

BULK HANDLING

CONSTRUCTION OF CONVEYOR BELT ROLLERS

FISATECH

Fisatech s.r.o., Hlavná 361/53, 076 64 Z. Teplica, tel.: 0908 135 761, e-mail: info@fisatech.sk www.fisatech.sk

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CHARACTERISTICS OF MATERIALS			
Type of material	Average weight [t/m³]	Angle of repose [°]	Abrasive ness
Aluminum solid	1,12-1,92	29	M
Asbestos mineral	1,29	45	M
Anthracite brick	1	-	B
Crushed slate	1,36-1,52	28	N
Clay dry fines	1,60-1,92	35	B
Crushed asphalt sieve 13 mm	0,72	45	N
Asphalt binderfor paving	1,30-1,40	-	N
Bakelite powdered	0,45-0,65	45	N
Beet lumps	0,50-0,60	35	N
Beet pulp wet	0,40-0,70	-	N
Barite	2,88	-	B
Bauxite	1,28-1,44	31	A
Natural bentonite	0,80-0,96	-	B
Baking soda	0,65	42	N
Limestone powder	1,28-1,36	-	B
Quicklime	1	45	N
Concrete	2,08-2,40	-	A
Concrete with scrap	1,44-1,70	-	A
Calcium carbide	1,10-1,20	30	B
Barium carbonate	1,15	-	N
Anthracite coal raw	0,80-0,96	27	N
Coal bituminous raw	0,70-0,90	38	N
Coal crushed end	0,70-0,80	-	N
Cement raw	1,60-1,76	-	B
Cement Portland	0,96-1,20	39	B
Coke sweet	0,37-0,56	-	A
Coke dust	0,40-0,56	30-45	A
Sewage sludge moist	0,90	-	N
Feldspar grained 40 ÷ 80 mm	1,44-1,76	34	A
Feldspar sieve 13 mm	1,12-1,36	38	A
Phosphates crushed	1,20-1,40	15	B
Crushed gypsum	1,12-1,28	30	N
Gravel	1,44-1,60	35	M
Graphite ore	1,04-1,20	-	N
Granite screening 13 mm	1,28-1,44	40	A
Wheat	0,64-0,67	25	N
Crushed stoneware	1,36-1,44	40	N
ABRASIVE NESS : N=NOUGHT B=LIGHT M=MEDIUM A=HEAVY			

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CHARACTERISTICS OF MATERIALS			
Type of material	Average weight [t/m³]	Angle of repose [°]	Abrasive ness
Rubber graulosa	0,80-0,88	35	N
Rubber reclaimer	0,40-0,48	32	N
Guano dry	1,12	-	N
Shavings wood	0,20-0,50	30	N
Brick	2,00	-	A
Ore crome	2,00-2,24	-	A
Ore iron crushed	2,16-2,40	-	A
Ore manganese	2,00-2,24	39	B
Ore nichel	2,40	-	A
Ore lead	3,20-4,32	30	B
Marble Crushed	1,44-1,52	-	M
Mele Apples	0,30	-	N
Nitrate ammonium	0,72	30-44	B
Nitrate potassium	1,22	-	B
Nitrite sodium	1,12-1,28	24	N
Calcareous stones	1,35-1,45	30-45	M
Quartz screening 13 mm	1,28-1,44	-	A
Sand fine dry	1,44-1,76	30-35	A
Sand fine moist	1,76-2,08	45	A
Sea marine fine	1,12-1,28	25	B
Sea marine coarse	0,64-0,88	30	B
Sulphate ammonum	0,72-0,93	32	B
Sulphate iron	0,80-1,20	-	B
Sulphate manganese	1,12	-	A
Sulphate potassium	0,67-0,77	-	B
Sulphate copper	1,20-1,36	31	N
Earth foundry	1,28-1,44	32	A
Earth carry-over dry	1,15-1,20	35	B
Shavings steel	1,60-2,40	-	A
Shavings aluminium	0,11-0,24	-	B
Shavings wood	0,16-0,48	-	N
Shavings cast iron	2,08-3,20	-	B
Glass shattered	1,92	35	A
Glass scrap	1,36-1,92	20-30	A
Zinc crushed ore	2,56	38	B
Sulfur crushed	0,96-1,36	30-44	N
ABRASIVE NESS : N=NOUGHT B=LIGHT M=MEDIUM A=HEAVY			

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RECOMMENDED DIAMETERS

Belt width	For speed <2 m/s			For speed 2 ÷ 4 m/s				For speed > 4 m/s	
300	60			76					
400	60	76		76	89				
500	60	76	89	76	89	102			
650	76	89	102	89	102	108			
800	89	102	108	89	102	108	133	133	
1000	102	108	133	102	108	133		133	159
1200	108	133		133	159			133	159
1400	133	159		133	159			133	159
1600	133	159		133	159			133	159
1800	159			159				159	
2000	159			159				159	

TYPE	P200										
L	RPM	10	25	50	100	150	200	250	300	400	500
Roller lenght	C= Roller loads in daN										
200/400	C	199	153	108	78	63	54	48	44	38	34
600		192	150	106	76	62	53	47	43	37	33
800		185	147	104	74	61	52	46	42	36	32
1000		178	144	102	72	59	51	45	41	35	31
1200		165	135	96	68	56	48	43	39	34	30
1400		141	120	85	60	49	41	37	33	29	27
1600		125	105	75	51	42	36	33	29	26	23
1800		107	92	66	46	37	31	29	27	22	19
2000		91	78	54	39	31	27	25	22	18	16
2200		74	64	43	32	26	21	20	18	16	13
TYPE	D	Speed m/sec									
P2003	d 60	0,031	0,079	0,157	0,314	0,471	0,628	0,785	0,942	1,256	1,570
P2004	d 76	0,040	0,099	0,199	0,398	0,597	0,795	0,994	1,193	1,591	1,989
P2006	d 89	0,047	0,116	0,233	0,466	0,699	0,932	1,164	1,397	1,863	2,329

TYPE	P300										
L	RPM	10	25	50	100	150	200	250	300	400	500
Roller lenght	C= Roller loads in daN										
200/400	C	360	293	233	186	164	146	140	127	116	107
600		310	253	201	160	140	126	120	109	101	93
800		282	230	183	145	130	114	109	99	91	84
1000		263	215	169	136	120	108	101	93	85	79
1200		239	198	157	127	111	98	93	85	78	72
1400		220	179	141	113	100	90	85	78	71	65
1600		199	162	130	102	91	81	77	69	63	59
1800		178	144	115	91	81	72	67	62	57	53
2000		156	127	101	79	71	63	59	54	49	46
2200		134	112	87	68	61	52	50	48	42	40
2400		112	91	72	56	51	45	42	40	36	33
TYPE	D	Speed m/sec									
P3001	d 38	0,020	0,050	0,099	0,199	0,298	0,398	0,497	0,597	0,795	0,994
P3003	d 60	0,031	0,079	0,157	0,314	0,471	0,628	0,785	0,942	1,256	1,570
P3004	d 76	0,040	0,099	0,199	0,398	0,597	0,795	0,994	1,193	1,591	1,989
P3006	d 89	0,047	0,116	0,233	0,466	0,699	0,932	1,164	1,397	1,863	2,329
P3007	d 102	0,053	0,133	0,267	0,534	0,801	1,068	1,335	1,601	2,135	2,669

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TYPE	P400										
L	RPM	10	25	50	100	150	200	250	300	400	500
Roller lenght	C= Roller loads in daN										
200/400	C	600	481	382	303	262	239	221	211	190	176
600		556	445	355	280	245	222	206	195	177	163
800		515	411	326	260	224	205	190	180	165	152
1000		475	390	301	239	207	189	175	165	151	140
1200		435	348	276	220	190	176	160	151	138	128
1400		392	315	249	199	171	156	145	136	125	116
1600		356	286	227	180	158	143	131	125	115	106
1800		327	263	208	165	144	132	121	116	106	97
2000		298	238	190	151	132	121	110	105	95	88
2200		268	215	173	139	120	110	99	94	86	80
2400		239	192	153	121	106	95	88	84	77	71
TYPE	D	Speed m/sec									
P4003	d 60	0,031	0,079	0,157	0,314	0,471	0,628	0,785	0,942	1,256	1,570
P4004	d 76	0,040	0,099	0,199	0,398	0,597	0,795	0,994	1,193	1,591	1,989
P4006	d 89	0,047	0,116	0,233	0,466	0,699	0,932	1,164	1,397	1,863	2,329
P4007	d 102	0,053	0,133	0,267	0,534	0,801	1,068	1,335	1,601	2,135	2,669
P4008	d 108	0,057	0,141	0,283	0,565	0,848	1,130	1,413	1,696	2,261	2,826
P4009	d 133	0,070	0,174	0,348	0,696	1,044	1,392	1,740	2,088	2,784	3,480

TYPE	P500										
L	RPM	10	25	50	100	150	200	250	300	400	500
Roller lenght	C= Roller loads in daN										
200/800	C	800	742	588	467	407	371	342	322	293	273
1000		743	690	546	435	378	345	318	300	274	254
1200		688	642	507	402	350	320	296	278	253	235
1400		632	588	466	369	322	294	271	256	233	216
1600		580	536	425	341	295	266	249	233	212	196
1800		522	483	385	306	266	241	223	210	192	177
2000		475	440	350	277	241	220	204	191	175	162
2200		423	393	311	245	215	198	180	169	155	145
2400		377	350	268	198	188	172	156	149	133	126
2600		320	301	232	173	161	150	135	131	115	109
TYPE	D	Speed m/sec									
P5006	d 89	0,047	0,116	0,233	0,466	0,699	0,932	1,164	1,397	1,863	2,329
P5007	d 102	0,053	0,133	0,267	0,534	0,801	1,068	1,335	1,601	2,135	2,669
P5008	d 108	0,057	0,141	0,283	0,565	0,848	1,130	1,413	1,696	2,261	2,826
P5009	d 133	0,070	0,174	0,348	0,696	1,044	1,392	1,740	2,088	2,784	3,480
P5010	d 159	0,083	0,208	0,416	0,832	1,248	1,664	2,080	2,496	3,328	4,161

TYPE	P600										
L	RPM	10	25	50	100	150	200	250	300	400	500
Roller lenght	C= Roller loads in daN										
200/1200	C	1000	932	817	649	566	517	479	450	410	378
1400		972	907	795	631	550	502	465	438	400	368
1600		920	858	752	598	519	475	440	412	377	349
1800		866	807	709	565	489	448	415	390	355	332
2000		813	757	665	530	460	419	375	365	333	311
2200		760	709	622	495	431	393	364	341	310	288
2400		707	660	582	458	401	365	345	318	286	267
2600		655	614	537	422	369	336	315	295	265	246
TYPE	D	Speed m/sec									
P6006	d 89	0,047	0,116	0,233	0,466	0,699	0,932	1,164	1,397	1,863	2,329
P6007	d 102	0,053	0,133	0,267	0,534	0,801	1,068	1,335	1,601	2,135	2,669
P6008	d 108	0,057	0,141	0,283	0,565	0,848	1,130	1,413	1,696	2,261	2,826
P6009	d 133	0,070	0,174	0,348	0,696	1,044	1,392	1,740	2,088	2,784	3,480
P6010	d 159	0,083	0,208	0,416	0,832	1,248	1,664	2,080	2,496	3,328	4,161

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ROLLER DESCRIPTION

ROLLER SKIRT

This is a tube in hot-rolled steel in accordance with UNI-EN 10219-1 Fe S235JRH standards

BEARING HEADS

Made of sheet metal in accordance with UNI-EN 10139 Fe DC05LC pressed and calibrated with ISO M 7 tolerance

SHAFTS

Drawn in steel made in accordance with UNI-EN 10233 Fe C40 standards

BEARINGS

Rigid radial ball bearings from leading brands

PROTECTIONS

The protections are made of polyamide resin with double or triple labyrinth seals, mounted on steel closures made in accordance with UNI-EN 10139 standards treated electro-galvanically in accordance with UNI-ISO 2081

CONSTRUCTION TOLERANCES

The degree of tolerance of the linear dimensions in the construction of the rollers corresponds to the mean wording in accordance with ISO 2768-1 standards.

PRODUCTION AND FACING OF TUBE ON REQUEST

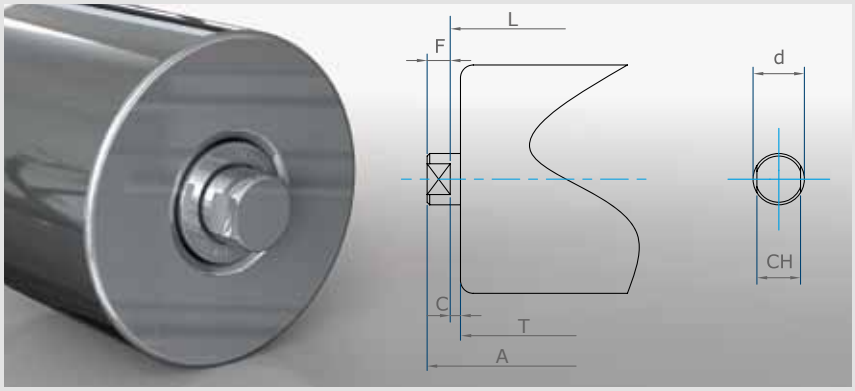
AISI 304 stainless steel
AISI 316 stainless steel
aluminium
PVC sheath facing
Rubber sheath facing

WARRANTY

For the purposes of the warranty, use the product according to specifications provided in this catalog.

All the dimensions are subject to machining tolerances and even though the drawings and illustrations are faithful nevertheless they are not binding.

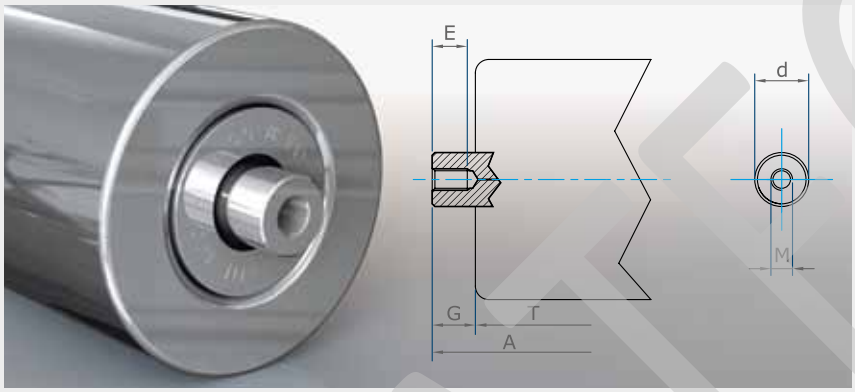
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TYPE “A” COUPLING FORM

A milling operation is carried out on the roller shaft in order to obtain the key for the insertion of the various supports.

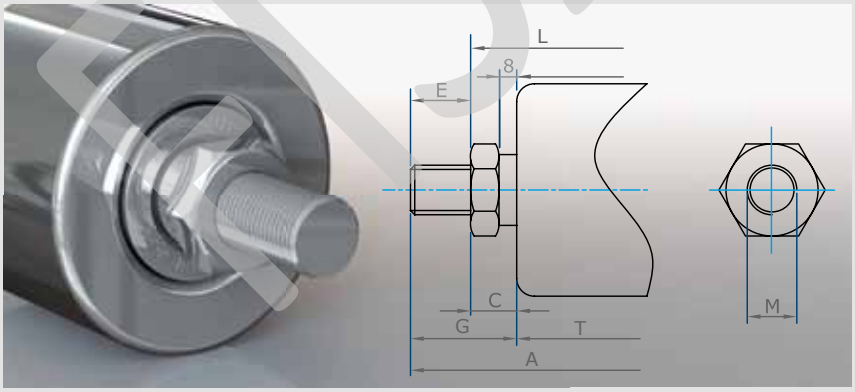
TYPE “A”	P200 SERIES	P300 SERIES	P400 SERIES	P500 SERIES	P600 SERIES
C	4	4	4	4	4
F	9	9	9	12	12
d	20	20	20	25	30
CH	17	17	14/17	17/18	22



TYPE “B” COUPLING FORM

A drilling and internal threading operation is carried out on the roller shaft for fixing it to the structure.

TYPE “B”	P200 SERIES	P300 SERIES	P400 SERIES	P500 SERIES	P600 SERIES
G	13	13	13	13	13
E	15	15	20	20	25
d	15	15	20	25	30
M	08/10	08/10	10/12	14	16

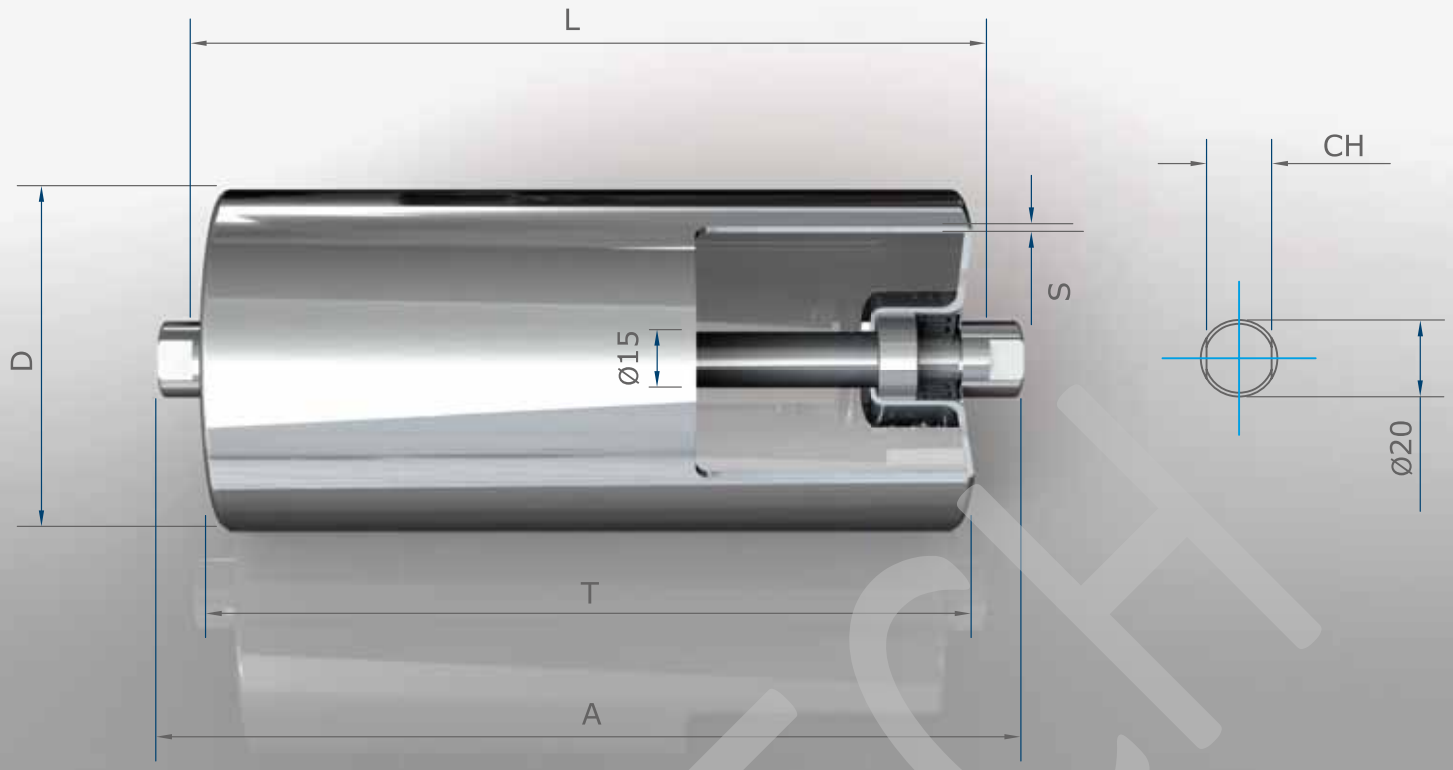


TYPE “C” COUPLING FORM

A turning and external threading operation is carried out on the roller shaft for fixing it to the structure.

TYPE “C”	P200 SERIES	P300 SERIES	P400 SERIES	P500 SERIES	P600 SERIES
G	35	35	45	48	55
C	18	18	18	22	22
E	17	17	27	28	35
M	14	14	20	24	27

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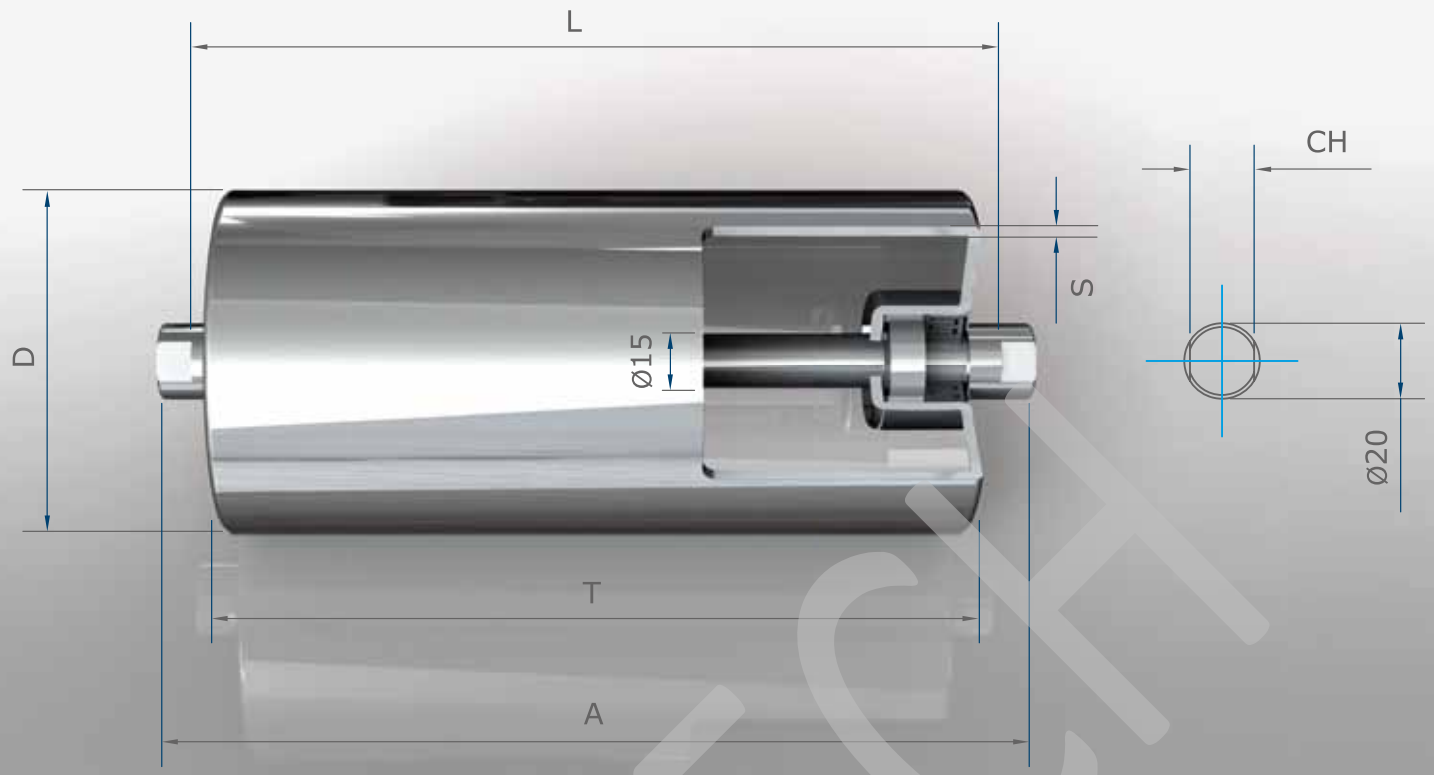
P200 IDLER ROLLERS								
CODE	D	S	L	T	A	CH	WEIGHT L 200	BY CM
P 2003	60	2	T+8	L-8	L+18	17	1,04	0,05
P 2004	76						1,39	0,06
P 2006	89						1,63	0,08

** The dimensions in the table refer to a type "A" form of coupling.*

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PRODUCT DESCRIPTION

Idler rollers made of steel protected by double-labyrinth seals mounted on permanently-lubricated oblique bearings. Tube with constant thickness and bearing heads combined by tapering. The rollers are used in conveyor belts with light loads at medium-high speed, even in environmental conditions that are not ideal.



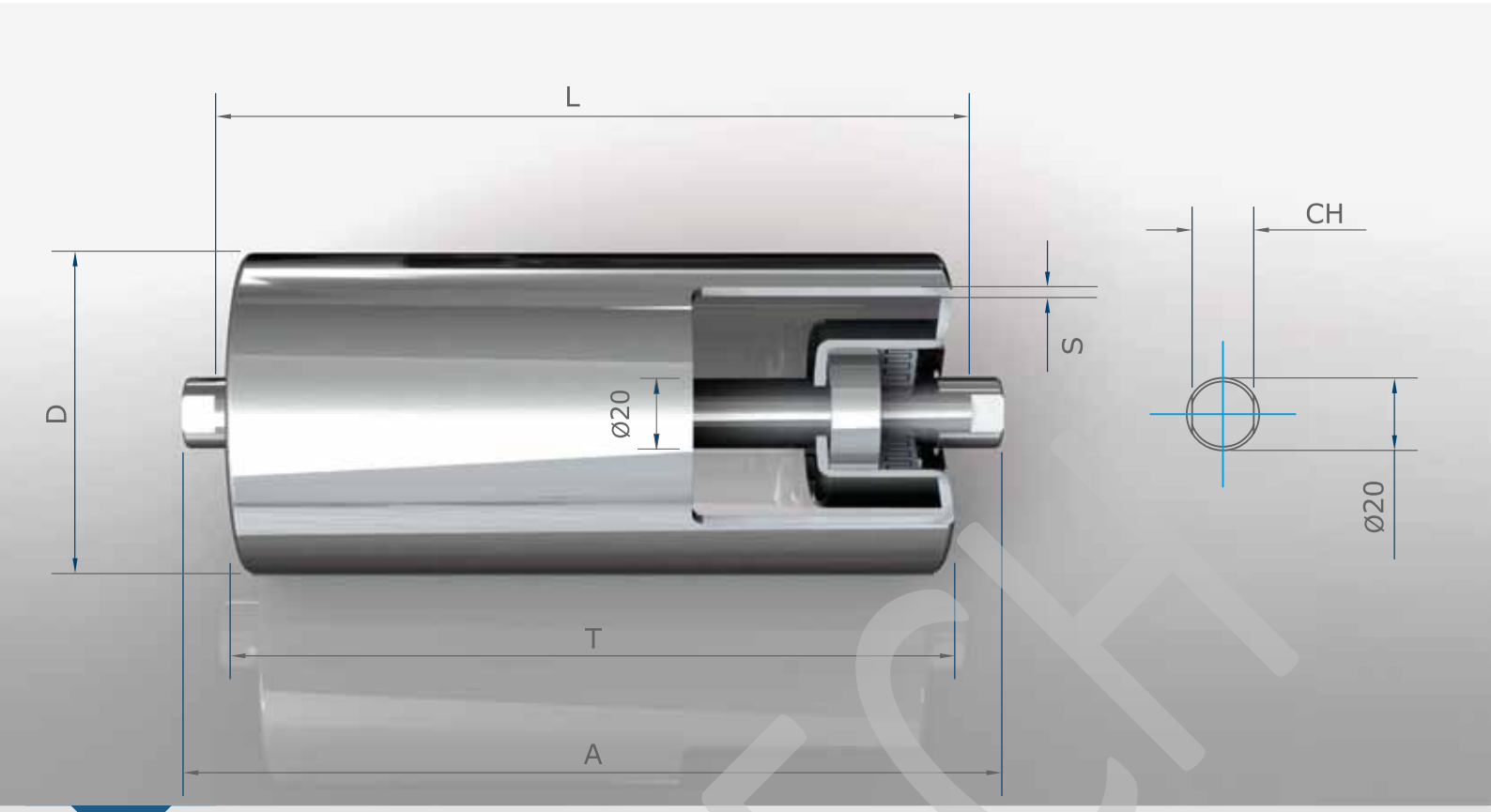
P300 IDLER ROLLERS								
CODE	D	S	L	T	A	CH	*WEIGHT L 200*	*BY CM*
P 3001	38	3	T+8	L-8	L+18	17	0,92	0,04
P 3003	60						1,38	0,06
P 3004	76						1,73	0,07
P 3006	89						2,05	0,09
P 3007	102						2,45	0,10

** The dimensions in the table refer to a type "A" form of coupling.*

PRODUCT DESCRIPTION

Steel idler rollers with double labyrinth seals mounted on name brand, lifetime lubricated 6202 precision ball bearings.
Tube with continuous thickness and heads joined by welding.
The rollers are using in conveyor belts with medium loads at high speed, even in unfavourable environmental conditions.

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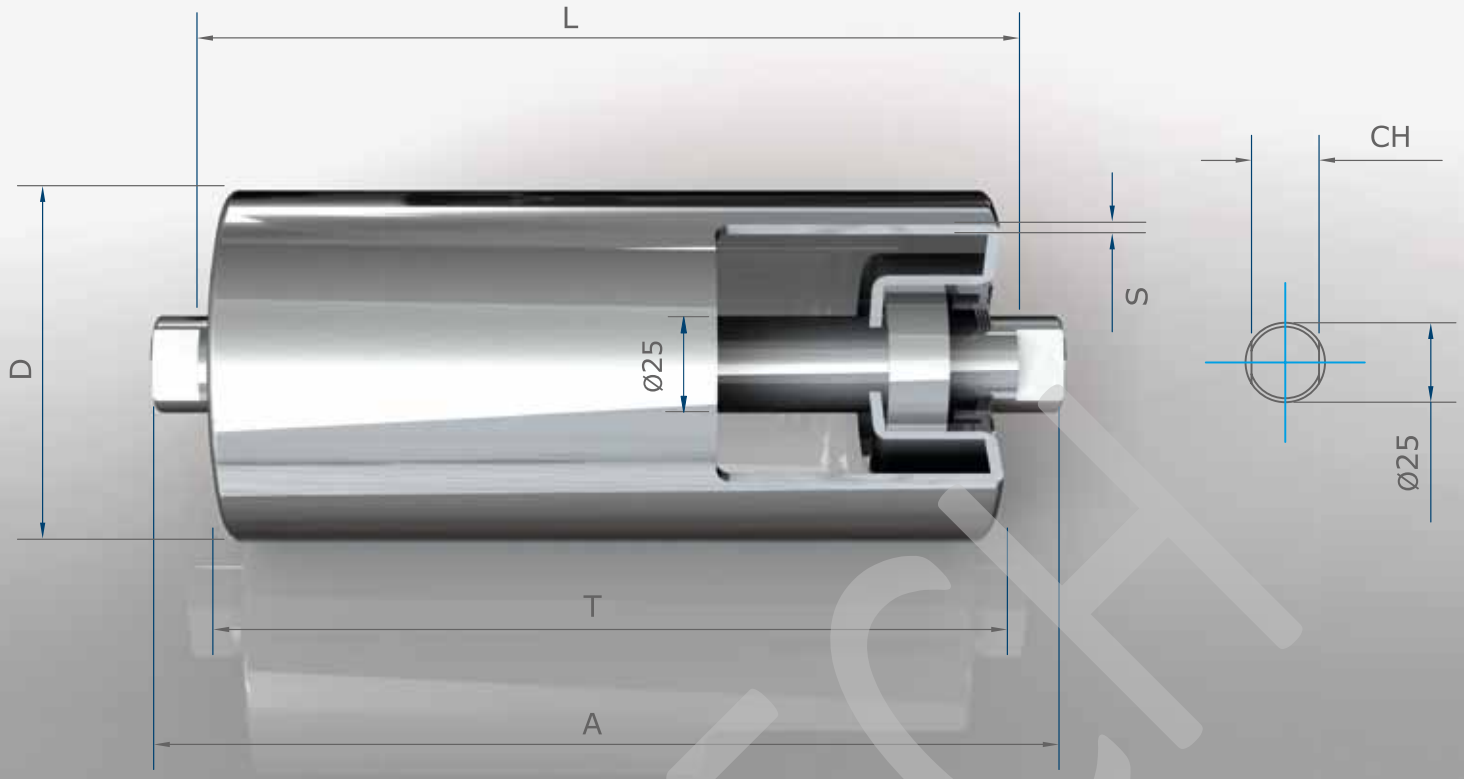
P400 IDLER ROLLERS								
CODE	D	S	L	T	A	CH	WEIGHT L 200	BY CM
P4003	60	3	T+8	L-8	L+18	14/17	1,82	0,07
P4004	76						2,21	0,08
P4006	89						2,54	0,09
P4007	102						2,88	0,11
P4008	108	3,5					2,97	0,12
P4009	133	4					3,90	0,16

** The dimensions in the table refer to a type "A" form of coupling.*

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PRODUCT DESCRIPTION

Steel idler rollers with triple labyrinth seals mounted on name brand, lifetime lubricated 6204 precision ball bearings.
Tube with continuous thickness and heads joined by welding.
The rollers are using in conveyor belts with heavy loads at high speed, even in unfavourable environmental conditions.



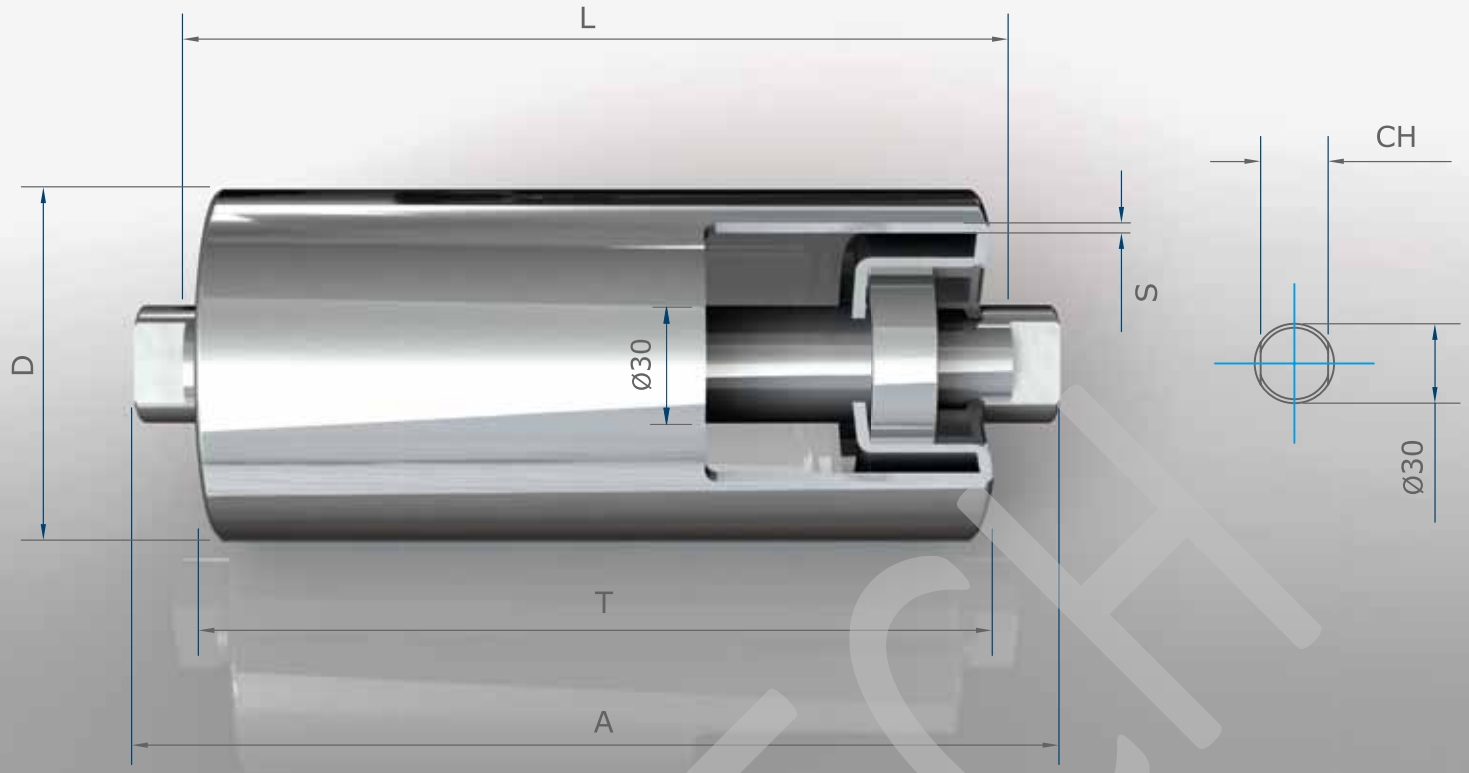
P500 IDLER ROLLERS								
CODE	D	S	L	T	A	CH	WEIGHT L 200	BY CM
P5006	89	3	T+8	L-8	L+24	17/18	3,10	0,10
P5007	102						3,29	0,11
P5008	108	3,5					3,72	0,13
P5009	133	4					4,57	0,16
P5010	159						5,37	0,19

** The dimensions in the table refer to a type "A" form of coupling.*

PRODUCT DESCRIPTION

Steel idler rollers with triple labyrinth seals mounted on name brand, lifetime lubricated 6205 precision ball bearings.
Tube with continuous thickness and heads joined by welding.
The rollers are used in conveyor belts with very heavy loads at high speeds even in poor environmental conditions.

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P600 IDLER ROLLERS								
CODE	D	S	L	T	A	CH	WEIGHT L 200	BY CM
P6006	89	3	T+8	L-8	L+24	22	3,80	0,12
P6007	102						4,21	0,13
P6008	108	3,5					4,41	0,15
P6009	133	4					5,42	0,18
P6010	159						6,37	0,21

* The dimensions in the table refer to a type “A” form of coupling.

PRODUCT DESCRIPTION

Steel idler rollers with triple labyrinth seals mounted on name brand, lifetime lubricated 6206 precision ball bearings.
Tube with continuous thickness and heads joined by welding.
The rollers are used in conveyor belts with very heavy loads and high speed even in poor environmental conditions.

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