belt).

The result of this intelligent design has made possible a roller very resistant to the environment and to chemicals and aggressive materials, and at the same time of surprising lightness, optimum balance and quietness, that also reduces energy consumption thanks to the avoidance of any contact parts in the sealing system.

Roller shell
Comprises a precision high quality rigid PVC tube of a large thickness resistant to low and high temperatures.
In the PLF version the tube shell is in steel machined at either end, to allow the insertion of the bearing housings.

Bearing housings
They are produced by a high pressure moulding of polypropylene loaded with fibreglass.
This material gives high resistance to corrosion as well as an optimum mechanical resistance,
The endcap is forced with an interference fit into the counterbored section of the tube to present an united structure that is very robust, light, flexible and above all shock resistant.

Spindles
Diameter 20 mm in drawn steel and ground to guarantee at optimum fit to the bearing.

Bearings
Radial rigid precision bearings with a spherical ball race, series 6204 and internal play C3 fit.

Seals
Internally we find a labyrinth seal which brushes against the spindle to protect the bearing from eventual condensation or rusting from the interior of the tube where it is in steel.
The tube when in plastic does not rust and having a good thermic insulation limits the formation of condensation.
The patented external protection is made from anti-corrosive material : polypropylene loaded with glass fibre, similar to the end cap.

Resistance to chemical agents

Agents	Polypropylene (PP)	Polyvinyl chloride (PVC)
Grease, oil	❍	❍
Petrol	❍	❍
Strong alkalines	❍	❍
Weak alkalines	❍	❍
Strong acids	❑	▲
Weak acids	▲	❍
Hydrocarbons	❑	▲
Organic acids	❍	❍
Alcohol	❍	❍
Ketone	❑	●

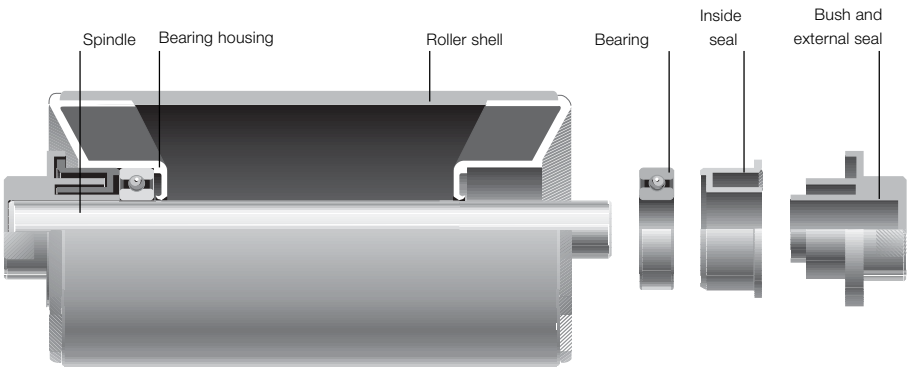
❍ resistant ▲ in general sufficiently resistant
● non resistant ❑ resistant only in certain conditions

The seal presents a front cover shield, that prevents the ingress to the body of items larger than 0.5 mm.

The particular self cleaning geometry of the end cap facilitates the rejection of fine particles by the action of gravity, even when the roller is inclined, meanwhile the centrifugal action of the roller rotation aids the cleaning process when material arrives in the proximity of the end cap.

The labyrinth is very deep and divided into two zones separated by a large chamber, which lengthens the route for and protects the bearing from the ingress of foreign particles.

The wall of the labyrinth on the bearing side is formed in a manner that increases the grease chamber. The type of grease is lithium based water repellent and anti-rusting, providing lubrication for long roller life.

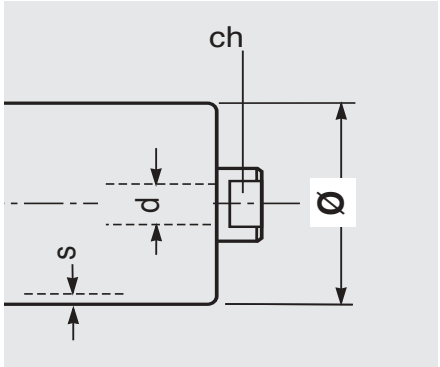


Programme of production series PL e PLF

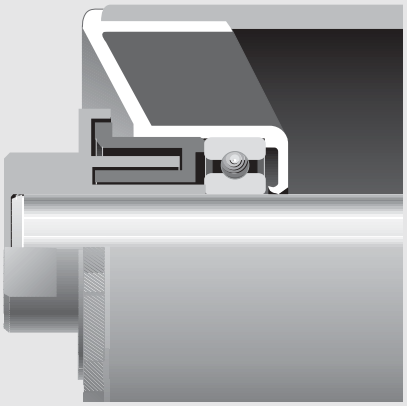
roller type	Ø mm	basic design	s	spindle d	ch	bearings	note
PL 2	**90**	**V**	4,3	20	30	6204	with tube in rigid PVC, colour grey RAL 7030, spindle steel S 235 JR (Fe360, DIN St 37) bushes in polyamide loaded with glass fibre
	110	**V**	5,3				
	140	**V**	8,5				
PL 3	**90**	**V**	4,3	20	14	6204	with tube in rigid PVC, colour grey RAL 7030, spindle steel S 235 JR (Fe360, DIN St 37) bushes in polyamide loaded with glass fibre
	110	**V**	5,3				
	140	**V**	8,5				
PL 4	**90**	**V**	4,3	20	14	6204	with tube in rigid PVC, colour grey RAL 7030, spindle steel S 235 JR (Fe360, DIN St 37)
	110	**V**	5,3				
	140	**V**	8,5				
PLF 1	**89**	**N**	3	20	30	6204	with tube and spindle in steel S 235 JR (UNI Fe360, DIN St 37) bushes in polyamide loaded with glass fibre
	108	**N**	3,5				
	133	**N**	4				
PLF 5	**89**	**N**	3	20	14	6204	with tube and spindle in steel S 235 JR (UNI Fe360, DIN St 37) bushes in polyamide loaded with glass fibre
	108	**N**	3,5				
	133	**N**	4				
PLF 20	**89**	**N**	3	20	14	6204	with tube and spindle in steel S 235 JR (UNI Fe360, DIN St 37)
	108	**N**	3,5				
	133	**N**	4				

The table indicates the diameter of rollers in production. The diameters are those standards according to European unification to norm DIN (for steel body).

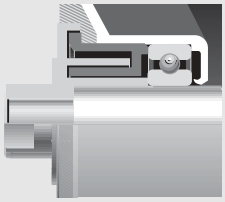
Upon request rollers may be supplied with lengths and spindle extensions according to norms CEMA, BS, JIS, AFNOR, ISO - FEM and UNI.



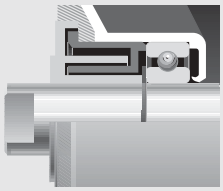
series
PL 2
PL 3
PL 4



Section through seal **PL2** with bush ch=30



Section through seal **PL3** with bush ch=14



Section through seal **PL4** with through steel shaft ch=14

Ø 90 V

Bearing 6204
(20 X 47 X 14)

PL 2
d = 20
d_1 = 35
ch = 30
s = 4,3
e = 4
g = 10

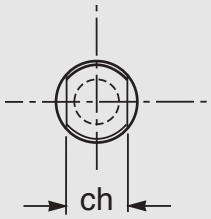
PL 3
d = 20
d_1 = 20
ch = 14
s = 4,3
e = 4
g = 10

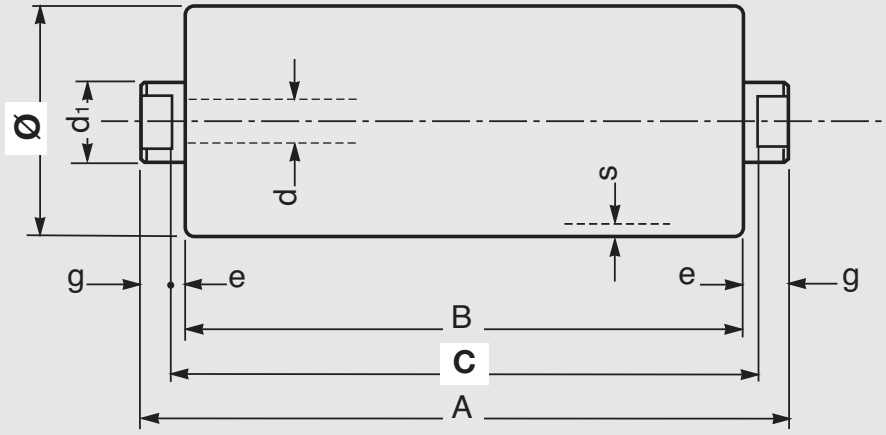
PL 4
d = 20
d_1 = 20
ch = 14
s = 4,3
e = 4
g = 10

Example of ordering
standard design
PL2,20N,90V,323
for special design
see pages 80-81

Belt			**roller**										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	1.75	2	2.5
		400	160	**168**	188	0.7	**1.2**	97	88	80	75	70	63
		500	200	**208**	228	0.8	**1.3**	97	88	80	75	70	63
	400	650	250	**258**	278	0.8	**1.5**	97	88	80	75	70	63
	500	800	315	**323**	343	1.0	**1.8**	97	88	80	75	70	63
	650	1000	380	**388**	408	1.1	**2.1**	97	88	80	75	70	63
	800	1200	465	**473**	493	1.2	**2.4**	97	88	80	75	70	63
400			500	**508**	528	1.3	**2.6**	97	88	80	75	70	63
500	1000		600	**608**	628	1.5	**3.0**	97	88	80	75	70	63
	1200		700	**708**	728	1.6	**3.4**	97	88	80	75	70	63
650			750	**758**	778	1.7	**3.6**	97	88	80	75	70	63
800			950	**958**	978	2.1	**4.5**	50	50	50	50	50	50
1000			1150	**1158**	1178	2.4	**5.3**	28	28	28	28	28	28
1200			1400	**1408**	1428	2.8	**6.3**	16	16	16	16	16	16

The indicated load capacity relates to a project working life of 10.000 hours.





Ø 110 V

Bearing 6204
(20 x 47 x 14)

PL 2
d = 20
d1 = 35
ch = 30
s = 5,3
e = 4
g = 10

PL 3
d = 20
d1 = 20
ch = 14
s = 5,3
e = 4
g = 10

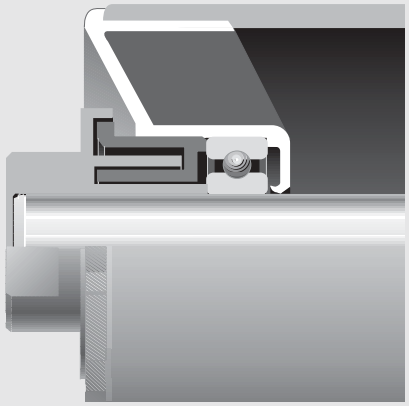
PL 4
d = 20
d1 = 20
ch = 14
s = 5,3
e = 4
g = 10

Belt			**roller**										
width mm			dimensions mm			weight Kg		lod capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	2	2.5	3
		400	160	**168**	188	1.2	**1.6**	107	96	88	77	69	64
		500	200	**208**	228	1.3	**1.8**	107	96	88	77	69	64
	400	650	250	**258**	278	1.4	**2.1**	107	96	88	77	69	64
	500	800	315	**323**	343	1.5	**2.4**	107	96	88	77	69	64
	650	1000	380	**388**	408	1.7	**2.7**	107	96	88	77	69	64
	800	1200	465	**473**	493	1.9	**3.1**	107	96	88	77	69	64
400			500	**508**	528	2.0	**3.3**	107	96	88	77	69	64
500	1000		600	**608**	628	2.2	**3.8**	107	96	88	77	69	64
	1200		700	**708**	728	2.5	**4.3**	107	96	88	77	69	64
650			750	**758**	778	2.6	**4.5**	107	96	88	77	69	64
800			950	**958**	978	3.1	**5.5**	107	96	88	77	69	64
1000			1150	**1158**	1178	3.6	**6.5**	62	62	62	62	62	62
1200			1400	**1408**	1428	4.2	**7.7**	35	35	35	35	35	35

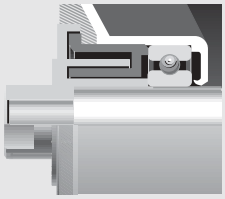
The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
PL2,20N,110V,473
for special design
see pages 80-81

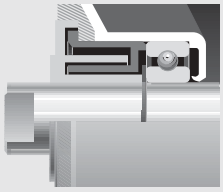
series
PL 2
PL 3
PL 4



Section through seal **PL2** with bush ch=30



Section through seal **PL3** with bush ch=14



Section through seal **PL4** with through steel shaft ch=14

Ø140 V

Bearing 6204
(20 X 47 X 14)

PL 2
d = 20
d_1 = 35
ch = 30
s = 8,5
e = 4
g = 10

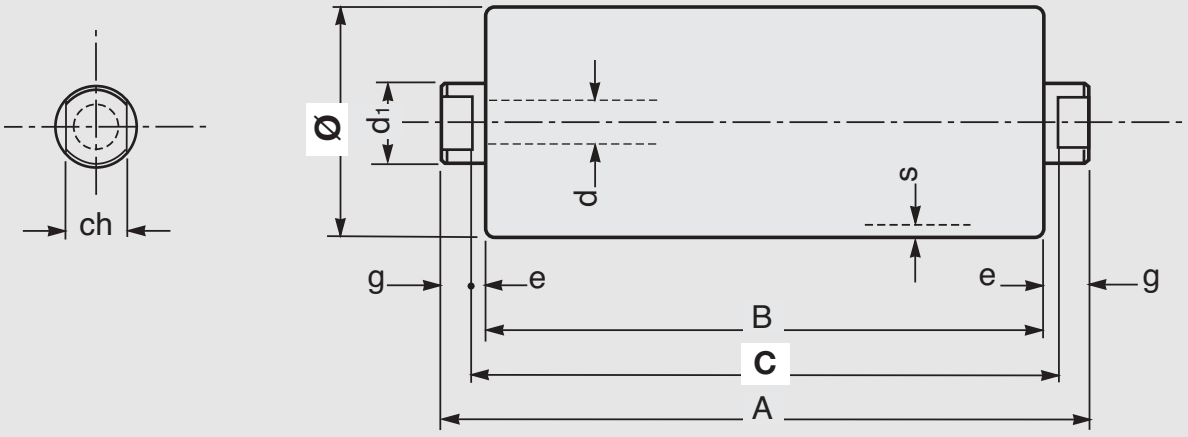
PL 3
d = 20
d_1 = 20
ch = 14
s = 8,5
e = 4
g = 10

PL 4
d = 20
d_1 = 20
ch = 14
s = 8,5
e = 4
g = 10

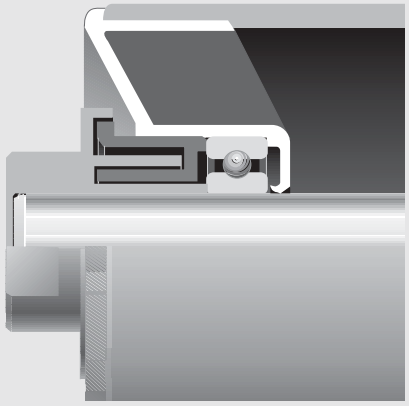
Example of ordering
standard design
PL2,20N,140V,473
for special design
see pages 80-81

Belt			**roller**										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
		400	160	**168**	188	2.3	**2.8**	120	99	78	76	71	62
		500	200	**208**	228	2.5	**3.1**	120	99	78	76	71	62
	400	650	250	**258**	278	2.8	**3.4**	120	99	78	76	71	62
	500	800	315	**323**	343	3.1	**3.9**	120	99	78	76	71	62
	650	1000	380	**388**	408	3.4	**4.4**	120	99	78	76	71	62
	800	1200	465	**473**	493	3.8	**5.0**	120	99	78	76	71	62
400			500	**508**	528	4.0	**5.3**	120	99	78	76	71	62
		1400	530	**538**	558	4.1	**5.5**	120	99	78	76	71	62
500	1000		600	**608**	628	4.5	**6.0**	120	99	78	76	71	62
	1200		700	**708**	728	5.0	**6.8**	120	99	78	76	71	62
650			750	**758**	778	5.2	**7.1**	120	99	78	76	71	62
	1400		800	**808**	828	5.5	**7.5**	120	99	78	76	71	62
800			950	**958**	978	6.2	**8.6**	120	99	78	76	71	62
1000			1150	**1158**	1178	7.2	**10.1**	120	99	78	76	71	62
1200			1400	**1408**	1428	8.4	**11.9**	107	99	78	76	71	62

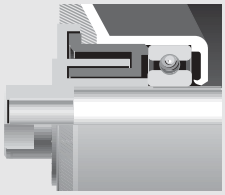
The indicated load capacity relates to a project working life of 10.000 hours.


ch
Ø
d_1
d
s
g
e
e
g
B
C
A

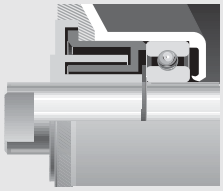
series
PLF 1
PLF 5
PLF 20



Section through seal **PLF 1** with bush ch=30



Section through seal **PLF 5** with bush ch=14



Section through seal **PLF 20** with through steel shaft ch=14

Ø 89 N

Bearing 6204
(20 X 47 X 14)

PLF 1
d = 20
d_1 = 35
ch = 30
s = 3
e = 4
g = 10

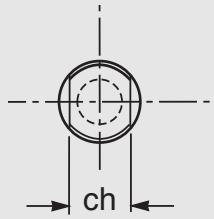
PLF 20
d = 20
d_1 = 20
ch = 14
s = 3
e = 4
g = 10

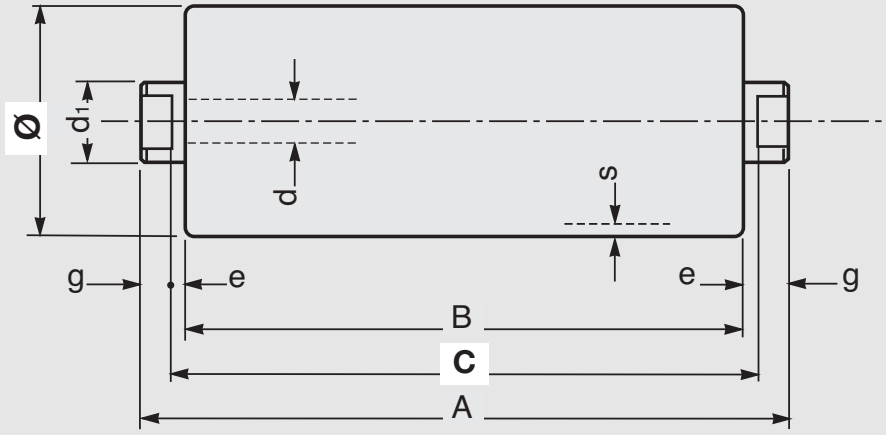
PLF 5
d = 20
d_1 = 20
ch = 14
s = 3
e = 4
g = 10

Example of ordering
standard design
PLF1,20N,89N,758
for special design
see pages 80-81

Belt			**roller**										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	1.75	2	2.5
		400	160	**168**	188	2.3	**2.8**	129	116	107	99	93	84
		500	200	**208**	228	2.5	**3.1**	129	116	107	99	93	84
	400	650	250	**258**	278	2.8	**3.4**	129	116	107	99	93	84
	500	800	315	**323**	343	3.1	**3.9**	129	116	107	99	93	84
	650	1000	380	**388**	408	3.4	**4.4**	129	116	107	99	93	84
	800	1200	465	**473**	493	3.8	**5.0**	129	116	107	99	93	84
400			500	**508**	528	4.0	**5.3**	129	116	107	99	93	84
		1400	530	**538**	558	4.1	**5.5**	129	116	107	99	93	84
500	1000		600	**608**	628	4.5	**6.0**	129	116	107	99	93	84
	1200		700	**708**	728	5.0	**6.8**	129	116	107	99	93	84
650			750	**758**	778	5.2	**7.1**	129	116	107	99	93	84
	1400		800	**808**	828	5.5	**7.5**	129	116	107	99	93	84
800			950	**958**	978	6.2	**8.6**	129	116	107	99	93	84
1000			1150	**1158**	1178	7.2	**10.1**	117	116	107	99	93	84
1200			1400	**1408**	1428	8.4	**11.9**	96	96	96	96	93	84

The indicated load capacity relates to a project working life of 10.000 hours.





Ø 108 N

Bearing 6204
(20 x 47 x 14)

PLF 1
d = 20
d1 = 35
ch = 30
s = 3,5
e = 4
g = 10

PLF 20
d = 20
d1 = 20
ch = 14
s = 3,5
e = 4
g = 10

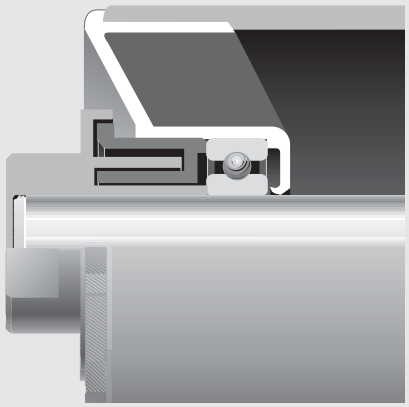
PLF 5
d = 20
d1 = 20
ch = 14
s = 3,5
e = 4
g = 10

Example of ordering
standard design
PLF1,20N,108N,958
for special design
see pages 80-81

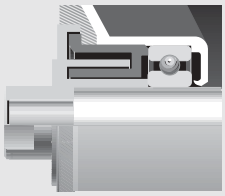
Belt		**roller**											
width mm		dimensions mm			weight Kg		load capacity daN						
arrangements		B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	2	2.5	3
	400	160	**168**	186	2.2	**2.7**	142	127	117	102	92	84
	500	200	**208**	226	2.6	**3.1**	142	127	117	102	92	84
400	650	250	**258**	276	3.0	**3.7**	142	127	117	102	92	84
500	800	315	**323**	341	3.6	**4.5**	142	127	117	102	92	84
650	1000	380	**388**	406	4.2	**5.2**	142	127	117	102	92	84
800	1200	465	**473**	491	5.0	**6.2**	142	127	117	102	92	84
400		500	**508**	526	5.3	**6.6**	142	127	117	102	92	84
500 1000		600	**608**	626	6.2	**7.7**	142	127	117	102	92	84
1200		700	**708**	726	7.1	**8.9**	142	127	117	102	92	84
650		750	**758**	776	7.6	**9.5**	142	127	117	102	92	84
800		950	**958**	976	9.4	**11.8**	137	127	117	102	92	84
1000		1150	**1158**	1176	11.2	**14.0**	113	113	113	102	92	84
1200		1400	**1408**	1426	13.4	**16.9**	93	93	93	93	92	84

The indicated load capacity relates to a project working life of 10.000 hours.

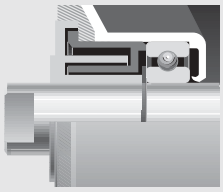
series
PLF 1
PLF 5
PLF 20



Section through seal **PLF 1** with bush ch=30



Section through seal **PLF 5** with bush ch=14



Section through seal **PLF 20** with through steel shaft ch=14

Ø 133 N

Bearing 6204
(20 X 47 X1 4)

PLF 1
d = 20
d_1 = 35
ch = 30
s = 4
e = 4
g = 10

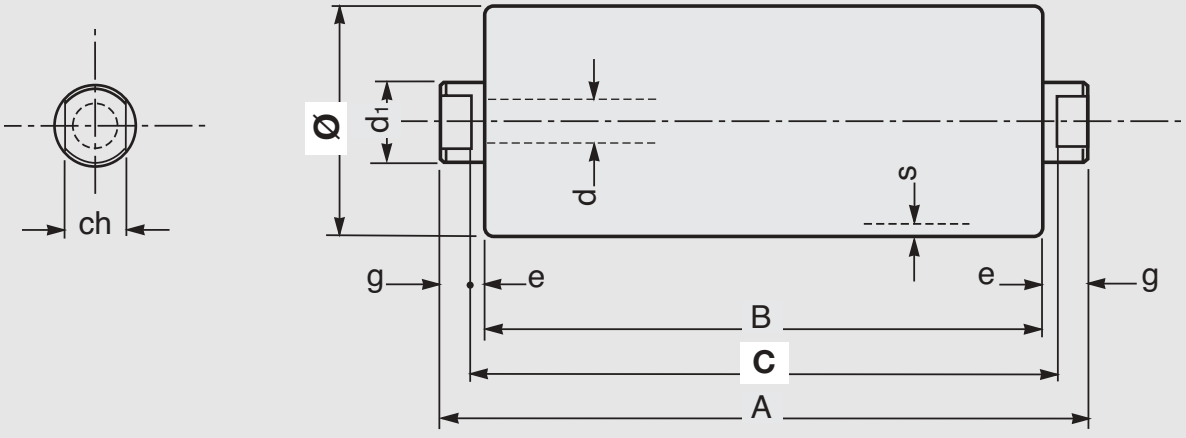
PLF 20
d = 20
d_1 = 20
ch = 14
s = 4
e = 4
g = 10

PLF 5
d = 20
d_1 = 20
ch = 14
s = 4
e = 4
g = 10

Example of ordering
standard design
PLF1,20N,133N,1158
for special design
see pages 80-81

Belt			**roller**										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.5	2	2.5	3	4
		400	160	**168**	186	3.6	**4.0**	156	129	112	101	93	81
		500	200	**208**	226	4.1	**4.6**	156	129	112	101	93	81
	400	650	250	**258**	276	4.7	**5.4**	156	129	112	101	93	81
	500	800	315	**323**	341	5.5	**6.4**	156	129	112	101	93	81
	650	1000	380	**388**	406	6.4	**7.4**	156	129	112	101	93	81
	800	1200	465	**473**	491	7.5	**8.7**	156	129	112	101	93	81
400			500	**508**	526	7.9	**9.2**	156	129	112	101	93	81
		1400	530	**538**	556	8.3	**9.6**	156	129	112	101	93	81
500	1000		600	**608**	626	9.2	**10.7**	156	129	112	101	93	81
	1200		700	**708**	726	10.5	**12.2**	156	129	112	101	93	81
650			750	**758**	776	11.1	**13.0**	156	129	112	101	93	81
	1400		800	**808**	826	11.7	**13.8**	156	129	112	101	93	81
800			950	**958**	976	13.6	**16.0**	136	129	112	101	93	81
1000			1150	**1158**	1176	16.2	**19.1**	111	111	111	101	93	81
1200			1400	**1408**	1426	19.4	**22.9**	91	91	91	91	91	81
1400			1600	**1608**	1626	21.9	**25.9**	79	79	79	79	79	79

The indicated load capacity relates to a project working life of 10.000 hours.


ch
Ø
d1
d
s
g
e
e
g
B
C
A

2.5.3 - **Rollers series MPS - M**

In recent years there has been a substantial increase in the use of belt conveyors due to their recognition as the most economic form of bulk transport.

The rollers comprise the principal components and are the focus of attention of the designer and the user who are always validating products both from a technical and economic point of view.

Accepting this premise, Rulmeca, with the intention to satisfy various requirements in the best way, has developed rollers series MPS and M, that complement the very heavy roller series PSV.

Where used

The use of these two roller series, is particularly advantageous in the economic sense where their difference is in the bearings employed : MPS uses rigid radial precision ball bearings, while M uses special cup and cone ball bearings.

Their use is in medium duty conveyors, but also at high speeds and even in dirty external environment.

The M roller type has a lower load and speed capacity than that of the MPS roller.

series
MPS - M

Characteristics
Rulmeca, in designing these rollers combines the requirements of high quality and hermetic sealing with low cost and where the loading does not require spindles of 20 Ø mm.

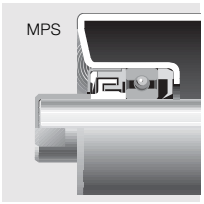
Roller shell
Consists of a selectioned steel tube, machined at either end to strict tolerances.

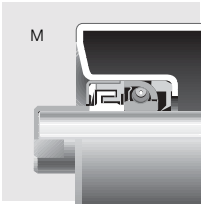
Bearing housing
Formed from strip steel deep pressed and calibrated to ISO M7: this tolerance allowing a perfect match between the bearing and the relevant parts of the sealing.

Unibloc
The roller shell and the two bearing housings are welded together in a way that forms a monolithic structure of exceptional strength.
This method guarantees the maximum precision and the minimum out of balance forces in the rollers.

Spindle
The bright drawn precision spìindle of Ø 15 provides an ideal fit to the bearing resulting in its perfect rotation.
The standard design utilises closing bushes, pre-machined with spanner flats ch = 17 and 14.

Bearings
MPS series rollers use rigid radial 6202 series precision ball bearings from the very best market sources.





M series rollers use special cup and cone ball bearings manufactured in house to the strictest quality control and test criteria with precision dimensions.

Sealing
The external seal is a cover cap in zinc plated steel complete with a wiper seal.

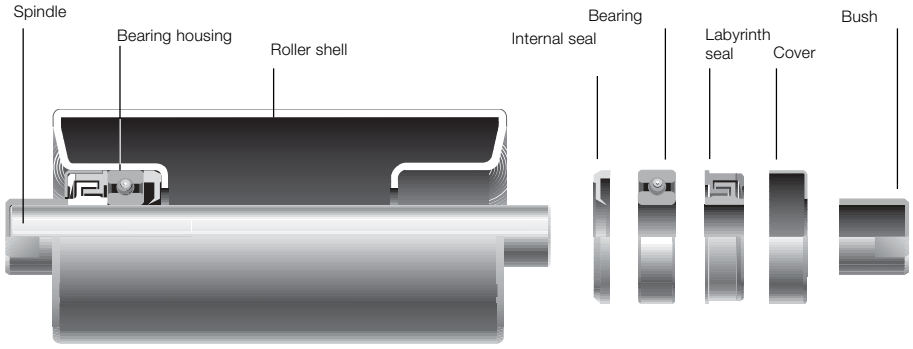
Internally, the sealing comprises a nylon (PA6) labyrinth seal with optimum resistance to chemicals and to mechanical pressure, filled with grease that protects the bearing from unwelcome ingress of external particles.

A lip seal is positioned on the inside of the bearing that wipes the spindle and creates an ample space for grease. Its design is such as to contain lubrication even in the case of extreme changes in temperature and to protect the bearing from condensation and possible rusting from the inside of the roller tube.

Lubrication
The grease used is a special lithium based grease with high resistance to ageing and humidity.
The quantity introduced into the roller is sufficient to guarantee an optimum lubrication of the bearing for the working life of the roller.

Balancing
The optimum roller balance is obtained thanks to the auto centralising of the bearing housings to the tube (as in series PSV) during the automatic welding process.
This balance allows the MPS rollers to be used at high speeds eliminating dangerous vibrations and the subsequent "hammering" of the bearings.

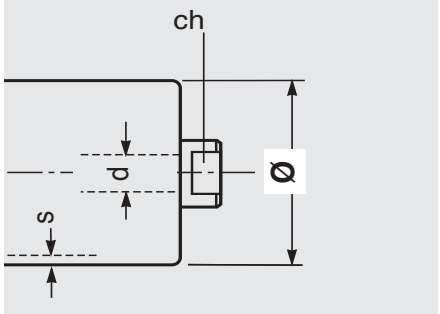
Final Testing
At the end of the automatic assembly line 100 % of the rollers are subjected to high speed rotation, that promotes the even distribution of grease in the seals, and verifies the rotation resistance. Any roller failing pre-set criteria is automatically eliminated from the production line.



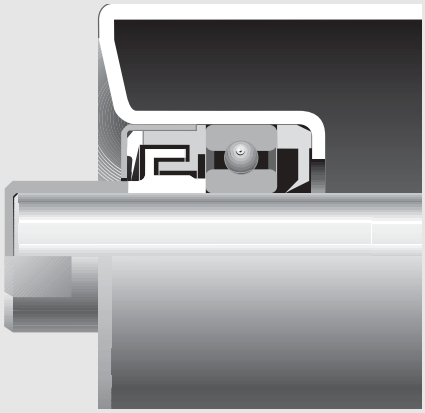
Programme of production series MPS

roller type	Ø mm	basic design	s	spindle d	spindle ch	bearing	note
MPS 1	**50**	**N**	3	15	17	6202	with tube and spindle in steel S 235 JR (EN 10027-1) ex Fe 360 (EN 10025) St 37 (DIN 17100)
	60	**N**	3				
	76	**N**	3				
	89	**N**	3				
	102	**N**	3				
M 1	**50**	**N**	3	15	17	Cup and cone	
	60	**N**	3				
	76	**N**	3				
	89	**N**	3				
	102	**N**	3				

The table indicates the roller diameters in production. Upon request non standard dimensions may be supplied and with flats ch = 14 mm.



series
MPS 1



Section through seal

Ø 50 N

Bearing 6202
(15 X 35 X 11)

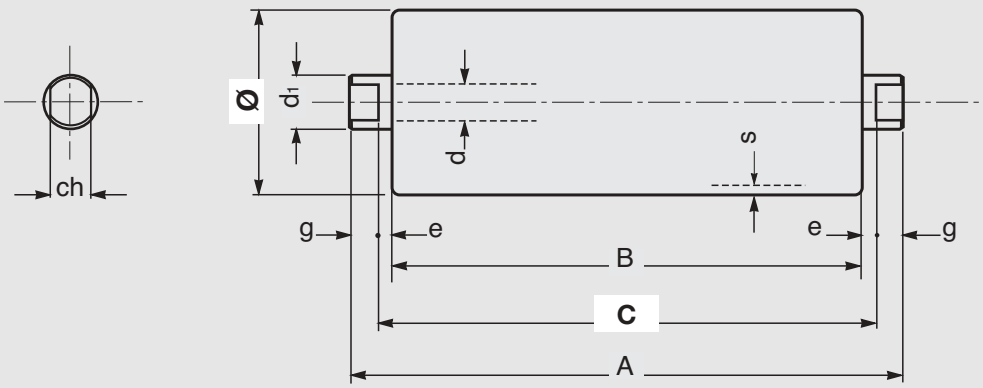
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	0.75	1	1.25	1.5	1.75
		400	160	**168**	186	0.8	**1.1**	138	121	110	102	96	91
	300	500	200	**208**	226	1.0	**1.3**	138	121	110	102	96	91
	400	650	250	**258**	276	1.1	**1.5**	138	121	110	102	96	91
	500	800	315	**323**	341	1.4	**1.8**	138	121	110	102	96	91
300	650	1000	380	**388**	406	1.6	**2.1**	138	121	110	102	96	91
	800		465	**473**	491	1.9	**2.6**	117	117	110	102	96	91
400			500	**508**	526	2.0	**2.7**	109	109	109	102	96	91
	500	1000	600	**608**	626	2.4	**3.2**	91	91	91	91	91	91
650			750	**758**	776	2.9	**3.9**	73	73	73	73	73	73
800			950	**958**	976	3.6	**4.9**	58	58	58	58	58	58
1000			1150	**1158**	1176	4.3	**5.9**	49	49	49	49	49	49

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
MPS 1,15B,50N,208
for special designs
see pages 80-81



Ø 60 N

Bearing 6202
(15 x 35 x 11)

d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

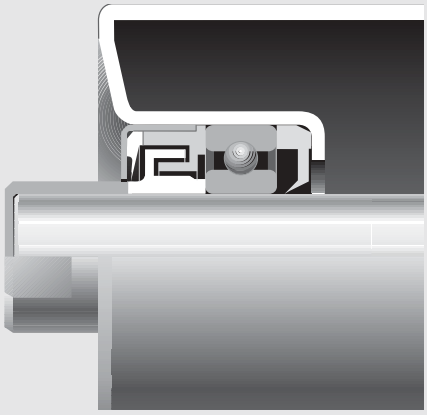
*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN				
arrangements						rotating parts	total	belt speed m/s 0.75	1	1.25	1.5	1.75	2
		400	160	**168**	186	1.0	**1.2**	128	117	108	102	97	93
	300	500	200	**208**	226	1.1	**1.5**	128	117	108	102	97	93
	400	650	250	**258**	276	1.4	**1.7**	128	117	108	102	97	93
	500	800	315	**323**	341	1.6	**2.1**	128	117	108	102	97	93
300	650	1000	380	**388**	406	1.9	**2.5**	128	117	108	102	97	93
	800		465	**473**	491	2.3	**2.9**	114	114	108	102	97	93
400			500	**508**	526	2.4	**3.1**	106	106	106	102	97	93
500	1000		600	**608**	626	2.8	**3.7**	88	88	88	88	88	88
650			750	**758**	776	3.5	**4.5**	70	70	70	70	70	70
800			950	**958**	976	4.3	**5.7**	55	55	55	55	55	55
1000			1150	**1158**	1176	5.2	**6.8**	46	46	46	46	46	46

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
MPS 1,15B,60N,258
for special designs
see pages 80-81

series
MPS 1



Section through seal

Ø 76 N

Bearing 6202
(15 x 35 x 11)

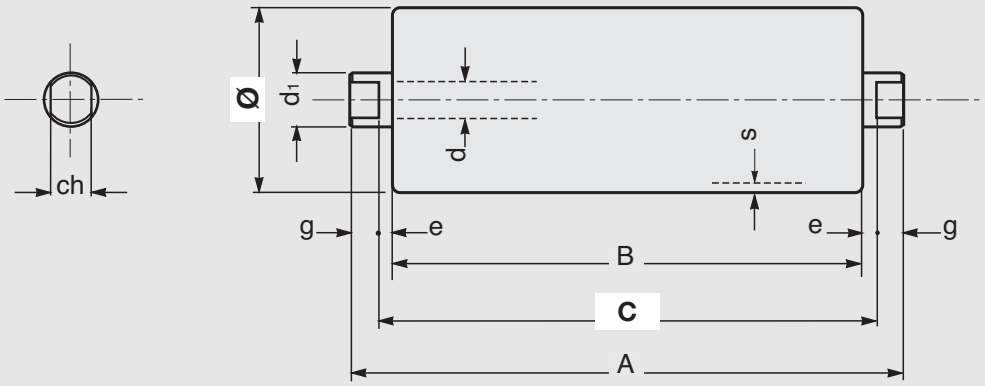
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	1.75	2	2.5
		400	160	**168**	186	1.2	**1.5**	126	117	110	105	100	93
	300	500	200	**208**	226	1.4	**1.8**	126	117	110	105	100	93
	400	650	250	**258**	276	1.7	**2.1**	126	117	110	105	100	93
	500	800	315	**323**	341	2.1	**2.5**	126	117	110	105	100	93
300	650	1000	380	**388**	406	2.4	**3.0**	126	117	110	105	100	93
	800		465	**473**	491	2.9	**3.6**	113	113	110	105	100	93
400			500	**508**	526	3.1	**3.8**	104	104	104	104	100	93
500	1000		600	**608**	626	3.6	**4.5**	86	86	86	86	86	86
650			750	**758**	776	4.4	**5.5**	68	68	68	68	68	68
800			950	**958**	976	5.5	**6.8**	53	53	53	53	53	53
1000			1150	**1158**	1176	6.6	**8.2**	44	44	44	44	44	44

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
MPS 1,15B,76N,323
for special designs
see pages 80-81



Ø 89 N

Bearing 6202
(15 x 35 x 11)

d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

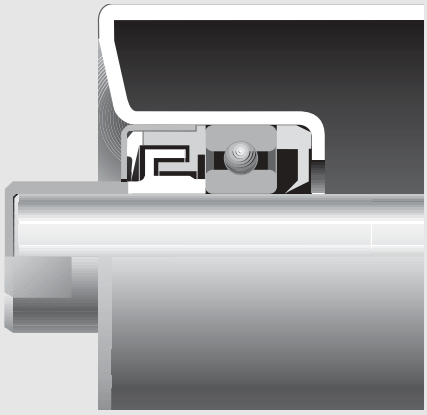
*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN				
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	2	2.5	3
		400	160	**168**	186	1.4	**1.7**	133	124	116	106	98	92
	300	500	200	**208**	226	1.7	**2.0**	133	124	116	106	98	92
	400	650	250	**258**	276	2.0	**2.4**	133	124	116	106	98	92
	500	800	315	**323**	341	2.4	**2.9**	133	124	116	106	98	92
300	650	1000	380	**388**	406	2.9	**3.4**	133	124	116	106	98	92
		1200	465	**473**	491	3.4	**4.1**	112	112	112	106	98	92
400	800		500	**508**	526	3.6	**4.3**	103	103	103	103	98	92
500	1000		600	**608**	626	4.3	**5.1**	85	85	85	85	85	85
	1200		700	**708**	726	4.9	**5.9**	72	72	72	72	72	72
650			750	**758**	776	5.2	**6.3**	67	67	67	67	67	67
800			950	**958**	976	6.5	**7.9**	53	53	53	53	53	53
1000			1150	**1158**	1176	7.8	**9.4**	43	43	43	43	43	43
1200			1400	**1408**	1426	9.4	**11.4**	35	35	35	35	35	35

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
MPS 1,15B,89N,758
for special designs
see pages 80-81

series
MPS 1



Section through seal

Ø102 N

Bearing 6202
(15 x 35 x 11)

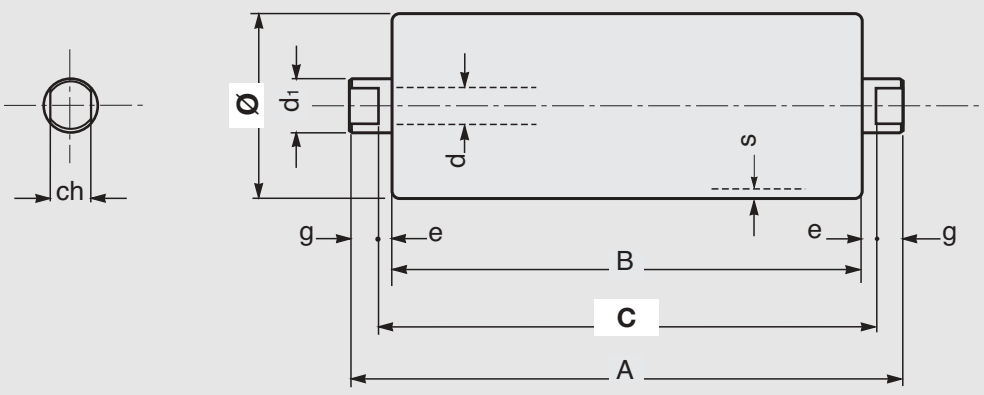
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

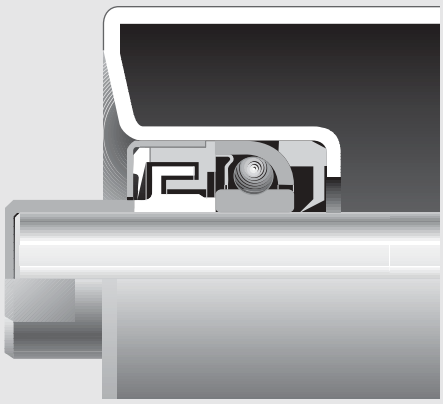
Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	2	2,5	3
		400	160	**168**	186	1.7	**1.9**	139	129	122	111	103	97
	300	500	200	**208**	226	2.0	**2.3**	139	129	122	111	103	97
	400	650	250	**258**	276	2.3	**2.7**	139	129	122	111	103	97
	500	800	315	**323**	341	2.8	**3.3**	139	129	122	111	103	97
300	650	1000	380	**388**	406	3.3	**3.9**	139	129	122	111	103	97
	800	1200	465	**473**	491	3.9	**4.6**	112	112	112	111	103	97
400			500	**508**	526	4.2	**4.9**	103	103	103	103	103	97
500	1000		600	**608**	626	4.9	**5.8**	85	85	85	85	85	85
	1200		700	**708**	726	5.6	**6.6**	72	72	72	72	72	72
650			750	**758**	776	6.0	**7.1**	67	67	67	67	67	67
800			950	**958**	976	7.5	**8.8**	52	52	52	52	52	52
1000			1150	**1158**	1176	8.9	**10.6**	43	43	43	43	43	43
1200			1400	**1408**	1426	10.8	**12.7**	35	35	35	35	35	35

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
MPS 1,15B,102N,388
for special designs
see pages 80-81


ch
Ø
d1
d
s
g
e
e
g
B
C
A

series
M 1



Section through seal

Ø 50 N

Cup and cone bearing

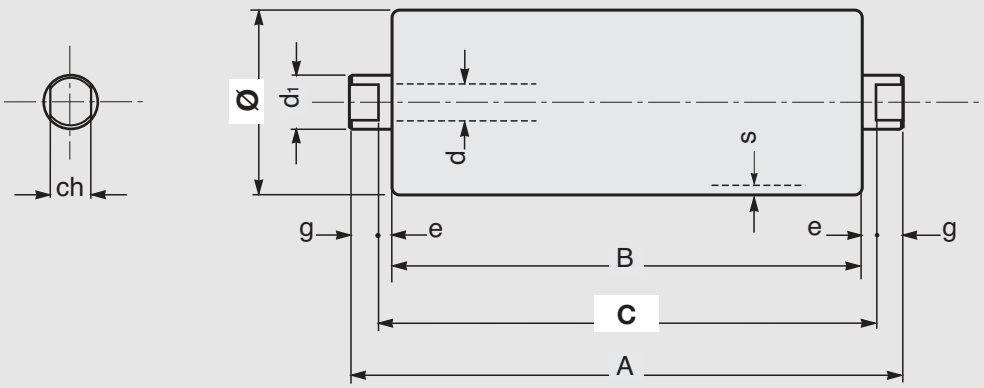
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.2	0.4	0.6	0.8	1	1.25
		400	160	**168**	186	0.8	**1.1**	89	63	51	44	40	35
	300	500	200	**208**	226	1.0	**1.3**	89	63	51	44	40	35
	400	650	250	**258**	276	1.1	**1.5**	89	63	51	44	40	35
	500	800	315	**323**	341	1.4	**1.8**	89	63	51	44	40	35
300	650	1000	380	**388**	406	1.6	**2.1**	89	63	51	44	40	35
	800		465	**473**	491	1.9	**2.6**	89	63	51	44	40	35
400			500	**508**	526	2.0	**2.7**	89	63	51	44	40	35
500	1000		600	**608**	626	2.4	**3.2**	89	63	51	44	40	35
650			750	**758**	776	2.9	**3.9**	73	63	51	44	40	35
800			950	**958**	976	3.6	**4.9**	58	58	51	44	40	35
1000			1150	**1158**	1176	4.3	**5.9**	49	49	49	44	40	35

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
M 1,15B,50N,208
for special designs
see pages 80-81



Ø 60 N

Cup and cone bearing

d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

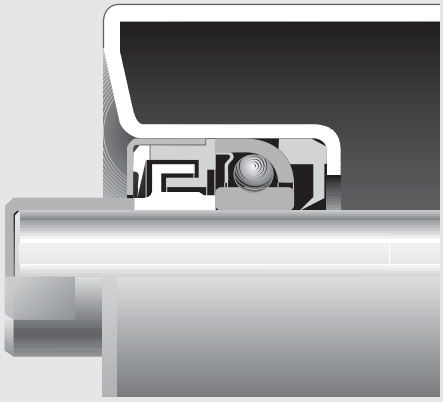
*ch = 14 upon request

Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.4	0.6	0.8	1	1.25	1.5
		400	160	**168**	186	1.0	**1.2**	69	56	49	43	39	35
	300	500	200	**208**	226	1.1	**1.5**	69	56	49	43	39	35
	400	650	250	**258**	276	1.4	**1.7**	69	56	49	43	39	35
	500	800	315	**323**	341	1.6	**2.1**	69	56	49	43	39	35
300	650	1000	380	**388**	406	1.9	**2.5**	69	56	49	43	39	35
	800		465	**473**	491	2.3	**2.9**	69	56	49	43	39	35
400			500	**508**	526	2.4	**3.1**	69	56	49	43	39	35
500	1000		600	**608**	626	2.8	**3.7**	69	56	49	43	39	35
650			750	**758**	776	3.5	**4.5**	69	56	49	43	39	35
800			950	**958**	976	4.3	**5.7**	55	55	49	43	39	35
1000			1150	**1158**	1176	5.2	**6.8**	46	46	46	43	39	35

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
M1,15B,60N,258
for special designs
see pages 80-81

series
M 1



Section through seal

Ø 76 N

Cup and cone bearing

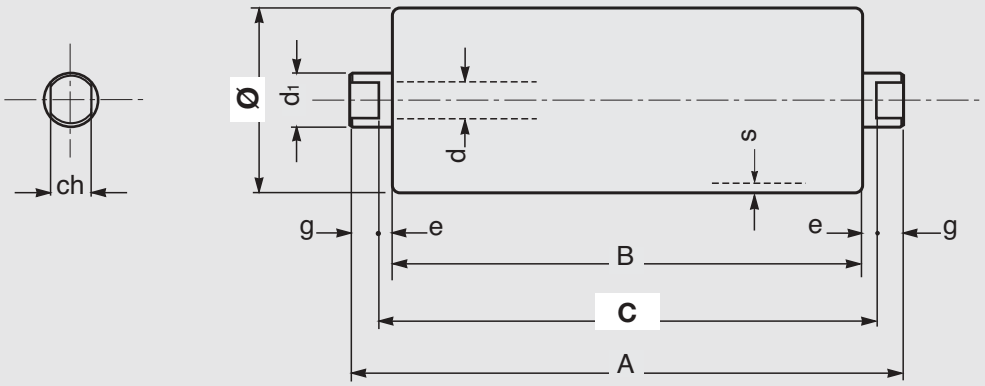
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	0.75	1	1.25	1.5	1.75
		400	160	**168**	186	1.2	**1.5**	69	56	49	44	40	37
	300	500	200	**208**	226	1.4	**1.8**	69	56	49	44	40	37
	400	650	250	**258**	276	1.7	**2.1**	69	56	49	44	40	37
	500	800	315	**323**	341	2.1	**2.5**	69	56	49	44	40	37
300	650	1000	380	**388**	406	2.4	**3.0**	69	56	49	44	40	37
	800		465	**473**	491	2.9	**3.6**	69	56	49	44	40	37
400			500	**508**	526	3.1	**3.8**	69	56	49	44	40	37
500	1000		600	**608**	626	3.6	**4.5**	69	56	49	44	40	37
650			750	**758**	776	4.4	**5.5**	68	56	49	44	40	37
800			950	**958**	976	5.5	**6.8**	53	53	49	44	40	37
1000			1150	**1158**	1176	6.6	**8.2**	44	44	44	44	40	37

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
M1,15B1,76N,323
for special designs
see pages 80-81



Ø 89 N

Cup and cone bearing

d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

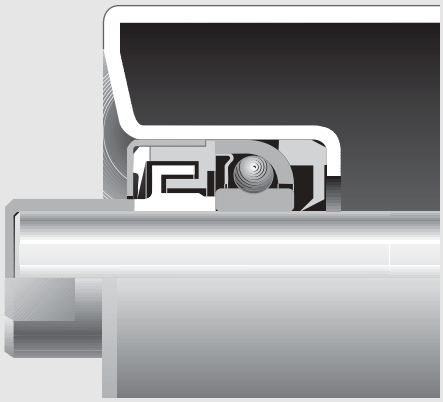
*ch = 14 upon request

Belt			roller										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.75	1	1.25	1.5	1.75	2
		400	160	**168**	186	1.4	**1.7**	61	53	47	43	40	37
	300	500	200	**208**	226	1.7	**2.0**	61	53	47	43	40	37
	400	650	250	**258**	276	2.0	**2.4**	61	53	47	43	40	37
	500	800	315	**323**	341	2.4	**2.9**	61	53	47	43	40	37
300	650	1000	380	**388**	406	2.9	**3.4**	61	53	47	43	40	37
	800		465	**473**	491	3.4	**4.1**	61	53	47	43	40	37
400			500	**508**	526	3.6	**4.3**	61	53	47	43	40	37
500	1000		600	**608**	626	4.3	**5.1**	61	53	47	43	40	37
650			750	**758**	776	5.2	**6.3**	61	53	47	43	40	37
800			950	**958**	976	6.5	**7.9**	53	53	47	43	40	37
1000			1150	**1158**	1176	7.8	**9.4**	43	43	43	43	40	37

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
M1,15B,89N,758
for special designs
see pages 80-81

series
M 1



Section through seal

Ø 102 N

Cup and cone bearing

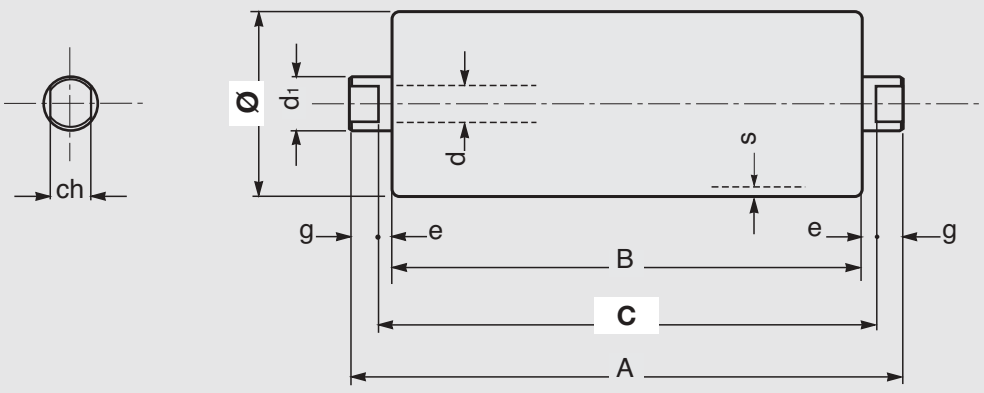
d = 15
d_1 = 20
ch = 17 *
s = 3
e = 4
g = 9

*ch = 14 upon request

Belt			roller									
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	1.75	2	2.5
		400	160	**168**	186	1.7	**1.9**	57	51	46	43	40	36
	300	500	200	**208**	226	2.0	**2.3**	57	51	46	43	40	36
	400	650	250	**258**	276	2.3	**2.7**	57	51	46	43	40	36
	500	800	315	**323**	341	2.8	**3.3**	57	51	46	43	40	36
300	650	1000	380	**388**	406	3.3	**3.9**	57	51	46	43	40	36
	800		465	**473**	491	3.9	**4.6**	57	51	46	43	40	36
400			500	**508**	526	4.2	**4.9**	57	51	46	43	40	36
500	1000		600	**608**	626	4.9	**5.8**	57	51	46	43	40	36
650			750	**758**	776	6.0	**7.1**	57	51	46	43	40	36
800			950	**958**	976	7.5	**8.8**	52	51	46	43	40	36
1000			1150	**1158**	1176	8.9	**10.6**	43	43	43	43	40	36

The indicated load capacity relates to a project working of 10000 hours.

Example of ordering
standard design
M1,15B,102N,388
for special designs
see pages 80-81


ch
Ø
d1
d
s
g
e
e
g
B
C
A

2.5.4 - Rollers series MPR

Application sectors

These rollers are used in medium duty conveyors with speeds in proportion to the available diameters : 60, 76, 89 mm. A long operating life is available due to the optimum bearing protection system.

Characteristics

The series MPR is designed using a steel tube swaged over at either end to join the steel end caps in mechanical harmony. The bearing housing is precision finished with a tolerance of ISO M7.

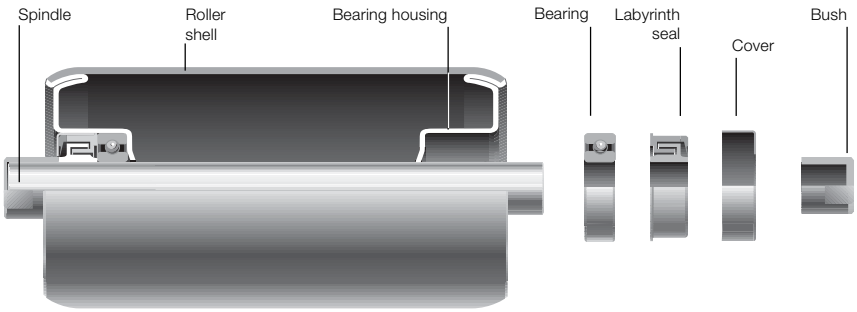
The bearings are of type 6202 rigid radial ball race of the best market supply, with ample grease chamber provided within the roller seal.

Lubricated for life with a lithium based grease that provides anti-ageing and water-repellent qualities.

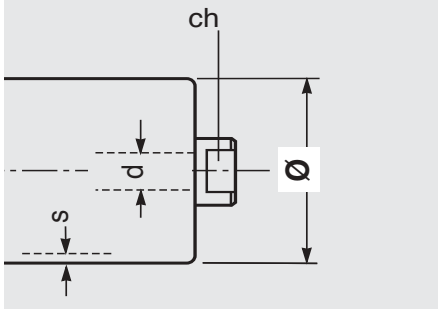
The bearing protection is of a similar arrangement to that used in the MPS rollers and is known as MECA-BLOCK.

The steel spindle is ø 15 mm, drawn and calibrated in the standard design, provided with a locking bush that has spanner flats (ch = 17) .The use is normally restricted within the temperature range from -20°C +100 °C.

Given that the method of joining the tube with the end caps is by swaging (not welding) it is advisable to use these rollers in medium severe environments where there is little presence of water.
Thanks to optimum balancing and strong construction these rollers may be employed at loads and speeds similar to those of series MPS. The roller series MPR offers a good cost effective solution.



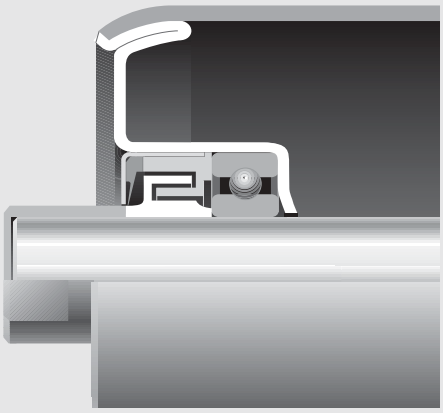
The table indicates the roller diameters in production, On request they may be supplied with different dimensions to the standard and with ch=14 mm.



Programme of production series MPR

roller type	Ø mm	basic design	s	spindle d	ch	bearing	note
MPR 15	**60**	**N**	3	15	17	6202	with tube and spindle in steel S 235 JR (EN 10027-1) ex Fe 360 (EN 10025) St 37 (DIN 17100)
	76	**N**	3				
	89	**N**	3				

series
MPR 15



Section through seal

Ø 60 N

Bearing 6202
(15 X 35 X 11)

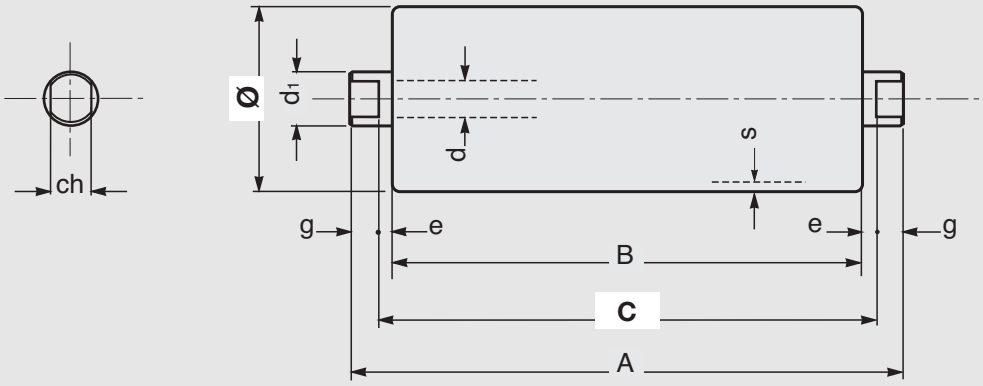
d = 15
d_1 = 20
ch = 17*
s = 3
e = 4
g = 9

*ch = 14 on request

Belt			roller										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.5	0.75	1	1.25	1.5	1.75
		400	160	**168**	186	0,9	**1,2**	147	128	117	108	102	97
	300	500	200	**208**	226	1,1	**1,4**	147	128	117	108	102	97
	400	650	250	**258**	276	1,3	**1,7**	147	128	117	108	102	97
	500	800	315	**323**	341	1,6	**2,1**	147	128	117	108	102	97
300	650	1000	380	**388**	406	1,9	**2,4**	143	128	117	108	102	97
	800		465	**473**	491	2,2	**2,9**	114	114	114	108	102	97
400			500	**508**	526	2,4	**3,1**	106	106	106	106	102	97
500	1000		600	**608**	626	2,8	**3,7**	88	88	88	88	88	88
650			750	**758**	776	3,4	**4,5**	70	70	70	70	70	70
800			950	**958**	976	4,3	**5,6**	55	55	55	55	55	55
1000			1150	**1158**	1176	5,1	**6,7**	46	46	46	46	46	46

The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
MPR 15,60N,258
for special designs
see pages 80-81



Ø 76 N

Bearing 6202
(15 X 35 X1 1)

d = 15
d_1 = 20
ch = 17*
s = 3
e = 4
g = 9

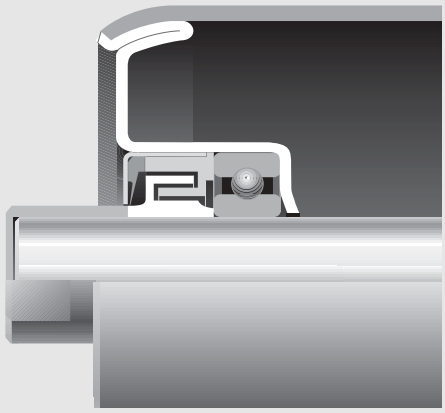
*ch = 14 on request

Belt			roller										
width mm			dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.75	1	1.25	1.5	1.75	2
		400	160	**168**	186	1.2	**1.5**	139	126	117	110	105	100
	300	500	200	**208**	226	1.4	**1.8**	139	126	117	110	105	100
	400	650	250	**258**	276	1.7	**2.1**	139	126	117	110	105	100
	500	800	315	**323**	341	2.1	**2.5**	139	126	117	110	105	100
300	650	1000	380	**388**	406	2.4	**3.0**	139	126	117	110	105	100
	800		465	**473**	491	2.9	**3.6**	113	113	113	110	105	100
400			500	**508**	526	3.1	**3.8**	104	104	104	104	104	100
500	1000		600	**608**	626	3.6	**4.5**	86	86	86	86	86	86
650			750	**758**	776	4.4	**5.5**	68	68	68	68	68	68
800			950	**958**	976	5.5	**6.8**	53	53	53	53	53	53
1000			1150	**1158**	1176	6.6	**8.2**	44	44	44	44	44	44

The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
MPR 15,76N,323
for special designs
see pages 80-81

series
MPR 15



Section through seal

Ø 89 N

Bearing 6202
(15 X 35 X 11)

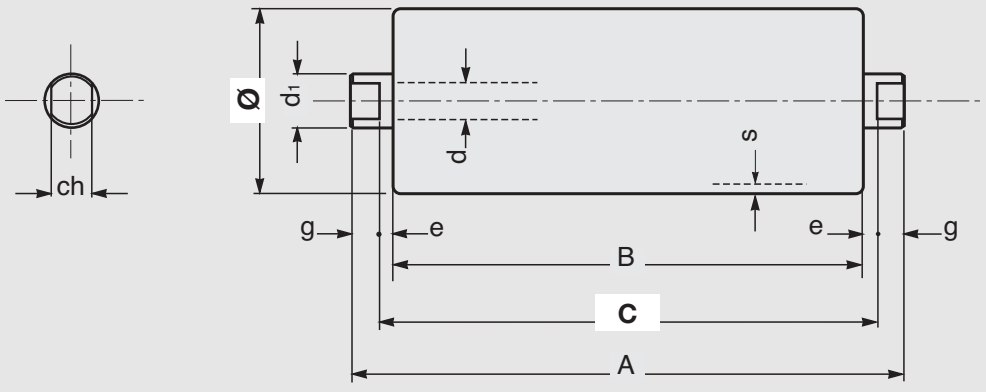
d = 15
d_1 = 20
ch = 17*
s = 3
e = 4
g = 9

*ch =14 on request

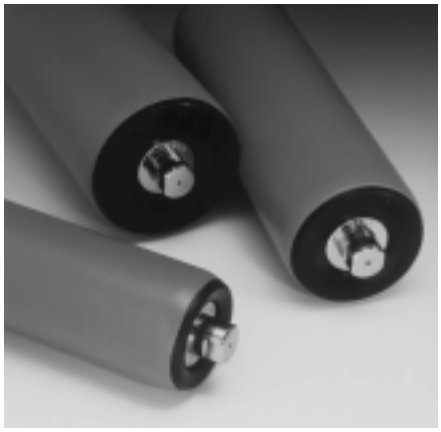
Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 1	1.25	1.5	1.75	2	2.5
		400	160	**168**	186	1.6	**1.9**	133	124	116	110	106	98
	300	500	200	**208**	226	1.9	**2.2**	133	124	116	110	106	98
	400	650	250	**258**	276	2.2	**2.6**	133	124	116	110	106	98
	500	800	315	**323**	341	2.6	**3.1**	133	124	116	110	106	98
300	650	1000	380	**388**	406	3.0	**3.6**	133	124	116	110	106	98
	800	1200	465	**473**	491	3.6	**4.3**	112	112	112	110	106	98
400			500	**508**	526	3.8	**4.5**	103	103	103	103	103	98
500	1000		600	**608**	626	4.5	**5.3**	85	85	85	85	85	85
	1200		700	**708**	726	5.1	**6.1**	72	72	72	72	72	72
650			750	**758**	776	5.4	**6.5**	67	67	67	67	67	67
800			950	**958**	976	6.7	**8.0**	53	53	53	53	53	53
1000			1150	**1158**	1176	8.0	**9.6**	43	43	43	43	43	43
1200			1400	**1408**	1426	9.6	**11.5**	35	35	35	35	35	35

The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
MPR 15,15B,89N,758
for special designs
see pages 80-81


ch
Ø
d1
d
s
g
e
e
g
B
C
A

2.5.5 - Rollers series RTL



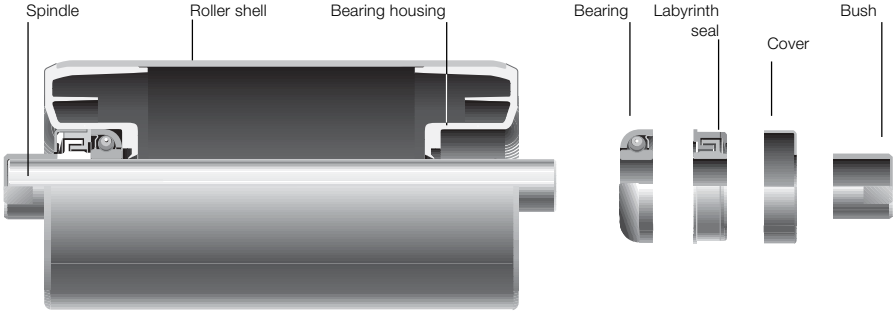
Where used

The roller series RTL has been designed to be used in the movement of small or light loads.

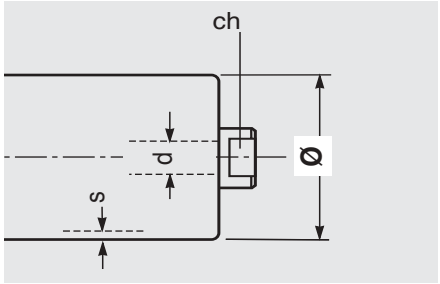
The roller consists of a special steel tube swaged over the bearing housings which are made from technopolymers which have high elastic properties, and resistance to mechanical forces and to corrosion.

The standard design utilises the special cup and cone bearings, lubricated for life, a spindle of Ø15 mm with locking bush with spanner flats ch = 17 mm.

A double radial labyrinth protects the bearing to allow use in medium severe environmental conditions.
In the following tables the diameters in production are indicated with their loads at varying recommended speeds.



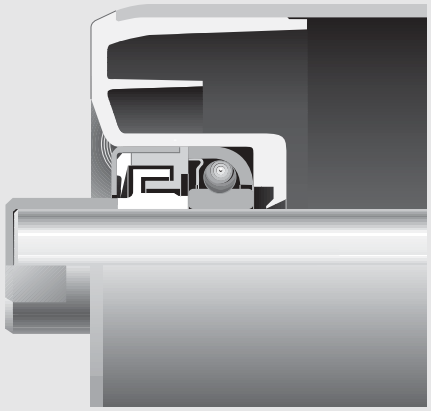
The table indicates the roller diameters in production. On request they may be supplied with different dimensions to the standard and with ch = 14 mm.



Programme of production series RTL

roller type	Ø mm	basic design	s	spindle d	spindle ch	bearing	note
RTL 1	**60**	**N**	2	15	17	Cup and cone	with tube and spindle in steel S 235 JR (EN 10027-1) ex Fe 360 (EN 10025) St 37 (DIN 17100)
	76	**N**	2				
	89	**N**	2				

series
RTL 1



Section through seal

Ø 60 N

Cup and cone bearing

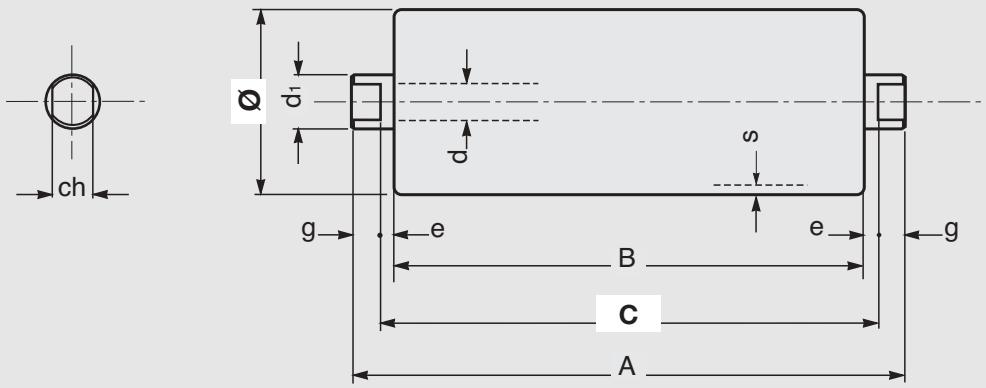
d = 15
d_1 = 20
ch = 17 *
s = 2
e = 4
g = 9

*ch = 14 on request

Belt width mm			roller dimensions mm			weight Kg		load capacity daN belt speed m/s					
arrangements			B	**C**	A	rotating parts	**total**	0.4	0.6	0.8	1	1.25	1.5
		400	160	**168**	186	0.6	**0.9**	69	56	49	43	39	35
	300	500	200	**208**	226	0.8	**1.1**	69	56	49	43	39	35
	400	650	250	**258**	276	0.9	**1.3**	69	56	49	43	39	35
	500	800	315	**323**	341	1.1	**1.6**	69	56	49	43	39	35
300	650	1000	380	**388**	406	1.3	**1.8**	69	56	49	43	39	35
	800		465	**473**	491	1.5	**2.2**	69	56	49	43	39	35
400			500	**508**	526	1.6	**2.3**	69	56	49	43	39	35
500	1000		600	**608**	626	1.9	**2.8**	69	56	49	43	39	35
650			750	**758**	776	2.3	**3.4**	69	56	49	43	39	35
800			950	**958**	976	2.9	**4.3**	55	55	49	43	39	35
1000			1150	**1158**	1176	3.5	**5.1**	46	46	46	43	39	35

The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
RTL 1,15B,60N,258
for special designs
see pages 80-81



Ø 76 N

Cup and cone bearing

d = 15
d_1 = 20
ch = 17 *
s = 2
e = 4
g = 9

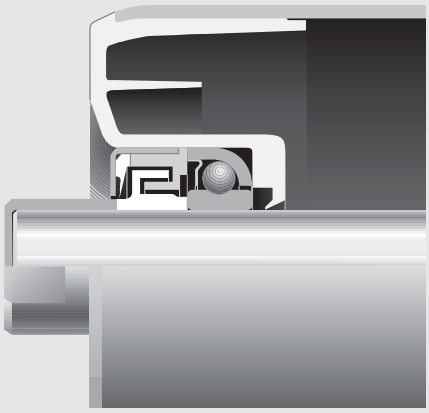
*ch = 14 on request

Belt width mm			roller dimensions mm			weight Kg		load capacity daN					
arrangements			B	**C**	A	rotating parts	**total**	belt speedm/s 0.5	0.75	1	1.25	1.5	1.75
		400	160	**168**	186	0.8	**1.1**	69	56	49	44	40	37
	300	500	200	**208**	226	1.0	**1.3**	69	56	49	44	40	37
	400	650	250	**258**	276	1.1	**1.5**	69	56	49	44	40	37
	500	800	315	**323**	341	1.4	**1.8**	69	56	49	44	40	37
300	650	1000	380	**388**	406	1.6	**2.2**	69	56	49	44	40	37
	800		465	**473**	491	1.9	**2.6**	69	56	49	44	40	37
400			500	**508**	526	2.1	**2.8**	69	56	49	44	40	37
500	1000		600	**608**	626	2.4	**3.3**	69	56	49	44	40	37
650			750	**758**	776	3.0	**4.0**	68	56	49	44	40	37
800			950	**958**	976	3.7	**5.0**	53	53	49	44	40	37
1000			1150	**1158**	1176	4.4	**6.1**	44	44	44	44	40	37

The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
RTL 1,15B,76N,323
for special designs
see pages 80-81

series
RTL 1



Section through seal

Ø 89 N

Cup and cone bearing

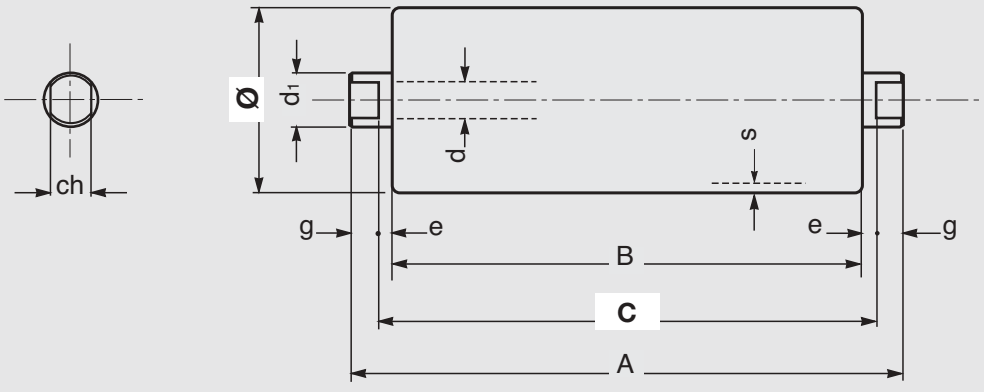
d = 15
d_1 = 20
ch = 17 *
s = 2
e = 4
g = 9

*ch =14 on request

Belt			roller					load capacity daN					
width mm			dimensions mm			weight Kg							
arrangements			B	**C**	A	rotating parts	**total**	belt speed m/s 0.75	1	1.25	1.5	1.75	2
		400	160	**168**	186	1.1	**1.4**	61	53	47	43	40	37
	300	500	200	**208**	226	1.3	**1.6**	61	53	47	43	40	37
	400	650	250	**258**	276	1.5	**1.9**	61	53	47	43	40	37
	500	800	315	**323**	341	1.8	**2.3**	61	53	47	43	40	37
300	650	1000	380	**388**	406	2.1	**2.6**	61	53	47	43	40	37
	800		465	**473**	491	2.4	**3.1**	61	53	47	43	40	37
400			500	**508**	526	2.6	**3.3**	61	53	47	43	40	37
500	1000		600	**608**	626	3.0	**3.9**	61	53	47	43	40	37
650			750	**758**	776	3.7	**4.7**	61	53	47	43	40	37
800			950	**958**	976	4.5	**5.9**	53	53	47	43	40	37
1000			1150	**1158**	1176	5.4	**7.0**	43	43	43	43	40	37

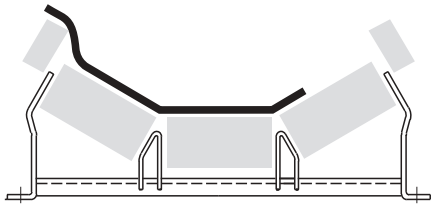
The indicated load capacity relates to a project working life of 10.000 hours.

Example of ordering
standard design
RTL 1,15B,89N,758
for special designs
see pages 80-81


ch
Ø
d1
d
s
g
e
e
g
B
C
A

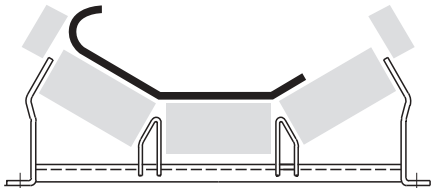
2.5.6 - Guide rollers

For various reasons, the conveyor belt may at times, tend to drift laterally.
In these cases it is possible to utilise vertical rollers with cantilevered spindles, These are generally known as belt guide rollers.



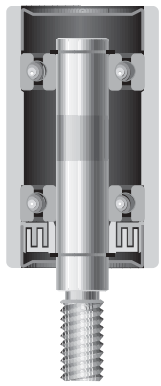
It is necessary however to pay particular attention to the use to which these rollers are put, so that the forces on the guide roller by the belt do not damage the belt edge.

In other words, guiding does not eliminate the true reason for the belt tracking off.
Consequently, the belt may ride over the guide roller or become distorted against it (see drawings).



For these reasons it is advisable to always use guide rollers on the most suitable transom, the self-centralising, transom which rotates automatically whenever the belt tracks off conveyor centre and self-corrects.

Guide rollers



Series **PS**

They are assembled using spherical ball bearings,protected by labyrinth seals, and constructed with similar characteristics to the series PSV.

In the following tables the various types are indicated with standard lengths and diameters.

On request non standard diameters, lengths and roller shell thicknesses may be supplied

guide roller

type	D mm	s	d	B	f	m	e	*	bearing	weight Kg
PS/G7	**60**	8	20	**100**	43	35	8	M16	6204	1.4
PS/G7	**60**	8	20	**100**	43	35	8	Self centralising frames S18	6204	1.4

Serie **MPS - M - RTL**

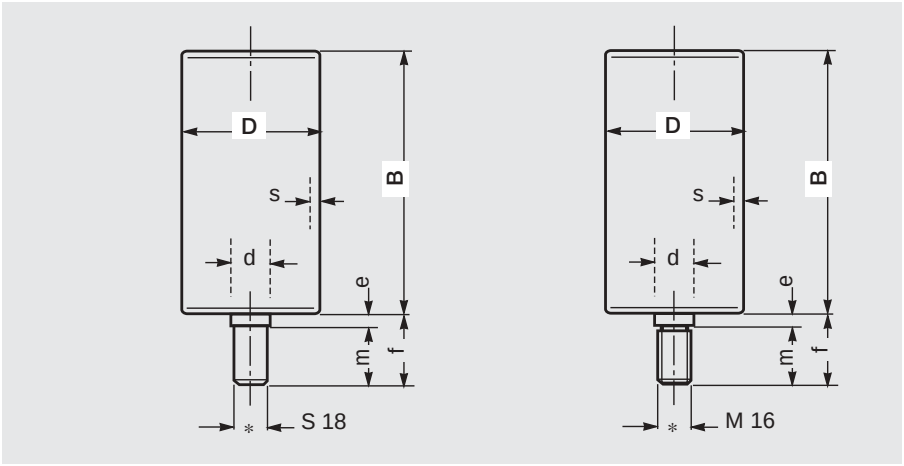
These are the most cost effective series of guide rollers designed and produced with the identical characteristics to the load carrying roller itself ; of high quality and capacity.

guide roller

type	D mm	s	d	B	f	m	e	M	bearing	weight Kg
MPS/G7	**60**	3	15	**100**	41	33	8	14	6202	0.9
M/G7	**60**	3	15	**80**	41	33	8	14	cup and cone	0.9
				100						0.9
RTL/G7	**60**	2	15	**80**	41	33	8	14	cup and cone	0.8
				100						0.8

Example of ordering

PS/G7, 20M16,60N,100
MPS/G7,15M14,60N,100
RTL/G7,15M14,60N,80



guide roller

type	D mm	s	d	B	f	m	e	M	bearing	weight Kg
PS/G1	**63**	3	20	**130**	43	35	8	16	6204	1.9
				150						2.1
PS/G1	**89**	3	20	**130**	43	35	8	16	6204	1.9
				150						2.2
PS/G2			25	**130**	43	35	8	20	6205	2.0
				150						2.1
PS/G3			30	**130**	48	40	8	24	6206	2.7
				150						3.1
PS/G1	**108**	3,5	20	**130**	43	35	8	16	6204	2.4
				150						2.7
PS/G2			25	**130**	43	35	8	20	6205	2.1
				150						2.6
PS/G3			30	**130**	48	40	8	24	6206	2.9
				150						3.4
PS/G1	**133**	4	20	**130**	43	35	8	16	6204	3.1
				150						3.5
PS/G2			25	**130**	43	35	8	20	6205	2.8
				150						3.4
PS/G3			30	**130**	48	40	8	24	6206	3.6
				150						4.1

Example of ordering

PS/G1, 20M16,89N,130
PS/G2,25M20,108N,150
PS/G3,30M24,133N,150

2.6 - Rollers with rings

In the majority of belt conveyors, over and above the normal steel roller, it is necessary to position impact rollers, or return rollers with spaced rings and sometimes also self cleaning return rollers.

Impact rollers

The shock absorbing rollers, more often known as “impact rollers” consist of a base steel roller design, on which are fitted rings, designed to resist and absorb the pressures given by the impact of materials onto the belt.
These rollers are positioned in the carrying section of the belt, corresponding to the point of loading where the material falls onto it.

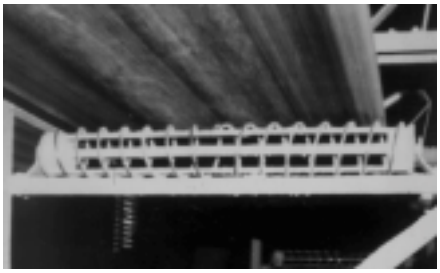
Return rollers with spaced rings
Rollers with spaced rings are used to sustain and support the belt during its return section, where the conveyed material tends to stick to the belt or wherever there is a wear problem or tracking problem of the belt itself.

The rubber rings may function in the temperature range between -20°C + 80°C.

When a return roller with spaced rings is not sufficient to resolve the problem, it is recommended to mount self cleaning rollers, with rings in helical rubber form or with a spiral metal cage, taking into account in the roller positioning that the dislodged material should travel outwards to the belt edge and not towards its centre.

Cleaning return roller
Time after time, conveyed material adheres to the belt surface. If the material is abrasive, it may wear out the roller shell of the normal steel return rollers ; if it is viscous, it adheres to the roller itself, promoting dangerous build up of scale and causing vibration.

A large material deposit may also influence the tracking off of the belt in the return section.



2.6.1 - Impact rollers

Impact rollers are used and positioned corresponding to the load points, where the lumps and the weight of material falling onto the belt could in fact cause damage to it.

To limit the impact effect of the material onto the rollers, the latter are covered with a series of rubber rings of adequate thickness and resistance.

Impact rollers are under stress not only from the load of the material, but also from the dynamic forces as the load falls onto the belt.

The impact onto the belt, arising from the free fall of material (Fig.6) will be naturally greater than in the case where the material is deflected onto the belt by an inclined plate (Fig.7).

For the correct dimensioning and the choice of impact rollers in relation to the load check the characteristics of the base roller.

Fig. **6**

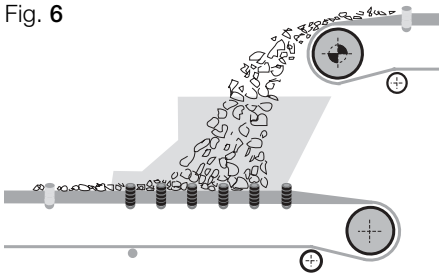
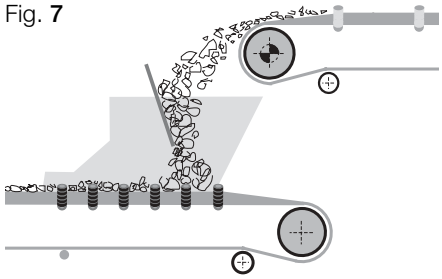


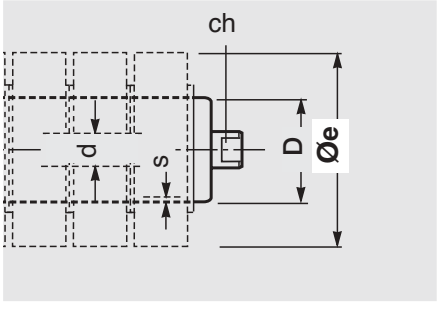
Fig. **7**



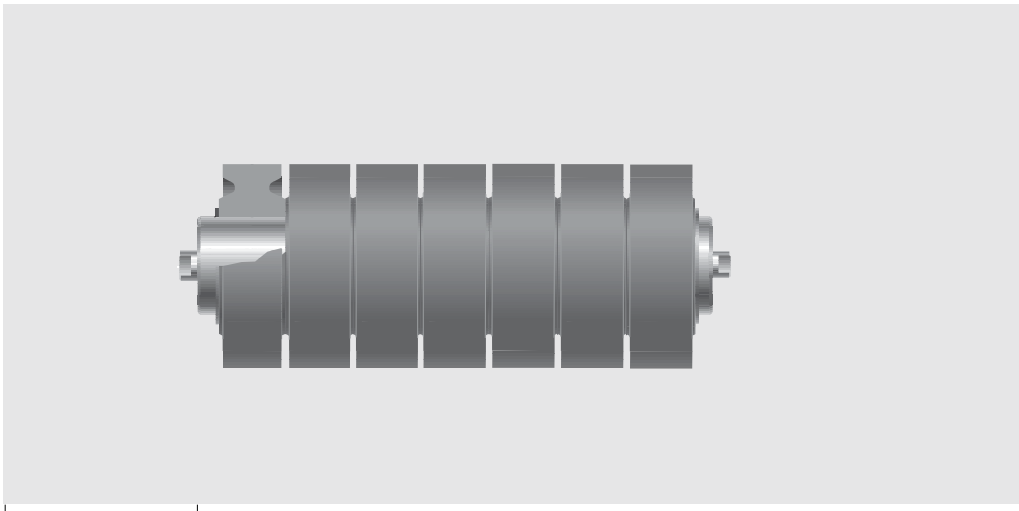
Programme of production of impact rollers

basic roller type	D mm	s	Øe mm	design	spindle d	ch	bearing
MPS 1	60	3	**89**	**NA**	15	17	6202
	60	3	**108**	**NA**			
PSV 1	63	3	**89**	**NA**	20	14	6204
	63	3	**108**	**NA**			
	89	3	**133**	**NA**			
	89	3	**159**	**NA**			
PSV 2	89	3	**133**	**NA**	25	18	6205
	89	3	**159**	**NA**			
PSV 3	89	3	**133**	**NA**	25	18	6305
	89	3	**159**	**NA**			
PSV 4	89	3	**133**	**NA**	30	22	6206
	89	3	**159**	**NA**			
PSV 5	89	4	**133**	**NA**	30	22	6306
	89	4	**159**	**NA**			
	108	4	**180**	**NA**			
	133	4	**194**	**NA**			
	133	4	**215**	**NA**			
PSV 7	108	4	**180**	**NA**	40	32	6308
	133	6	**194**	**NA**			
	133	6	**215**	**NA**			

The table indicates the types and diameters of standard rings and dimensions according to European norms. On request special diameters and tube thicknesses may be supplied.



series
Impact



Øe 89 NA

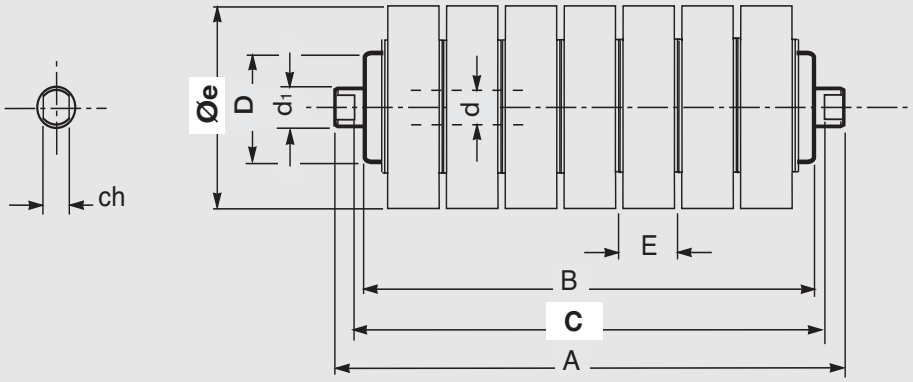
Base roller:

MPS 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt			roller					
width mm			dimensions mm			weight Kg		rings width
arrangements			B	**C**	A	MPS-1	PSV-1	E = 35
		400	160	**168**	186	1.8	2.3	
	300	500	200	**208**	226	2.1	2.7	
	400	650	250	**258**	276	2.6	3.3	
	500	800	315	**323**	341	3.3	4.1	
300	650	1000	380	**388**	406	3.9	4.8	
	800	1200	465	**473**	491	4.6	5.6	
400			500	**508**	526	5.1	6.1	
		1400	530	**538**	556		6.4	
500	1000		600	**608**	626	6.1	7.2	
	1200		700	**708**	726	6.9	8.1	
650			750	**758**	776	7.4	8.8	
	1400		800	**808**	826		9.2	
800			950	**958**	976	9.3	10.9	
1000			1150	**1158**	1176	11.1	12.9	
1200			1400	**1408**	1426	13.5	15.7	
1400			1600	**1608**	1626		17.9	

Example of ordering
standard design
MPS 1,15B,89NA,323
for special designs
see pages 80-81



Øe 108 NA

Base roller:

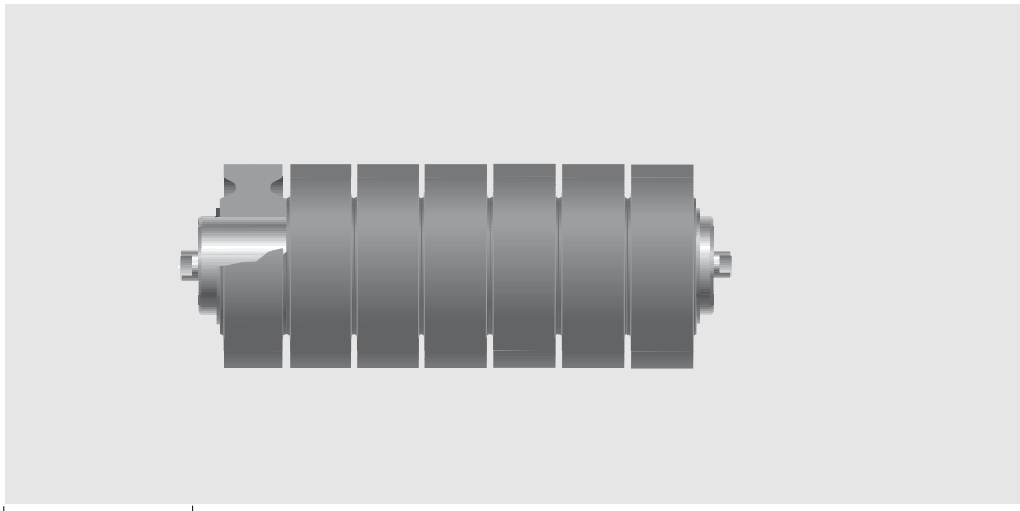
MPS 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt			roller					
width mm			dimensions mm			weight Kg		rings width
arrangements			B	**C**	A	MPS-1	PSV-1	E = 45
		400	160	**168**	186	2.1	2.6	
	300	500	200	**208**	226	2.6	3.2	
	400	650	250	**258**	276	3.1	3.8	
	500	800	315	**323**	341	4.0	4.8	
300	650	1000	380	**388**	406	4.6	5.5	
	800	1200	465	**473**	491	5.7	6.6	
400			500	**508**	526	6.1	7.1	
		1400	530	**538**	556		7.3	
500	1000		600	**608**	626	7.5	8.6	
	1200		700	**708**	726	8.6	9.9	
650			750	**758**	776	9.2	10.5	
	1400		800	**808**	826		11.1	
800			950	**958**	976	11.6	13.2	
1000			1150	**1158**	1176	13.8	15.7	
1200			1400	**1408**	1426	16.6	18.8	
1400			1600	**1608**	1626		21.5	

Example of ordering
standard design
PSV 1,20F,108NA,323
for special designs
see pages 80-81

series
Impact



Øe 133 NA

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 3
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6305
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

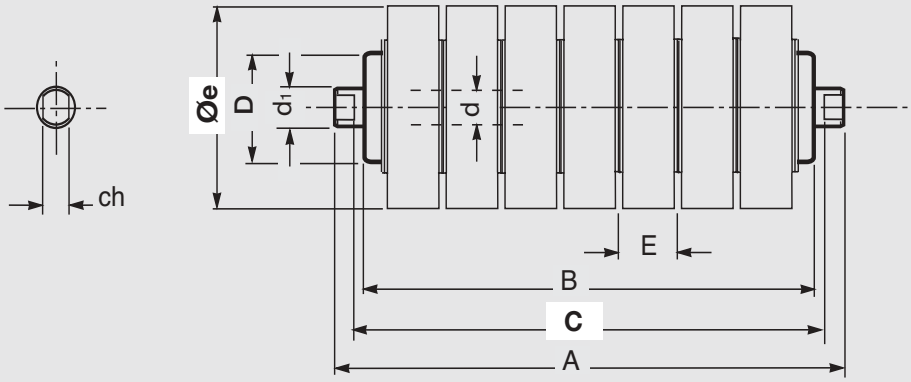
PSV 5
D = 89 x 4* ;
spindle 30 ; d_1 = 30
bearing 6306
ch = 22

* bigger tube thickness than standard

Example of ordering
standard design
PSV 2,25F,133NA,388
for special designs
see pages 80-81

belt			roller									
width mm			dimensions mm			weight Kg					rings width
arrangements			B	C	A	PSV 1	PSV 2	PSV 3	PSV 4	PSV 5	E = 35
		500	200	**208**	*	3.7					
		650	250	**258**	*	4.5	5.1				
	500	800	315	**323**	*	5.6	6.2	6.5	7.3	7.9	
	650	1000	380	**388**	*	6.6	7.3	7.7	8.5	9.1	
	800	1200	465	**473**	*	7.8	8.6	8.9	9.9	10.5	
		1400	530	**538**	*	8.8	9.7	10.1	11.2	11.8	
500	1000	1600	600	**608**	*	10.1	11.1	11.4	12.7	13.3	
		1800	670	**678**	*		12.2	12.6	13.9	14.5	
	1200		700	**708**	*	11.4	12.6	12.9	14.3	14.9	
650		2000	750	**758**	*	12.3	13.5	13.9	15.3	15.9	
	1400		800	**808**	*	12.9	14.2	14.6	16.2	16.4	
	1600		900	**908**	*	14.5	15.9	16.3	18.0	18.6	
800			950	**958**	*	14.6	17.1	17.5	19.3	19.9	
	1800		1000	**1008**	*		18.2	18.4	20.1	20.7	
	200		1100	**1108**	*			19.8	21.7	22.3	
100			1150	**1158**	*	18.7	20.5	20.8	23.0	23.6	
1200			1400	**1408**	*	22.4	24.6	24.9	27.5	28.1	
1400			1600	**1608**	*	25.5	27.9	28.3	31.2	31.8	
1600			1800	**1808**	*	28.0	30.7	31.0	34.3	34.9	
1800			2000	**2008**	*		34.0	34.4	38.0	38.6	
2000			2200	**2208**	*			37.5	41.5	42.1	

* in relation to the choice of base roller



Øe 159 NA

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 3
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6305
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

PSV 5
D = 89 x 4* ;
spindle 30 ; d_1 = 30
bearing 6306
ch = 22

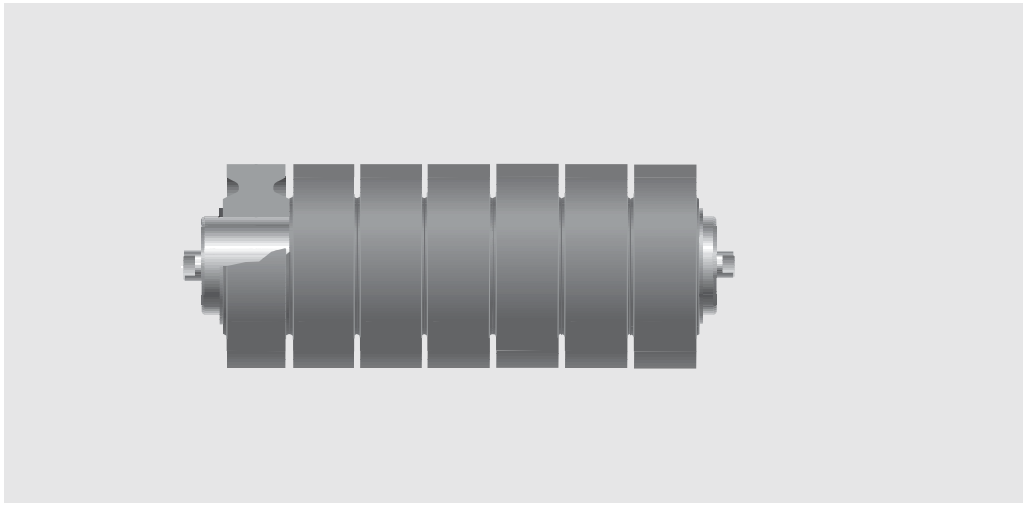
* bigger tube thickness than standard

belt		roller								
width mm		dimensions mm			weight Kg					rings width
arrangements		B	**C**	A	PSV-1	PSV-2	PSV-3	PSV-4	PSV-5	E = 50
	800	315	**323**	*	7.3	7.9	8.2	9.0	9.0	
	1000	380	**388**	*	8.4	9.2	9.5	10.4	11.0	
800	1200	465	**473**	*	10.4	11.3	11.6	12.6	12.2	
	1400	530	**538**	*	11.6	12.5	12.9	14.0	14.6	
1000	1600	600	**608**	*	13.4	14.5	14.8	16.1	16.7	
	1800	670	**678**	*		15.8	16.2	17.5	18.1	
1200		700	**708**	*	15.5	16.7	17.1	18.5	19.1	
	2000	750	**758**	*	16.6	17.8	18.2	19.7	20.3	
1400		800	**808**	*	17.7	19,0	19.3	20.9	21.5	
1600		900	**908**	*	19.8	21.2	21.6	23.3	23.9	
800		950	**958**	*	20.6	22.3	22.7	24.5	25.1	
1800		1000	**1008**	*		23.4	23.8	25.7	26.3	
2000		1100	**1108**	*			26.0	28.1	28.7	
1000		1150	**1158**	*	25.0	26.8	27.2	29.3	29.9	
1200		1400	**1408**	*	30.3	32.4	32.8	35.4	36.0	
1400		1600	**1608**	*	35.1	37.5	37.9	40.8	41.4	
1600		1800	**1808**	*	39.3	42.0	42.4	45.6	46.2	
1800		2000	**2008**	*		46.5	46.9	50.5	51.1	
2000		2200	**2208**	*			51.3	55.3	59.9	

***** in relation to the choice of base roller

Example of ordering
standard design
PSV 4,30F,159NA,473
for special designs
see pages 80-81

series
Impact



Øe 180 NA

Base roller:

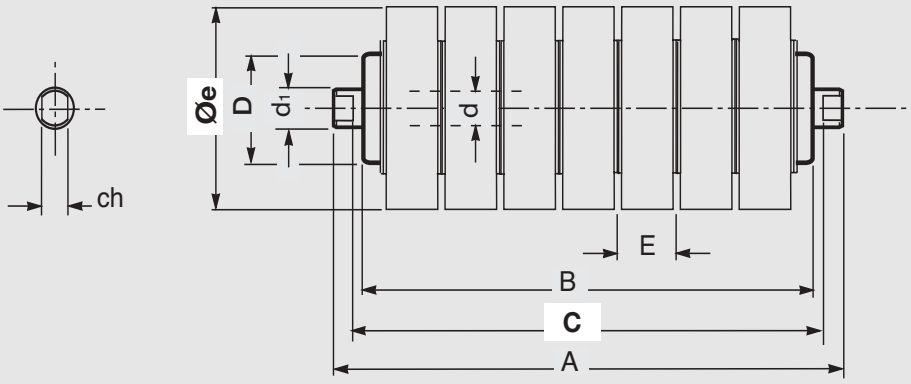
PSV 5
D = 108 x 4* ;
spindle 30 ; d_1 = 30
bearing 6306
ch = 22

PSV 7
D = 108 x 4* ;
spindle 40 ; d_1 = 40
bearing 6308
ch = 32

* bigger tube thickness than standard

Example of ordering
standard design
PSV 5,30F,180NA,678
for special designs
see pages 80-81

belt		roller					
width mm		dimensions mm			weight Kg		rings n°
arrangements		B	**C**	A	PSV-5	PSV-7	E = 40
	1600	600	**608**	632	20.1	25.3	
	1800	670	**678**	702	22,5	28.1	
	2000	750	**758**	782	24.9	30.8	
	2200	800	**808**	832	26.9	33.0	
1600	2400	900	**908**	932	29.7	36.2	
	2600	950	**958**	982	31.7	38.4	
1800		1000	**1008**	1032	33.1	40.0	
	2800	1050	**1058**	1082	34.4	41.6	
2000		1100	**1108**	1132	36.4	43.6	
	3000	1120	**1128**	1152	36.7	44.2	
2200		1250	**1258**	1282	41.2	49.1	
2400		1400	**1408**	1432	45.9	54.5	
2600		1500	**1508**	1532	48.7	57.7	
2800		1600	**1608**	1632	52.1	61.4	
1600		1800	**1808**	1832	58.2	68.4	
1800		2000	**2008**	2032	64.9	76.0	
2000		2200	**2208**	2232	71.1	82.9	
2200		2500	**2508**	2532	80.6	93.6	
2400		2800	**2808**	2832	90.1	104.4	
2600		3000	**3008**	3032	96.2	111.3	
2800		3150	**3158**	3182	100.9	116.3	



Øe 194 NA

Base roller:

PSV 5
D = 133 ;
spindle 30 ; d_1 = 30
bearing 6306
ch = 22

PSV 7
D = 133 x 6* ;
spindle 40 ; d_1 = 40
bearing 6308
ch = 32

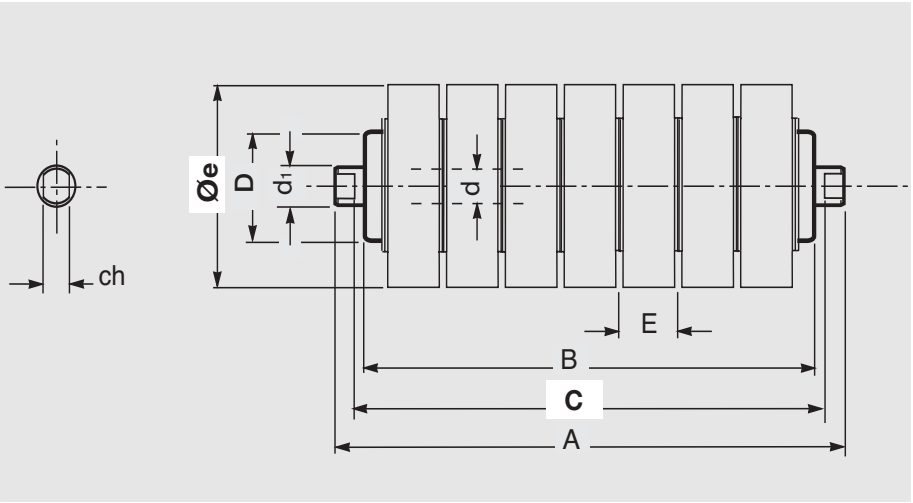
* bigger tube thickness than standard

Example of ordering
standard design
PSV 5,30F,194NA,678
for special designs
see pages 80-81

belt		roller					
width mm		dimensions mm			weight Kg		rings width
arrangements		B	**C**	A	PSV-5	PSV-7	E = 50
	1600	600	**608**	632	23.4	28.1	
	1800	170	**678**	702	25,5	30.5	
	2000	750	**758**	782	28.6	34.0	
	2200	800	**808**	832	30.3	35.9	
1600	2400	900	**908**	932	33.8	39.8	
	2600	950	**958**	982	35.5	41.8	
1800		1000	**1008**	1032	37.2	43.7	
	2800	1050	**1058**	1082	39.0	45.7	
2000		1100	**1108**	1132	40.7	47.6	
	3000	1120	**1128**	1152	41.1	48.1	
2200		1250	**1258**	1282	45.9	53.5	
2400		1400	**1408**	1432	51.1	59.3	
2600		1500	**1508**	1532	54.6	63.2	
2800		1600	**1608**	1632	58.1	66.9	
1600		1800	**1808**	1832	65.0	74.9	
1800		2000	**2008**	2032	71.9	82.7	
2000		2200	**2208**	2232	78.9	90.5	
2200		2500	**2508**	2532	89.3	102.2	
2400		2800	**2808**	2832	99.7	113.9	
2600		3000	**3008**	3032	106.6	121.7	
2800		3150	**3158**	3182	111.8	127.5	

series
Impact

Øe 215 NA



Base roller:

PSV 5
D = 133 ;
spindle 30 ; d_1 = 30
bearing 6306
ch = 22

PSV 7
D = 133x 6* ;
spindle 40 ; d_1 = 40
bearing 6308
ch = 32

* bigger tube thickness than standard

belt	roller					
width mm	dimensions mm			weight Kg		rings width
arrangements	B	**C**	A	PSV-5	PSV-7	E = 50
1800	670	**678**	702	27.6	32.6	
2000	750	**758**	782	31.0	36.4	
2200	800	**808**	832	32.9	38.5	
2400	900	**908**	932	36.7	42.7	
2600	950	**958**	982	38,6	44.8	
1800	1000	**1008**	1032	40.4	46.9	
2800	1050	**1058**	1082	42.3	49.0	
2000	1100	**1108**	1132	44.2	51.1	
3000	1120	**1128**	1152	44.6	51.6	
2200	1250	**1258**	1282	49.9	57.5	
2400	1400	**1408**	1432	55.6	63.8	
2600	1500	**1508**	1532	59.4	68.0	
2800	1600	**1608**	1632	63.2	72.2	
1800	2000	**2008**	2032	78.3	89.1	
2000	2200	**2208**	2232	85.9	97.5	
2200	2500	**2508**	2532	97.3	110.2	
2400	2800	**2808**	2832	108.6	122.8	
2600	3000	**3008**	3032	116.2	131.3	
2800	3150	**3158**	3182	121.9	137.6	

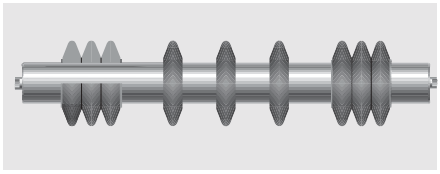
Example of ordering
standard design
PSV 7,40F,215NA,758
for special designs
see pages 80-81

2.6.2 - Return rollers with rings

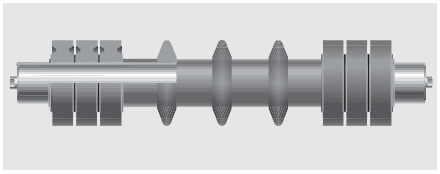
The straight tracking of the belt may be compromised by the type of conveyed material, specially when this material is sticky and thereby adheres easily to the belt surface.
In this case, material is also deposited on the return rollers that support the belt, adding an irregular addition of scale to the roller itself.
As a consequence, not only wear and tear of the belt occurs, but forces are brought into play to move the belt away from its correct track.

Return rollers with spaced rubber rings contribute largely to eliminating the build up of scale that forms in certain conditions on the belt surface.

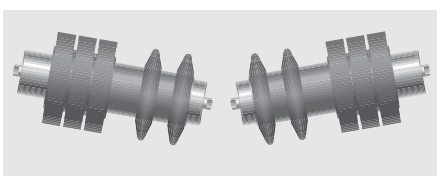
The rings are pointed, assembled at intervals, in the central part of the roller, where they have the scope to break up the scale which normally is present at the belt centre; meanwhile flat rings mounted in groups at the extremities of the belt, support and protect the belt edges, also in cases of limited belt wandering.
Return rollers with rings should not be used as belt tensioning devices.



Arrangement G
Return rollers with pointed rings spaced in the central part and positioned in sets at the side. Used on belt conveyors of medium capacity.



Arrangement L
Return rollers used on belt conveyors in high duty plant. They are provided with sets of flat rings, positioned at the roller extremities, and with pointed rings spaced in the central part of the roller.

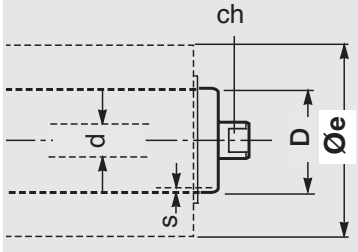


Arrangement C
Return rollers for return transom sets of “V” design format with base rolllers from series PSV, with characteristic proportional dimensions to the requirements designed into large belt conveyors.

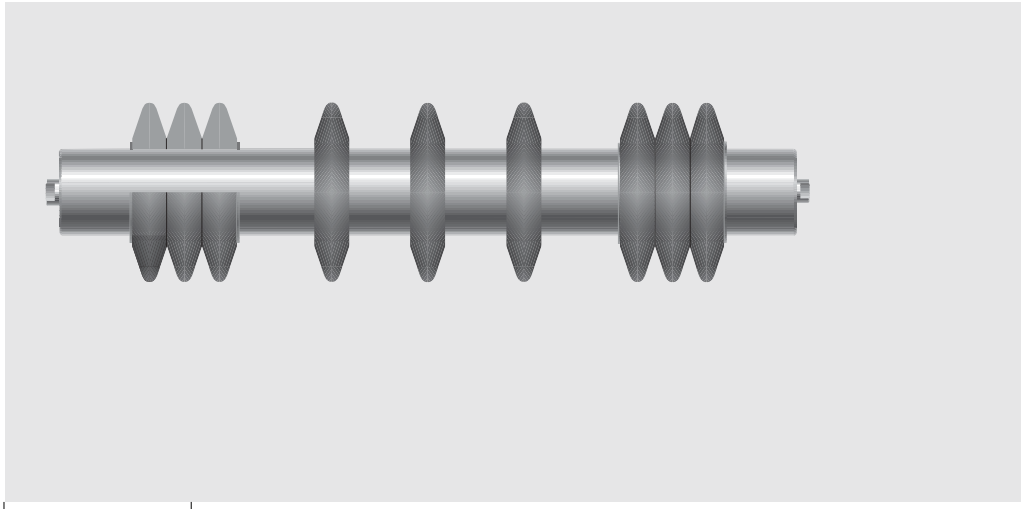
Programme of production of return rollers with rings

base roller D			Øe		spindle		bearing
tipo	mm	s	mm	design	mm	ch	
RTL 1	**60**	**2.0**	**108**	**NG**	**15**	**17**	**cup and cone**
	60	**2.0**	**133**	**NG**			
M/1	**60**	**3.0**	**108**	**NG**	**15**	**17**	**cup and cone**
	60	**3.0**	**133**	**NG**			
MPS 1	**60**	**3.0**	**108**	**NG**	**15**	**17**	**6202**
	60	**3.0**	**133**	**NG**			
PSV 1	**63**	**3.0**	**108**	**NG**	**20**	**14**	**6204**
	63	**3.0**	**133**	**NG**			
	63	**3.0**	**108**	**NL, NC**			
	89	**3.0**	**133**	**NL, NC**			
	89	**3.0**	**159**	**NL, NC**			
	108	**3.5**	**180**	**NL, NC**			
PSV 2	**89**	**3.0**	**133**	**NL, NC**	**25**	**18**	**6205**
	89	**3.0**	**159**	**NL, NC**			
	108	**3.5**	**180**	**NL, NC**			
PSV 4	**89**	**3.0**	**133**	**NL, NC**	**30**	**22**	**6206**
	89	**3.0**	**159**	**NL, NC**			
	108	**3.5**	**180**	**NL, NC**			
PSV 7	**108**	**3.5**	**180**	**NL, NC**	**40**	**32**	**6308**

The table indicates the types and diameters of standard rings and dimensions according to European norms. On request special diameters and tube thicknesses may be supplied.



series
with rings



Øe 108 NG

Base roller:

RTL 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing cup and cone
ch = 17

M 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing cup and cone
ch = 17

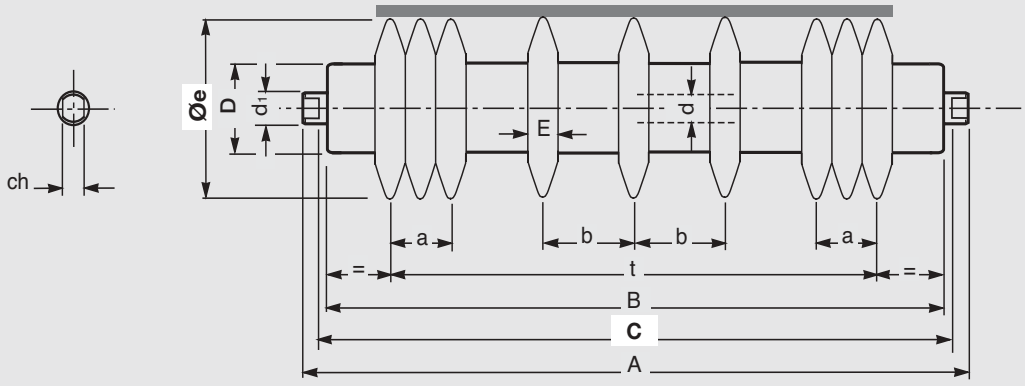
MPS 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt	roller							
width mm	dimensions mm			weight Kg				rings n°
arrangements	B	**C**	A	RTL-1	M -1	MPS-1	PSV-1	total
300	380	**388**	406	2,7	3,4	3,4		5
400	500	**508**	526	3,2	4,1	4,1		5
500	600	**608**	626	3,8	4,8	4,8	5,9	6
650	750	**758**	776	4,9	6,1	6,1	7,4	9
800	950	**958**	976	6,0	7,4	7,4	9,0	10
1000	1150	**1158**	1176	7,1	8,9	8,9	10,7	12
1200	1400	**1408**	1426			10,4	12,6	13
1400	1600	**1608**	1626				14,3	15

roller	rings						
length C mm	a mm	b	t	E	side n°	central	side
388	25	85	220	25	2	1	2
508	25	135	320	25	2	1	2
608	25	130	440	25	2	2	2
758	50	125	600	25	3	3	3
958	50	124	720	25	3	4	3
1158	50	115	905	25	3	6	3
1408	50	125	1100	25	3	7	3
1608	50	120	1300	25	3	9	3

Example of ordering
standard design
MPS 1,,15B,108NG,508
for special designs
see pages 80-81



Øe 133 NG

Base roller:

RTL 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing cup and cone
ch = 17

M 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing cup and cone
ch = 17

MPS 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

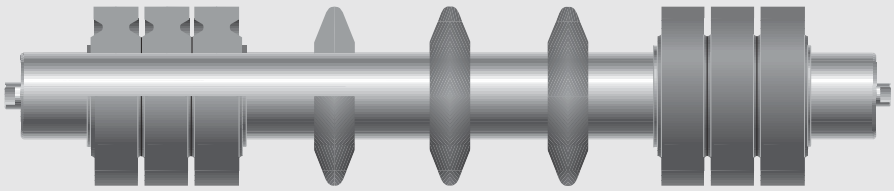
PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

Example of ordering
standard design
PSV 1,20F,133NG,758
for special designs
see pages 80-81

belt	**roller**							
width mm	dimensions mm			weight Kg				rings nº
arrangements	B	**C**	A	RTL-1	M-1	MPS-1	PSV-1	total
300	380	**388**	406	3,8	4,4	4,4		5
400	500	**508**	526	4,3	5,1	5,1		5
500	600	**608**	626	5,1	6,0	6,0	7,1	6
650	750	**758**	776	6,8	8,0	8,0	9,3	9
800	950	**958**	976	8,1	9,5	9,5	11,1	10
1000	1150	**1158**	1176	9,7	11,4	11,4	13,2	12
1200	1400	**1408**	1426			13,2	15,4	13
1400	1600	**1608**	1626				17,5	15
1600	1800	**1808**	1826				19,7	17

roller length C mm	**rings** a mm	b	t	E	side nº	central	side
388	30	100	260	30	2	1	2
508	30	120	300	30	2	1	2
608	30	115	405	30	2	2	2
758	60	120	600	30	3	3	3
958	60	120	720	30	3	4	3
1158	60	115	925	30	3	6	3
1408	60	125	1120	30	3	7	3
1608	60	120	1320	30	3	9	3
1808	60	115	1500	30	3	11	3

series
with rings



The two sets of flat rings are held in position by steel rings welded to the tube

Øe 108 NL

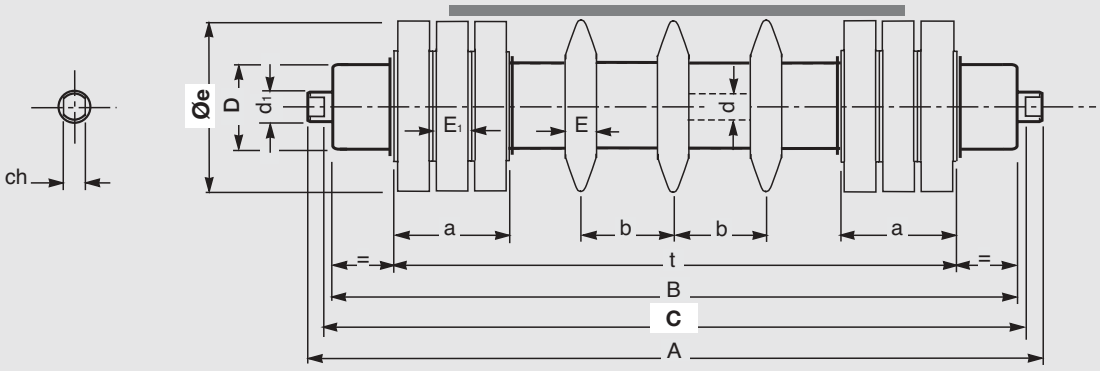
Base roller:

PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt	roller					
width mm	dimensions mm			weight Kg		rings nº
arrangements	B	**C**	A	PSV-1		total
300	380	**388**	406	4.6		5
400	500	**508**	526	5.6		6
500	600	**608**	626	6.4		7
650	750	**758**	776	7.6		8
800	950	**958**	976	9.6		10
1000	1150	**1158**	1176	11.3		12
1200	1400	**1408**	1426	13.2		13
1400	1600	**1608**	1626	15.3		15

roller length mm	rings a mm	b	t	E	E_1	side	central	side nº
388	90	50	360	25	45	2	1	2
508	95	75	465	25	45	2	2	2
608	95	80	560	25	45	2	3	2
758	90	110	730	25	45	2	4	2
958	135	125	895	25	45	3	4	3
1158	135	120	1110	25	45	3	6	3
1408	135	130	1310	25	45	3	7	3
1608	135	125	1520	25	45	3	9	3

Example of ordering
standard design
PSV 1,20F,108NL,1158
for special designs
see pages 80-81



Øe 133 NL

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

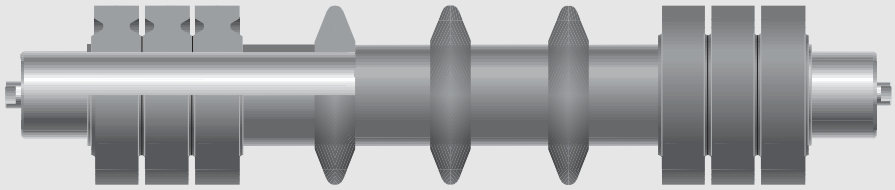
Example of ordering
standard design
PSV 2,25F,133NL,1608
for special designs
see pages 80-81

belt	**roller**							
width mm	dimensions mm			weight Kg			rings nº
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4	total
500	600	**608**	*	8.4			9
650	750	**758**	*	10.0	11.6		10
800	950	**958**	*	12.2	14.1	16.3	12
1000	1150	**1158**	*	14.6	16.8	19.3	14
1200	1400	**1408**	*	17.3	19.6	22.6	15
1400	1600	**1608**	*	19.3	22.0	25.3	16
1600	1800	**1808**	*	21.4	24.4	28.1	17
1800	2000	**2008**	*		26.8	30.8	18
2000	2200	**2208**	*			33.5	19

* in relation to the choice of base roller

roller lenght C mm	**rings** a mm	b	t	E	E_1	side nº	central	side
608	**105**	**85**	**550**	**30**	**35**	**3**	**3**	**3**
758	**105**	**105**	**735**	**30**	**35**	**3**	**4**	**3**
958	**140**	**125**	**905**	**30**	**35**	**4**	**4**	**4**
1158	**140**	**120**	**1120**	**30**	**35**	**4**	**6**	**4**
1408	**140**	**130**	**1320**	**30**	**35**	**4**	**7**	**4**
1608	**140**	**135**	**1495**	**30**	**35**	**4**	**8**	**4**
1808	**140**	**140**	**1680**	**30**	**35**	**4**	**9**	**4**
2008	**140**	**145**	**1785**	**30**	**35**	**4**	**10**	**4**
2208	**140**	**150**	**2080**	**30**	**35**	**4**	**11**	**4**

series
with rings



The pointed rings are held in position by PVC distance collars; the flat rings are held in position by external steeel rings welded to the tube.

Øe 159 NL

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

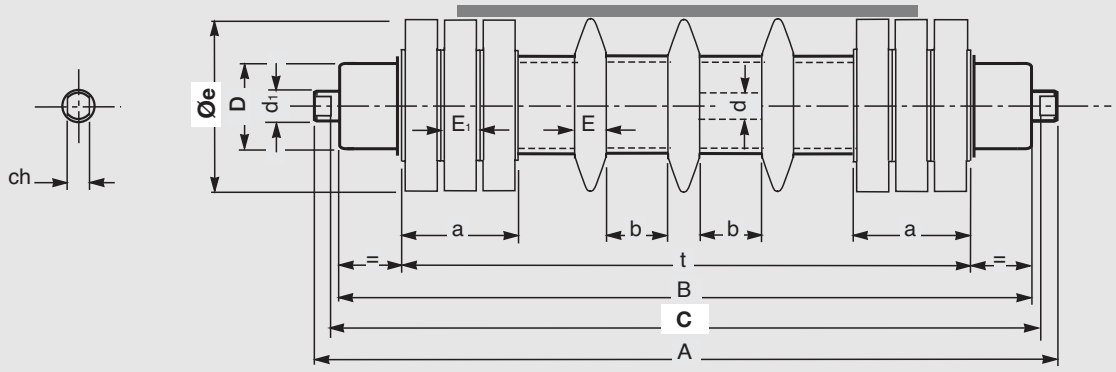
PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

Example of ordering
standard design
PSV 4,30F,159NL,1808
for special designs
see pages 80-81

belt	roller							
width mm	dimensions mm			weight Kg				rings n°
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4		total
500	600	**608**	*	9.7				7
650	750	**758**	*	11.4	12.9			8
800	950	**958**	*	14.4	16.2	18.4		10
1000	1150	**1158**	*	16.9	19.0	21.5		12
1200	1400	**1408**	*	19.4	21.9	24.9		13
1400	1600	**1608**	*	21.6	24.3	27.6		14
1600	1800	**1808**	*	23.7	26.7	30.4		15
1800	2000	**2008**	*		29.2	33.2		16
2000	2200	**2208**	*			35.9		17

* in relation to the choice of base roller

roller length C mm	rings a mm	b	t	E	E_1	side n°	central	side
608	100	75	584	30	50	2	3	2
758	100	80	712	30	50	2	4	2
958	150	95	887	30	50	3	4	3
1158	150	90	1098	30	50	3	6	3
1408	150	110	1376	30	50	3	7	3
1608	150	110	1514	30	50	3	8	3
1808	150	115	1702	30	50	3	9	3
2008	150	120	1900	30	50	3	10	3
2208	150	125	2108	30	50	3	11	3



Øe 180 NL

Base roller:

PSV 1 ,
D = 108 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 108 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 4
D = 108 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

PSV 7
D = 108 ;
spindle 40 ; d_1 = 40
bearing 6308
ch = 32

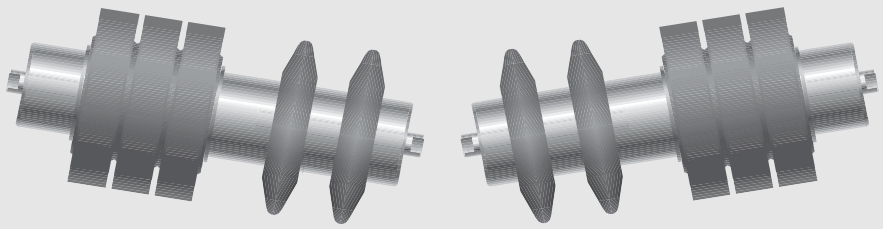
belt	**roller**							
width mm	dimensions mm			weight Kg				rings n°
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4	PSV-7	total
800	950	**958**	*	19.9	21.8	24.1	29.6	12
1000	1150	**1158**	*	23.5	25.6	28.3	34.5	14
1200	1400	**1408**	*	27.0	29.5	32.5	39.7	15
1400	1600	**1608**	*	29.9	32.7	36.1	44.0	16
1600	1800	**1808**	*	32.8	35.9	39.6	48.3	17
1800	2000	**2008**	*		39.1	43.2	52.7	18
2000	2200	**2208**	*			46.7	57.0	19
2200	2400	**2408**	*			50.3	63.1	20

* in relation to the choice of base roller

roller	**anelli**							
length C mm	a mm	b	t	E	E1	side n°	central	side
958	160	85	897	40	40	4	4	4
1158	160	75	1073	40	40	4	6	4
1408	160	100	1386	40	40	4	7	4
1608	160	100	1524	40	40	4	8	4
1808	160	105	1712	40	40	4	9	4
2008	160	110	1910	40	40	4	10	4
2208	160	115	2118	40	40	4	11	4
2408	160	115	2271	40	40	4	12	4

Example of ordering
standard design
PSV 4,30F,180NL,1808
for special designs
see pages 80-81

series
with rings



The two sets of flat rings are held in position by steel rings welded to the tube

Øe 108 NC

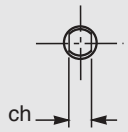
Base roller:

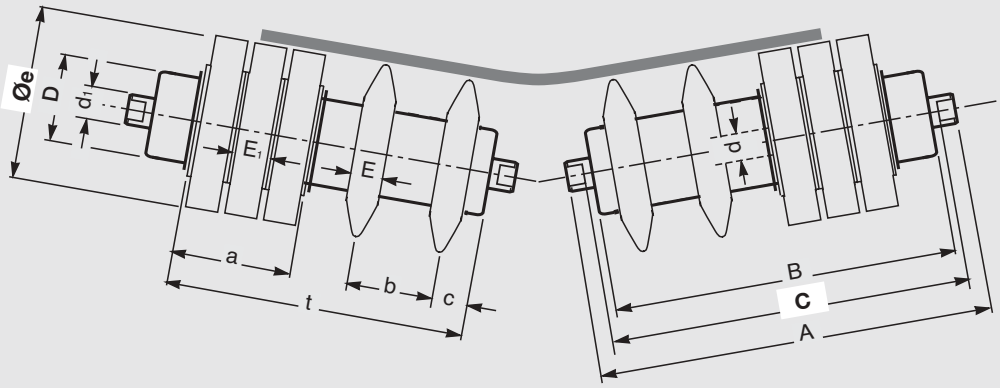
PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt	roller				
width mm	dimensions mm			weight Kg	rings n°
arrangement	B	**C**	A	PSV-1	total
300	200	**208**	226	2.8	3
400	250	**258**	276	3.1	3
500	315	**323**	341	3.7	4
650	380	**388**	406	4.2	4
800	465	**473**	491	4.9	5
1000	600	**608**	626	6.1	6
1200	700	**708**	726	7.0	7
1400	800	**808**	826	7.9	8

roller length mm	rings a mm	b	c	t	E	E_1	side n°	central
208	90	60	25	175	25	45	2	1
258	90	80	25	195	25	45	2	1
323	90	70	25	255	25	45	2	2
388	90	90	30	300	25	45	2	2
473	90	95	30	405	25	45	2	3
608	135	110	40	505	25	45	3	3
708	135	105	40	595	25	45	3	4
808	180	120	40	700	25	45	4	4

Example of ordering
standard design
PSV 1,20F,108NC,608
for special designs
see pages 80-81





Øe 133 NC

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

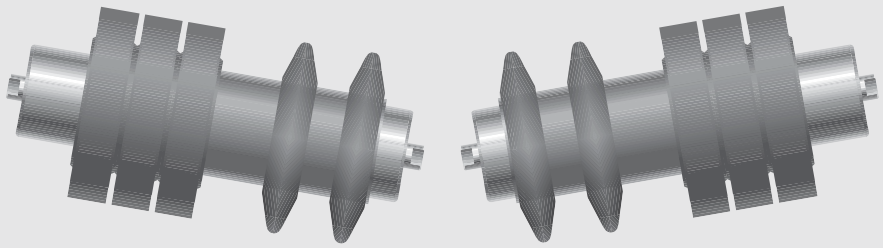
Example of ordering
standard design
PSV 2,25F,133NC,808
for special designs
see pages 80-81

belt	**roller**							
width mm	dimensions mm			weight Kg				rings nº
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4		total
500	315	**323**	*	4.8				5
650	380	**388**	*	5.4	6.5			5
800	465	**473**	*	6.5	7.7	9.1		6
1000	600	**608**	*	7.9	9.3	10.9		7
1200	700	**708**	*	9.1	10.6	12.4		8
1400	800	**808**	*	10.0	11.7	13.6		8
1600	900	**908**	*	11.2	13.0	15.1		9
1800	1000	**1008**	*		14.0	16.3		10
2000	1100	**1108**	*			17.8		11

* in relation to the choice of base roller

roller length mm	**rings** a mm	b	c	t	E	E_1	side nº	central
323	105	70	30	275	30	35	3	2
388	105	85	30	305	30	35	3	2
473	105	90	30	405	30	35	3	3
608	140	105	40	495	30	35	4	3
708	140	105	40	600	30	35	4	4
808	140	130	40	700	30	35	4	4
908	140	125	40	805	30	35	4	5
1008	140	120	50	910	30	35	4	6
1108	140	120	50	1030	30	35	4	7

series
with rings



The pointed rings are held in position by PVC distance collars; the rings at either end are held in position by an external steel ring welded to the tube.

Øe 159 NC

Base roller:

PSV 1,
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

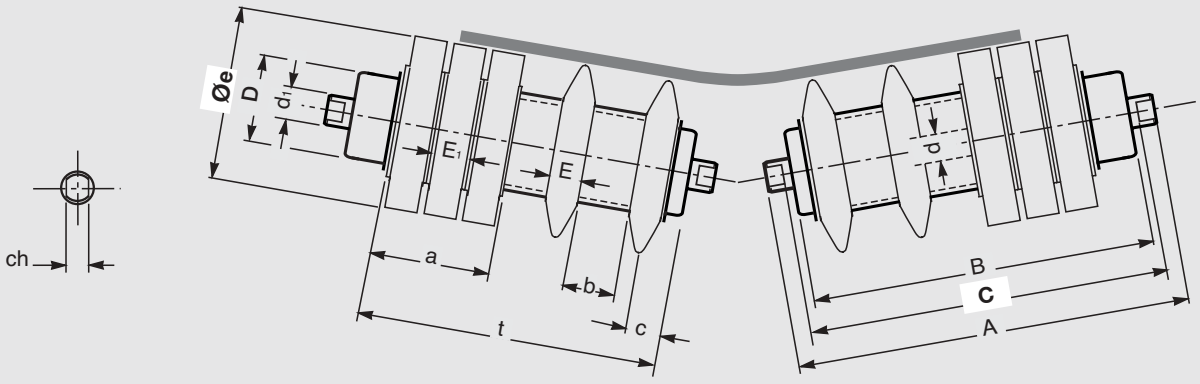
PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

Example of ordering
standard design
PSV 2,25F,159NC,908
for special designs
see pages 80-81

belt	**roller**						
width mm	dimensions mm			weight Kg			rings n°
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4	total
500	315	**323**	*	5.5			4
650	380	**388**	*	6.1	6.8		4
800	465	**473**	*	7.2	8.1	9.4	5
1000	600	**608**	*	9.0	10.1	11.6	6
1200	700	**708**	*	10.3	11.4	13.2	7
1400	800	**808**	*	11.2	12.5	14.4	7
1600	900	**908**	*	12.4	13.9	16.0	8
1800	1000	**1008**	*		15.3	17.5	9
2000	1100	**1108**	*			18.9	10

* in relation to the choice of base roller

roller length mm	**rings** a mm	b	c	t	E	E_1	side central n°	
323	100	40	30	253	30	50	2	2
388	100	65	30	303	30	50	2	2
473	100	65	30	396	30	50	2	3
608	150	85	40	516	30	50	3	3
708	150	85	40	629	30	50	3	4
808	150	110	40	729	30	50	3	4
908	150	100	40	817	30	50	3	5
1008	150	95	50	925	30	50	3	6
1108	150	95	50	1048	30	50	3	7



Øe 180 NC

Base roller:

PSV 1
D = 108 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 108 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 4
D = 108 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

PSV 7
D = 108 ;
spindle 40 ; d_1 = 40
bearing 6308
ch = 32

belt	**roller**							
width mm	dimensions mm			weight Kg				rings n°
arrangement	B	**C**	A	PSV-1	PSV-2	PSV-4	PSV-7	total
800	465	**473**	*	10.2	11.0	12.4	16.8	6
1000	600	**608**	*	12.5	13.5	15.1	20.0	7
1200	700	**708**	*	14.2	15.4	17.2	22.4	8
1400	800	**808**	*	15.4	16.7	18.6	24.3	8
1600	900	**908**	*	17.2	18.6	20.7	26.7	9
1800	1000	**1008**	*		20.5	22.8	29.1	10
2000	1100	**1108**	*			24.9	31.6	11
2200	1250	**1258**	*			27.7	34.9	12

* in relation to the choice of base roller

roller length mm	**rings** a mm	b	c	t	E	E_1	side central n°	
473	120	60	45	435	40	40	3	3
608	160	70	45	515	40	40	4	3
708	160	75	45	645	40	40	4	4
808	160	100	45	745	40	40	4	4
908	160	90	45	835	40	40	4	5
1008	160	85	55	945	40	40	4	6
1108	160	85	55	1070	40	40	4	7
1258	160	85	55	1195	40	40	4	8

Example of ordering
standard design
PSV 2,25F,180NC,908
for special designs
see pages 80-81

series
Self cleaning

The rubber rings are held in position at either end by a steel ring welded to the tube.

2.6.3 - Return rollers with helical rubber rings for self cleaning

Used on the return transom to support the belt when the material being conveyed, even if only a little sticky, is very viscous.

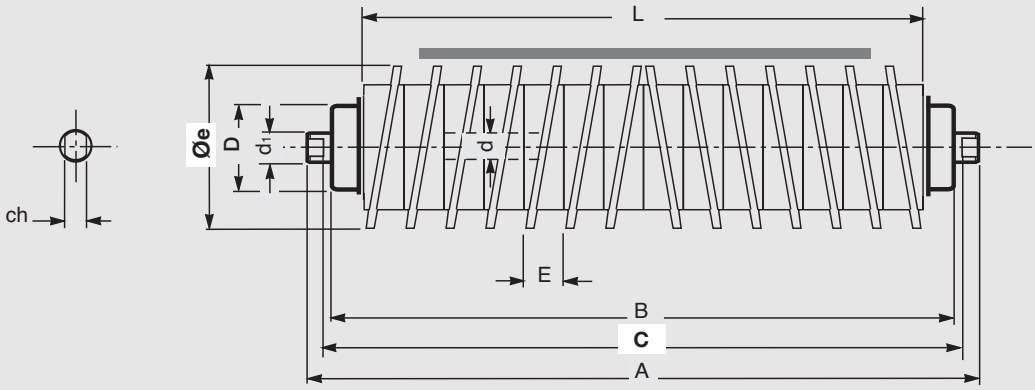
The helical spiral form of the non-abrasive rings, assembled onto the base roller shell, performs a cleaning action and reduces the tendency of material to deposit itself and stick to the surface of the dirty side of the belt.

They may be employed on any part of the return belt section in the case of short conveyors.

On long sections it is satisfactory to employ these rollers only up to the point where the material does not adhere any more to the belt surface.
These rollers should not be employed as snub rollers adjacent to the drive or return drums.
The table indicates the types and diameters of standard rings with dimensions according to European norms.
On customer request different diameters and dimensions may be supplied.

Programme

base roller type	D mm	s	**Øe** mm	Standard design	spindle mm	ch	bearing
MPS 1	**60**	**3**	**108**	**NM**	**15**	**17**	**6202**
	89	**3**	**133**	**NM**			
PSV 1	**63**	**3**	**108**	**NM**	**20**	**14**	**6204**
	89	**3**	**133**	**NM**			
	89	**3**	**180**	**NM**			
PSV 2	**89**	**3**	**133**	**NM**	**25**	**18**	**6205**
	89	**3**	**180**	**NM**			
PSV 3	**89**	**3**	**133**	**NM**	**25**	**18**	**6305**
	89	**3**	**180**	**NM**			
PSV 4	**89**	**3**	**133**	**NM**	**30**	**22**	**6206**
	89	**3**	**180**	**NM**			



Øe 108 NM

Base roller:

MPS 1
D = 60 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

PSV 1,
D = 63 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

belt	roller					
width mm	dimensions mm			weight Kg		rings width E = 38,5
arrangement	B	**C**	A	MPS-1	PSV-1	L
300	**380**	**388**	**406**	**4.1**	**5.0**	**310**
400	**500**	**508**	**526**	**5.7**	**6.7**	**460**
500	**600**	**608**	**626**	**6.6**	**7.8**	**540**
650	**750**	**758**	**776**	**8.3**	**9.7**	**695**
800	**950**	**958**	**976**	**10.7**	**12.3**	**925**
1000	**1150**	**1158**	**1176**	**12.7**	**14.5**	**1080**
1200	**1400**	**1408**	**1426**	**15.3**	**17.5**	**1385**

Example of ordering
standard design
PSV 1,20F,108NM,758
for special designs
see pages 80-81

series
Self cleaning

The rubber rings are held in position at either end by a steel ring welded to the tube.

Øe 133 NM

Base roller:

MPS 1
D = 89 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

PSV 1
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

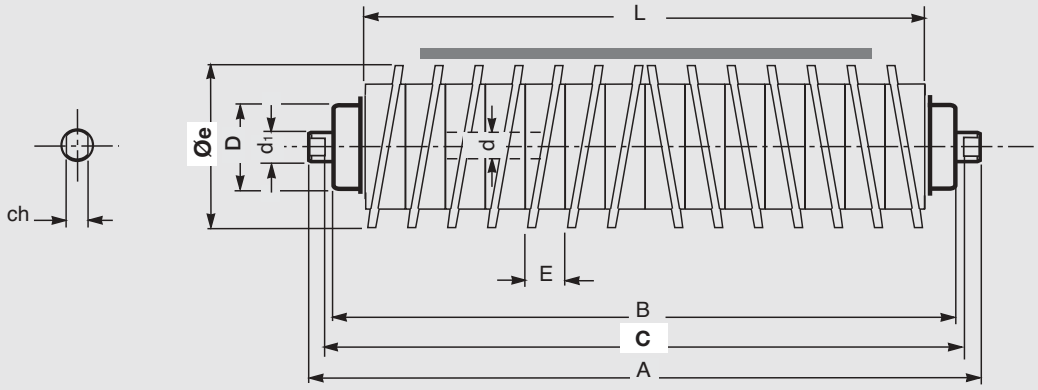
PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 3
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6305
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

belt	roller									
width mm	dimensions mm				weight Kg					rings width E=38,5
arrangement	B	C	A MPS-1 PSV 1	PSV 2 PSV 3 PSV 4	MPS-1	PSV 1	PSV 2	PSV 3	PSV 4	L
400	500	508	526	532	7.3	8.2				460
500	600	608	626	632	8.6	9.5				540
650	750	758	776	782	10.7	11.8	13.3			695
800	950	958	976	982	13.7	15.0	16.5			925
1000	1150	1158	1176	1182	16.2	17.7	19.5	19.9	22.0	1080
1200	1400	1408	1426	1432		21.4	23.5	23.9	26.5	1385
1400	1600	1608		1632			26.5	26.9	29.8	1540
1600	1800	1808		1832			29.5	29.8	33.0	1760

Example of ordering
standard design
PSV 1,20F,133NM,758
for special designs
see pages 80-81



Øe 180 NM

Base roller:

PSV 1
D = 89 ;
spindle 20 ; d_1 = 20
bearing 6204
ch = 14

PSV 2
D = 89 ;
spindle 25 ; d_1 = 25
bearing 6205
ch = 18

PSV 3
D = 89 ;
spindle25 ; d_1 = 25
bearing 6305
ch = 18

PSV 4
D = 89 ;
spindle 30 ; d_1 = 30
bearing 6206
ch = 22

belt	**roller**								
width mm	dimensions mm				weight Kg				rings width E = 38,5
arrangement	B	**C**	A PSV 1	A PSV 2 PSV 3 PSV 4	PSV 1	PSV 2	PSV 3	PSV 4	L
500	**600**	**608**	**626**	**632**	**15.7**	**16.7**			**540**
650	**750**	**758**	**776**	**782**	**19.7**	**20.9**			**695**
800	**950**	**958**	**976**	**982**	**25.6**	**27.0**			**925**
1000	**1150**	**1158**	**1176**	**1182**	**30.0**	**31.8**	**32.2**	**34.3**	**1080**
1200	**1400**	**1408**	**1426**	**1432**	**36.3**	**38.4**	**38.7**	**41.3**	**1385**
1400	**1600**	**1608**		**1632**		**43.3**	**43.7**	**46.6**	**1540**
1600	**1800**	**1808**		**1832**		**48.0**	**48.4**	**51.7**	**1770**

Example of ordering
standard design
PSV 1,20F,180NM,1158
for special designs
see pages 80-81

series
Self cleaning

2.6.4 - Return rollers with helical steel cage for self cleaning

Used in the return section to support the belt when the conveyed material is very adhesive, as with for example clay.

They may be positioned on any part of the conveyor return section, when it is relatively short.

When these rollers are produced with a spiral steel cage, it is attached to the two end caps with similar characteristics to the PSV rollers series.

The spiral cage, in permanent contact with the dirty side of the belt, removes material from the belt using its natural rotary cleaning action.

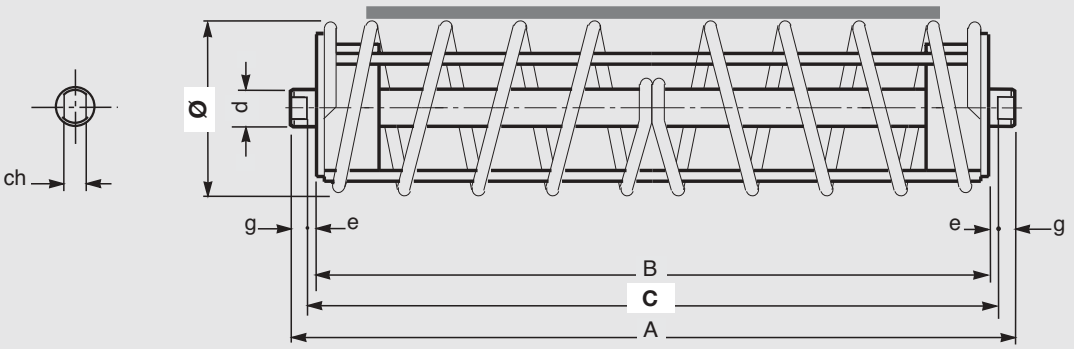
The rollers should be installed in a way that the spiral moves the material towards the edge of the belt.

These rollers must not be employed as belt snub rollers.

The tables indicate the standard types and diameters with their dimensions according to European norms. On customer request cleaning rollers may be supplied with spirals in steel, with non standard dimensions and characteristics (for example steel spiral in flattened format).

Program

base roller tipo	Ø mm	Standard design	spindle mm	ch	bearing
PSV 91	**108**	**S**	20	14	6204
	133	**S**			
PSV 92	**133**	**S**	25	18	6205
PSV 94	**133**	**S**	30	22	6206
M 1, RTL 1	**60**	**NS**	15	17	cup and cone
	76	**NS**			
MPS 1, MPR 15	**60**	**NS**	15	17	6202
	76	**NS**			



Ø 108 S
133 S

Base roller:

PSV 91
D = 108, 133
spindle 20
bearing 6204
ch = 14
e = 4
g =9

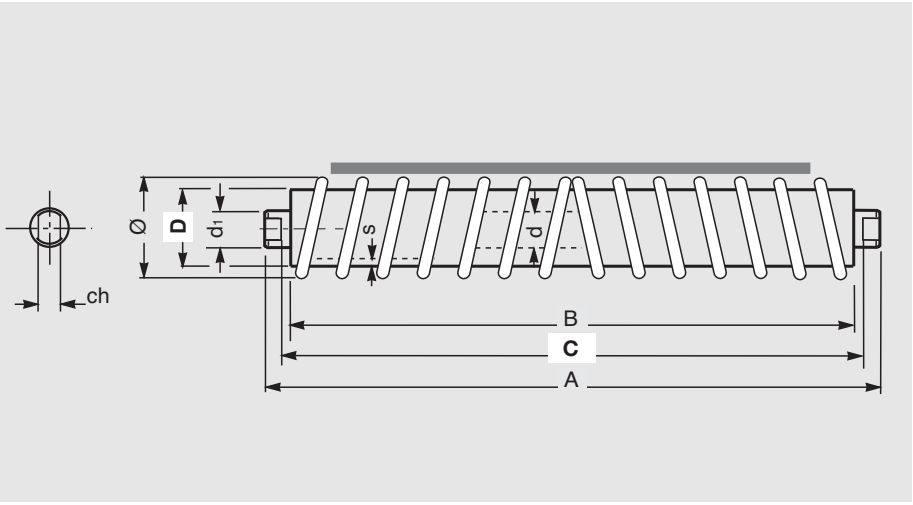
PSV 92
D = 133
spindle 25
bearing 6205
ch = 18
e = 4
g =12

PSV 94
D = 133
spindle 30
bearing 6206
ch = 22
e = 4
g =12

Example of ordering
standard design
PSV 91,20F,108S,758
for special designs
see pages 80-81

belt	**roller**				
width mm	dimensions mm			weight Kg	
arrangement	B	**C**	A	**Ø 108**	**Ø 133**
300	380	**388**	406	6.0	9.8
400	500	**508**	526	6.8	10.5
500	600	**608**	626	7.5	11.3
650	750	**758**	776	8.5	12.5
800	950	**958**	976	9.9	14.1
1000	1150	**1158**	1176	11.3	15.7

series
Self cleaning



60 NS
76 NS

Base roller:

MPS 1
s = 3 ;
spindle15 ; d_1 = 20
bearing 6202
ch = 17

RTL 1
s = 2 ;
spindle 15 ; d_1 = 20
cup and cone bearing
ch = 17

M 1
s = 3 ;
spindle 15 ; d_1 = 20
cup and cone bearing
ch = 17

MPR 15
s = 3 ;
spindle 15 ; d_1 = 20
bearing 6202
ch = 17

Example of ordering
standard design
MPS 1,15B,60NS,758
for special designs
see pages 80-81

belt	roller D 60		ø 76			
width mm	dimensions mm			weight Kg		
arrangement	B	**C**	A	RTL	MPR	MPS-M
300	380	**388**	406	2.5	3.1	3.2
400	500	**508**	526	3.3	4.1	4.1
500	600	**608**	626	3.9	4.8	4.8
650	750	**758**	776	4.8	5.9	5.9
800	950	**958**	976	6.0	7.3	7.4
1000	1150	**1158**	1176	7.2	8.8	8.9

belt	roller D 76		ø 92			
width mm	dimensions mm			weight Kg		
arrangement	B	**C**	A	RTL	MPR	MPS-M
300	380	**388**	406	3.1	3.9	3.9
400	500	**508**	526	4.1	5.1	5.1
500	600	**608**	626	4.7	5.9	5.9
650	750	**758**	776	5.8	7.3	7.3
800	950	**958**	976	7.2	9.0	9.0
1000	1150	**1158**	1176	8.8	10.9	10.9