Special bearings for steel industry
The realization of this catalog occurred in tighter of data contained therein. Due to the ongoing technical evolution of our products, we reserve the right to make changes, even partial.

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Catalog 01-0001 MILL, January 2014
INTRODUCTION

This catalogue provides an overview of the products made – partly in outsourcing – by DISTITEC S.R.L. and employed in the steel and mechanical industry. The bearings described in this catalogue are mainly used in the flattening and straightening lines of steel sheet, stainless steel sheet and aluminum sheet, but also in rolling mills on the rolling cylinder necks, in overhead conveyors and in many applications of the mechanical industry such as lifting vehicles, naval cranes, palletizes, solar panels, wind turbines, wood processing machines, radars, bottling machines, revolving lifting clamps, welding robots, revolving tables and others.

DISTITEC S.R.L. relies on qualified and certified technicians with a long experience in this field and equipped with advanced machine tools to produce high precision mechanical parts.

DISTITEC performs the design, assembling and testing of its products and provides an efficient technical assistance to the customer. After sizing the bearings and executing the construction drawings we follow the order progress: the components are worked, checked, tested and assembled. Finally, we execute the final testing. If the assembled bearing is in accordance with the technical requests and the roller bearing standards, it is ready to be packed and shipped. Our stock can meet the customers’ requests with a short delivery time.

ADRESS
Via Bonina est 10
29010 San Nicolò
Rottofreno
Piacenza - ITALY

PRODUCTION
Design, assembled and check
Standard and special applications to design rolling bearings for industrial applications

CONTACT
Tel. 0523 480579
Fax. 0523 1900714
info@distitec.com
www.distitec.it
www.distitec.com
INTRODUCTION

The steel industry sector is the latest challenge that DISTITEC S.R.L. is facing. The technology in this sector is constantly improving and over the past few years DISTITEC S.R.L. has achieved excellent quality results as regards the single and with stud back up rollers for sheet flattening and straightening machines, scissors, rolling mills and conveyor belts.

The back-up rollers and the other kinds of bearings that DISTITEC S.R.L. produces allow better working conditions for the plants in which they are employed.
Single cylindrical back-up rollers for metal flattening machines and straightening plates have the following characteristics:

The outer and inner ring is supplied in 100Cr6 core hardened steel (UNI 3097) that can reach hardness 60-2 HRC. Once seen the condition of coupling with working cylinders, the degree of hardness can be reduced to 53 HRc for those bearings for the flattening of very thin sheets.

The profile of the outer ring is usually cambered in order to optimize the distribution of the applied load. For the outer rings of large thickness is used 100CrMo7.3 (UNI 3097) core hardened steel. On request are performed particular hardening. Inner ring presents holes for internal periodic lubrication.

The full-complement of cylindrical rollers ensures the highest load capacity possible. The seal system can be either with screens formed by metal rings or through the radial seal with steel sliding parts in NBR or FKM.

Precision class generally is P0 (DIN 620); on request the rollers can be manufactured with precision class P5 or P6. On request, they can be manufactured in stainless steel.
Single cylindrical back-up rollers are built with two or more rings at full complement of cylindrical rollers bearings, separated by distance ring integrated in outer ring.

This back up roller is particularly suitable to work with high radial loads; thanks to its toughness, it maintains all its primary technical characteristics for a long flattening lifetime.

These bearings provide good axial load capacity suitable to counteract the axial thrusts that occur, inevitably, in the above mentioned applications.

| DSTR 2048 | 27 | 36 | 48 | 20 | 36 | 53 | 1.935 |
| DSTR 2552 | 40 | 42 | 52 | 25 | 38 | 60 | 1.730 |
| DSTR 3072 | 40 | 42 | 72 | 30 | 73 | 105 | 1.280 |
| DSTR 3080 | 44 | 48 | 80 | 30 | 85 | 141 | 1.150 |
| DSTR 3580 | 50 | 54 | 80 | 35 | 103 | 163 | 1.150 |
| DSTR 4080 | 63 | 54 | 80 | 40 | 39.5 | 32 | 3.570 |
| DSTR 4090 | 63 | 35 | 90 | 40 | 57 | 62 | 850 |
| DSTR 45100 | 61 | 40 | 100 | 45 | 85.5 | 76 | 900 |
| DSTR 50120 | 65 | 58 | 120 | 50 | 161 | 245 | 800 |
| DSTR 55140 | 56 | 60 | 140 | 55 | 180.5 | 209 | 500 |
| DSTR 60135 | 42 | 44 | 135 | 60 | 155 | 150 | 600 |
| DSTR 60160 | 100 | 104 | 160 | 60 | 476 | 806 | 610 |
| DSTR 65130 | 42 | 44 | 130 | 65 | 150 | 143 | 660 |
| DSTR 65150 | 51 | 55 | 150 | 65 | 220 | 324 | 620 |
| DSTR 70150 | 61 | 63 | 150 | 70 | 223.5 | 259 | 570 |
| DSTR 75210 | 146 | 148 | 210 | 75 | 765 | 1.433 | 490 |
| DSTR 80200 | 88 | 92 | 200 | 80 | 482 | 870 | 375 |
| DSTR 90180 | 98 | 102 | 180 | 90 | 493 | 1.107 | 450 |
| DSTR 100210 | 100 | 101 | 210 | 100 | 560 | 978 | 420 |
| DSTR 120200 | 55 | 57 | 200 | 120 | 311 | 632 | 390 |
| DSTR 120250 | 90 | 94 | 250 | 120 | 611 | 1.112 | 370 |
| DSTR 120280 | 121 | 124 | 280 | 120 | 892 | 1.665 | 350 |

C = Dynamic radial load
C₀ = Static radial load

For any further request or technical information, please consult our technical department.
TECHNICAL SPECIFICATIONS FOR BACK-UP ROLLERS WITH PIVOT

1 – Outer ring
2 – Washer
3 – Distance ring
4 – O-Ring
5 – Seeger
6 – Pressure spring
7 – Pivot
8 – Radial roller cage
9 – Thrust bearing
10 – V-ring

Back-up rollers with pivot for metal flattening machines and straightening plates have the following characteristics:

The outer ring is supplied in 100Cr6/100CrMo7 core hardened steel (UNI 3097) that can reach hardness 60+2 HRC. Once seen the condition of coupling with working cylinders, the degree of hardness can be reduced to 53 HRc for those bearings for the flattening of very thin sheets.

The profile of the outer ring is usually cambered in order to optimize the distribution of the applied load. The pivot is made in two different steel types, according to dimension and shape:

Core hardened steel UNI 100Cr6 / 100CrMo7, case hardened steel UNI 18NiCrMo5. In both cases the degree of hardness is 60-HRC.

The bearings have a grease lubrication system and are supplied already pre-lubricated. The lubrication system foresees both the entrance and the exit of grease. They can be supplied also in Long-life execution.

The sealing system is very efficient, it does not allow outer agents (such as, dust, mill scale, humidity) to enter the back-up roll; at the same time, it prevents the leakage of grease.

Precision class is P0; on request the rollers can be manufactured with precision class P5 or P6. On request, they can be manufactured in stainless steel.
These DISTITEC products are very specific and can perform various executions. For this reason we prefer not to provide a list of products, but assess each individual customer’s request.

In the table below we indicated a range of production, in relation to the size that our machines allow us to perform.

In the images below, some designs ever built.
Four-row and six-row cylindrical roller bearings are generally used on the neck of milling cylinders, of calenders and of cylinder presses. They are particularly suitable on high speed steel mills.

Thanks to the high quantity of rolling raceways, the radial load capacity is extremely high.

The MULIROW tolerate only radial load for this reason are mounted in combination with types able to support axial loads.

For-row and six-row cylindrical roller bearings are dismountable, that is to say, the outer ring and the cages form a unique body named “R” and can be fixed independently from the inner ring.

DISTITEC S.R.L. MULIROW are produced with a cylindrical hole, but some of them are available with tapered hole.

Given the wide variety of executions (top only some of the many) and sizes, will be displayed in tab only the min and max limits sizes bearing constructible. For a complete and detailed view please refer to the technical catalog specifically related to the bearings in question.

<table>
<thead>
<tr>
<th>Production range</th>
<th>d</th>
<th>D</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>Minimum size</td>
<td>105</td>
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<td>71</td>
<td>71</td>
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<tr>
<td>Maximum size</td>
<td>1400</td>
<td>1900</td>
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<td>1360</td>
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</table>
MULTIROW have the following characteristics:

**Outer and inner rings** are mainly supplied in UNI 100Cr6 / 100CrMo7 core hardened steel and reach hardness 60-2HRC. Some implementations include the use of 18NiCrMo5 (UNI 7846) case-hardening steel.

**Loose ribs and distance ring** are supplied in 100Cr6 or 100CrMo7 (UNI 3097) core hardened steel and can reach hardness 60+2 HRc.

**Double pronged machined cage** are supplied in bronze or brass and it are subjected to a special working process to remove any burrs. On request are built in structural-steel, for those applications where it is necessary to have a stronger cage design.

Multirow are manufactured in P6/P5 precision class.

Multirow bearings undergo stabilization treatment, which allows their use with temperatures up to 150° C, without any particular dimensional change. On request, stabilized bearings for working temperature up to 250° C can be supplied.

**PAY ATTENTION !!!**

FOR A BETTER VIEW OF THIS KIND OF PRODUCTS PLEASE SEE THE CATALOGUE “DS 0001 PZW” ON THESE BEARINGS TO SEE THE CHARACTERISTICS OF OUR NEW EXECUTION SUITABLE TO OBTAIN BETTER PERFORMANCE.
**DISTITEC S.R.L.** PRESSURE ROLLS derive from full complement cylindrical rollers bearings. The outer ring shows three entire borders, one section and one outer surface which is highly resistant to wear.

The inner ring is made of two parts, each one has an entire border expressly developed in order to bear high axial thrusts, in addition to radial loads. Pressure rolls do not need maintenance.

Originally they are used in the continuous furnaces of sintering plants. They are massive bearings ready to be fixed, are also suitable for all applications where are present high loads and the direction of rotation is reversed often, or there are low speeds.

<table>
<thead>
<tr>
<th>d</th>
<th>d₁</th>
<th>D</th>
<th>D₁</th>
<th>B</th>
<th>r₁,r₂</th>
<th>C</th>
<th>C₀</th>
<th>Cₜ</th>
<th>Cₜw</th>
<th>Weight</th>
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<td>[mm]</td>
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<td></td>
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<td></td>
<td>[kN]</td>
<td></td>
<td>[Kg]</td>
<td>[Kg]</td>
<td></td>
</tr>
<tr>
<td>RP 1000</td>
<td>110</td>
<td>157</td>
<td>210</td>
<td>158</td>
<td>110</td>
<td>2</td>
<td>402</td>
<td>610</td>
<td>255</td>
<td>325</td>
</tr>
<tr>
<td>RP 1001</td>
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<td>157</td>
<td>210</td>
<td>158</td>
<td>114</td>
<td>4</td>
<td>550</td>
<td>915</td>
<td>330</td>
<td>455</td>
</tr>
<tr>
<td>RP 1002</td>
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<td>250</td>
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<td>2100</td>
<td>4400</td>
<td>1100</td>
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\( C = \) Radial dynamic load rating
\( C₀ = \) Radial static load rating
\( Cₜ = \) Radial dynamic load rating as a roller
\( Cₜw = \) Radial static load rating as a roller

**SUFFIX**

BH1 = Bainitic hardening on inner and outer ring
BH2 = Bainitic hardening on outer ring

For any further request or technical information, please consult our technical department
Pressure rolls have the following technical characteristics:

The outer ring and the inner ring are manufactured in core-hardened 100CrMo7 (UNI 3097) steel. This type of steel guarantees an excellent distribution of core-hardening.

In order to increase the resistance to wear – due to high load and contamination of outer agents – pressure rolls usually undergo bainitic temper treatment with the following suffixes: BH1 means bainitic temper of both rings, BH2 means bainitic temper only of the outer ring. The degree of hardness can reach 60+2 HRc.

Pressure rolls usually work at high temperatures, therefore they undergo stabilization treatment up to 250° C.

The sealing system foresees the presence of O-ring made FKM material (VITON), which are inserted in the proper grooves on the inner ring. The seals allow the bearing to be disassembled, they prevent the entrance of contaminating agents and in the meantime, the leakage of lubricant.
**FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS**

*DISTITEC* Full-complement cylindrical rollers for conveyor belts, are manufactured with a different profile of the outer ring. They are mainly used as support bearings in conveyor belts for coils. The execution with cylindrical rollers is generally used with high radial loads, as this can absorb distortions and dilatations.

The entire borders obtained in the outer ring allow the absorption of average axial thrusts.

<table>
<thead>
<tr>
<th></th>
<th>d</th>
<th>D</th>
<th>D₁</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>C₀</th>
<th>V&lt;sub&gt;max&lt;/sub&gt;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>[mm]</td>
<td>[kN]</td>
<td>[rpm]</td>
<td>[Kg]</td>
<td>[Kg]</td>
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<tr>
<td>DSTRC 4200</td>
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<td>95</td>
<td>100</td>
<td>470</td>
<td>580</td>
<td>300</td>
</tr>
</tbody>
</table>

C = Radial dynamic load rating
C₀ = Radial static load rating

All these bearings have the possibility of internal lubrication

For the right execution add suffix “A” or “B” or “C” to the standard code

Per qualsiasi altra richiesta o informazione tecnica si prega di consultare il nostro ufficio tecnico
Generally the cylindrical rollers bearings have the following technical characteristics:

The **outer ring** is usually manufactured in case-hardening steel 16NiCr4/20CrMo (UNI 7846) steel for low capacities and 18NiCrMo5 (UNI 7846) for high capacities.

These steels can reach hardness degree of 60-2 HRc.

The profile of the outer ring is available in three different executions:
1) Ring with outer surface without borders
2) Ring with one guide border on the outer surface
3) Ring with double guide border on the outer surface

The **inner ring** is manufactured in hardening and tempering steel 100Cr6 (UNI 3097) and can reaches hardness degree of 60+2 HRc.

Grease internal lubrication is made through a groove and holes in the inner ring surface.

The protection system can be made with steel shields or with elastic layered steel rings.

Considering the application of the cylindrical rollers, we can supply execution with radial clearance C3 or C4 and stabilizing heat treatment up to 250°, on request.
DISTITEC S.r.l.
Via Bonina Est. 10
29010 San Nicolò di Rottofreno
PIACENZA – ITALIA

CONTACTS:
Tel. 0523 480579
Fax. 0523 1900714
E-Mail: info@distitec.it
Web site: www.distitec.it