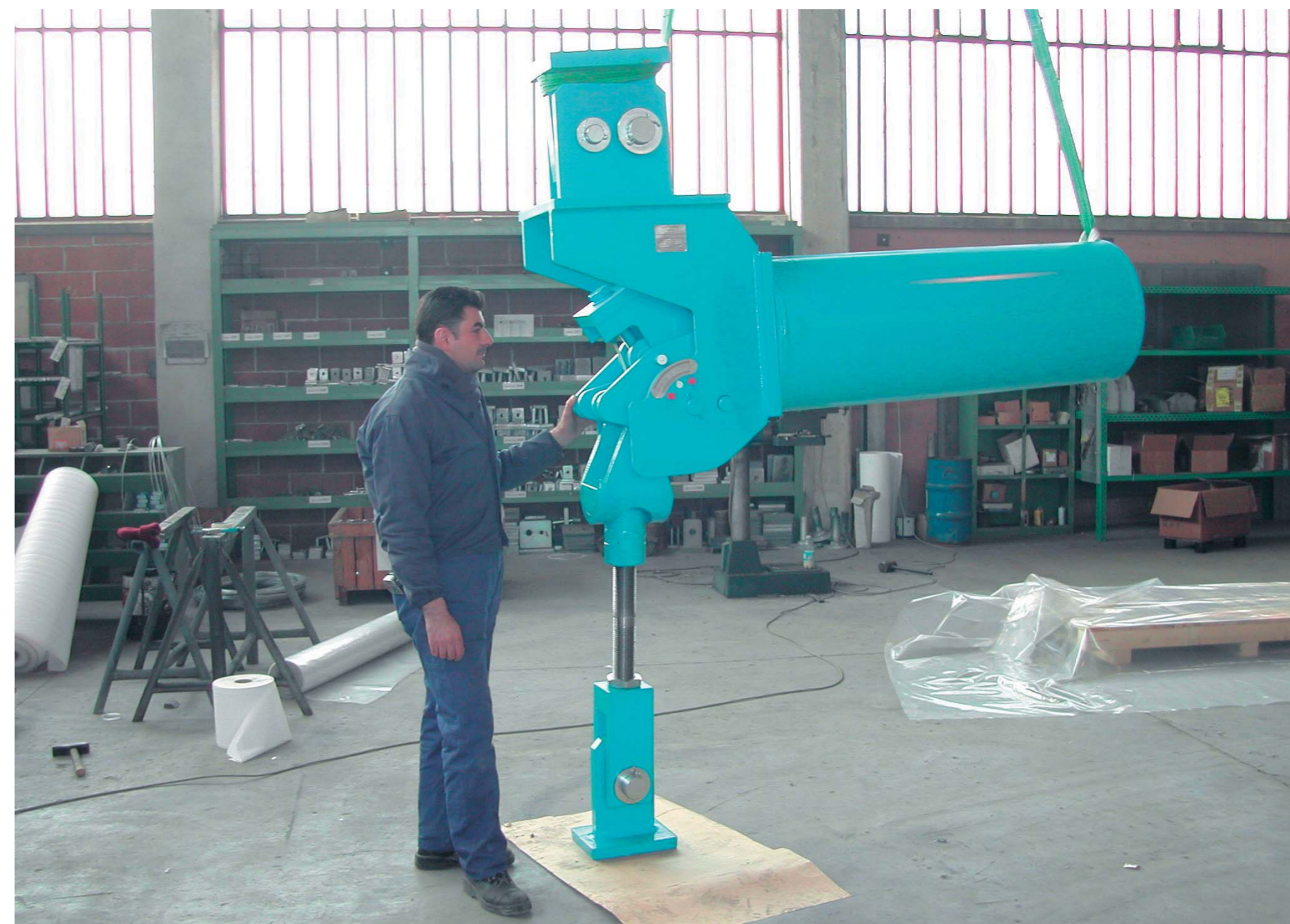


GENERAL NOTES

Elastic supports with a constant load are used to support the weight of pipes which have vertical shifts in the points of support because of temperature variations and other reasons. Ca.S.T.Im. 2000 supports with a constant load, whose kinematics in different versions is shown in the picture, are essentially composed of a helicoidal spring, a bell crank linked to the spring by means of a jointed tie rod and a frame. Kinematics occur as follows: when the lever rotates around the main pivot, the C load which contrasts the spring action maintains the value constant. The load calibration and regulation of Ca.S.T.Im. 2000 supports with constant load is carried out by changing the b length of the lever arm which is subject to the spring action.



FUNCTIONAL CHARACTERISTICS

We manufacture three different versions of Ca.S.T.Im. 2000 supports with a constant load: each of them are divided into 7 size groups and the total amount is 30; for each size there are different execution types intended to satisfy different installation requirements and for each execution type there are different total working strokes divided in 2 series. All the executions for supports having a constant load are described in the schedule. To identify a support having a constant load, one should indicate version, size, type, and the total working stroke. Upon request we can supply supports having a constant load with loads and/or maximum strokes bigger than those we standardly produce. We can also supply execution types different from those we standardly produce.

Ca.S.T.Im. 2000 supports with a constant load are projected and manufactured in order to:

- **guarantee a perfect reliability of service**
- **make installation easier**
- **facilitate control during operations.**

The quality of materials, suitable to be easily welded together, as well as low stress levels, to which the different support components are subject during operation, guarantee reliability of service. Our supports having a constant load are designed to be produced in small series by using suitable equipment which remarkably lowers manufacturing times and speeds up deliveries.

As described above, supports having a constant load are basically composed of:

- **a frame unit composed of shaped plates welded together**
- **a lever unit composed of shaped plates and sleeves welded together**
- **a spring unit similar to the one used for supports having a changeable load composed of a casing containing the pre-stressed spring**

All the units are assembled by means of mechanical equipment (tie rods, pivots etc.) and not by welding.

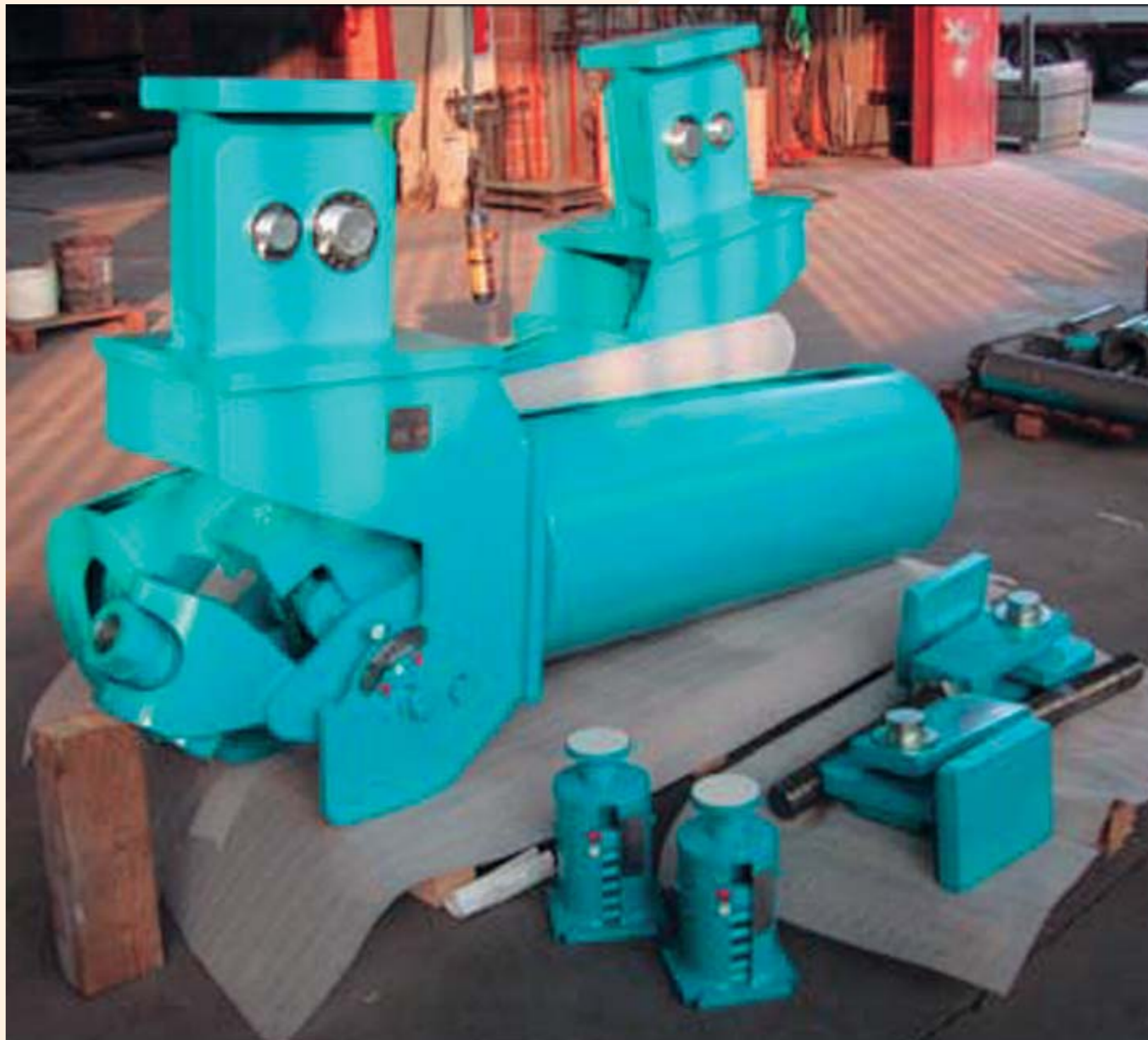
Therefore the surface protection of the units (painting, zinc coating etc) can be performed before assembling offering big advantages. All the joints of the supports having constant load are manufactured with fixed pivots around which there is a rotation of movable parts with bushes and thrust bearing fifth wheels with the following features:

- **no lubrication is required**
- **unlimited duration at the specific usage conditions**
- **friction coefficients remain unchanged during time**
- **no first separation friction**
- **their characteristics remain unchanged if operation temperature varies from -30 to +250 °C**
- **suitability for alternate movements**
- **high bump resistance**

Springs used for assembling supports with constant load are manufactured with high quality alloy steel round bars and are dimensioned at broad safety margins, both for strains and maximum working arrows. The springs can be compressed so as all the coils are in contact with each other while strains values are under the elastic limit of the material.



For technical details see catalogue



DELIVERY & SURFACE FINISH

Supports having a constant load are delivered with the lever set at the idle position; the lever is fixed at the frame sides by means of a fastening pin which obstructs any movements. If the value and the direction of vertical shifting of the fixing point of pipes are not indicated when ordering, the supports will be delivered with lever set at zero on the angular strokes scale. Ca.S.T.Im. 2000 supports with a constant load are delivered with a load regulation device enabling, when necessary and at a high accuracy level, to obtain variations of the operation load within a minimum range of $\pm 10\%$.

Upon request our supports with a constant load can be delivered with screw couplings having different thread types from those reported on the dimensional schedules.

The surface of Ca.S.T.Im. 2000 supports with a constant load is protected by spray painting using an anti-rust varnish. If hot dip galvanizing is required in case of particular environmental conditions, the springs will be coated with neoprene or similar products. Since, as specified above, Ca.S.T.Im. 2000 supports with a constant load are assembled by means of mechanical equipment and not by welding, surface protection is easily performed on the support components before assembling, in order to guarantee a high effective protection level.

ORDERING

When ordering a support having a constant load, you must indicate version, total stroke, operation type, size, diameter of the tie rod to be connected to the pipes and surface protection type.

For instance: if you order a Ca.S.T.Im. 2000 support with a constant load - version **H**, total stroke **100** mm, size **19**, type **A**, you should write:

SC	H	100	A	19
constant support	version	total stroke	type	size

To enable calibration you should specify the value of the operation load and the value and direction of vertical shifting of the pivot point. As a rule, to indicate the shift direction you should assign a positive sign to vertical upward movements and a negative sign to vertical downward movements.

If this information is not available, the support will be delivered, as described in the previous paragraph "Delivery & Surface finish", with the lever set at zero on the angular strokes scale. If, because of a lack of accurate information, it is not possible to find out the precise characteristics of the supports having a constant load, in order to start manufacturing it is sufficient to indicate the series of total stroke and the size group.

Here, as in the previous example, you should write:

SC	H	I	A	4
constant support	version	series	type	group



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GENERAL NOTES

Elastic supports having a variable load are used to support the weight of pipes with vertical shifts in the points of support because of temperature variations and other reasons. Ca.S.T.Im. 2000 supports with a variable load are basically composed of a helicoidal spring with a piston operating on it and to which a load compressing the spring is applied. The whole is located in a cylindrical casing which is composed of two bent sheets, which are welded together to two annular plates: for this reason the casing has two longitudinal slits which enable the inspection of all the spring coils.

definitive supports by inserting the turnbuckles and welding the fastening plates designed for different types of operations.



FUNCTIONAL CHARACTERISTICS



max. working strokes bigger than those of our standard production. For instance: supports similar to FG types, provided with rolls enabling axial movements at the bearing points of pipes.

Ca.S.T.Im. 2000 supports with a variable load are projected and manufactured in order to:

- **guarantee a perfect reliability of service**
- **make installation easier**
- **facilitate control during operations**

Quality materials as well as low stress levels, to which the support components are subject, guarantee reliability of service. Our supports with a variable load are designed to be produced in small series by using suitable equipment which remarkably lowers manufacturing times and speeds up deliveries.

As described above, supports with a variable load are basically composed of:

- **a spring unit having a casing containing the pre-stressed spring**
- **fastening equipment for the structure according to the customer's requests**
- **fastening equipment for pipes according to the customer's requests**

All units are assembled together by welding, after sand blasting each element.

Ca.S.T.Im. 2000 supports with a variable load have the following features:

- **no lubrication is required,**
- **unlimited duration at the specific usage conditions**
- **friction coefficients remain unchanged during time**
- **support characteristics remain unchanged if operation temperature varies from -30 to +250 °C**
- **suitability for alternate movements**
- **high bump resistance**

Springs used to assemble supports with a variable load are manufactured with high quality alloy steel round bars and are dimensioned at broad safety margins, both for strains and maximum working arrows. The springs can be compressed so as all the coils are in contact with each other while strains values are under the elastic limit of the material.

For technical details see catalogue

DELIVERY & SURFACE FINISH

Supports with a variable load are delivered with the spring set at the calibration load; the piston is fixed at the casing by means of fastening pins which obstruct any movements. If the values of operation load and of vertical shifting direction of the fixing point of pipes are not indicated when ordering, the supports will be delivered with springs set at zero on the strokes scale. Upon request our supports with a variable load can be delivered with screw couplings having different thread types from those reported on the size tables.

The surface of our supports with a variable load is protected by spray painting using an anti-rust varnish. If hot dip galvanizing is required in case of particular environmental conditions, the springs will be coated with neoprene or similar products and the upper plates will be bolted to their containing parts.

In highly corrosive environments, and/or in high temperature conditions, there is an entirely welded stainless steel type, which can be manufactured upon request, having stainless steel springs.



ORDERING

When ordering a support with a variable load, you must indicate series, size, operation type and the diameter of the tie rod to be connected to the pipes, the type and colour of surface protection.

For instance: if you order a Ca.S.T.Im. 2000 support with variable load - series **2**, size **230**, type **A**, you should write:



SV	2	230	A
Variable support	Series	Size	Type

To enable calibration you should specify the value of the operation load and the value and the direction of vertical shifting of the pivot point. As a rule, to indicate the shift direction you should assign a positive sign to vertical upward movements and a negative sign to vertical downward movements.

If this information is not available, the support will be delivered with the spring set at a minimum working load value, that is at zero on the strokes scale. When ordering type G supports with a variable load, you should indicate the interaxis value of the tie rods and the selection must be executed on half the total load.

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GENERAL DESCRIPTION

Ca.S.T.Im. 2000 s.r.l. roll spring hangers are used whenever it is necessary or advantageous to reduce the entity of the effects caused by the friction between the pipes and the structures supporting the weight. Roll spring hangers are used to counter the weight of pipes due to heat changes or other causes; experience horizontal shifts on the support points, whose major component points towards the axial direction.

Roll spring hangers, are extremely useful to counter horizontal forces due to the action of the wind or to heat changes.

Ca.S.T.Im. 2000 patented roll spring hangers are developed and manufactured so as to guarantee a full operating safety. All weldings are carried out with inert gas through automatic systems on special welding positioners and therefore guarantee the steadfastness of operating parameters and the product's final quality level. The bushes and the thrust bearing fifth wheels used to manufacture roll spring hangers are P.T.F.E. (politetrafluorineethylene) self-lubricating-type on the metallic support.

FUNCTIONAL DESCRIPTION

- they do not need lubrication
- in the course of time friction coefficients remain almost unchanged
- in case of operating temperature changes in the space - 30 + 250°C their characteristics remain unchanged
- appropriate for alternate movements
- they do not cause first disjunction friction
- in the specific usage conditions their duration is practically unlimited
- they are highly collision-resistant.





SUPPLY TERMS AND SURFACE PROTECTION

All roll spring hangers are supplied with thrust bearing fifth wheels in self-lubricating material. Unless otherwise agreed at the time of order, all roll spring hangers are supplied with stainless steel pins. Reel and base are in carbon steel. If requested, pins, bodies and all accessories can be supplied in other materials.

Standard Material

Fe 430 B as per UNI 7070
 Fe 410.1kW as per UNI 5869
 12CrMo910 as per UNI 5869
 X 8 CN 191 as per UNI 4047 (AISI 304)

The surface of frames and rolls is usually protected through spray painting processes with rust preventer paints while rolls' internal surfaces are protected with special resins. Galvanization by dipping can be requested in case of use under special environmental conditions.

ORDER PROCEDURE

To order a roll hanger please mention size, maximum load and feature.

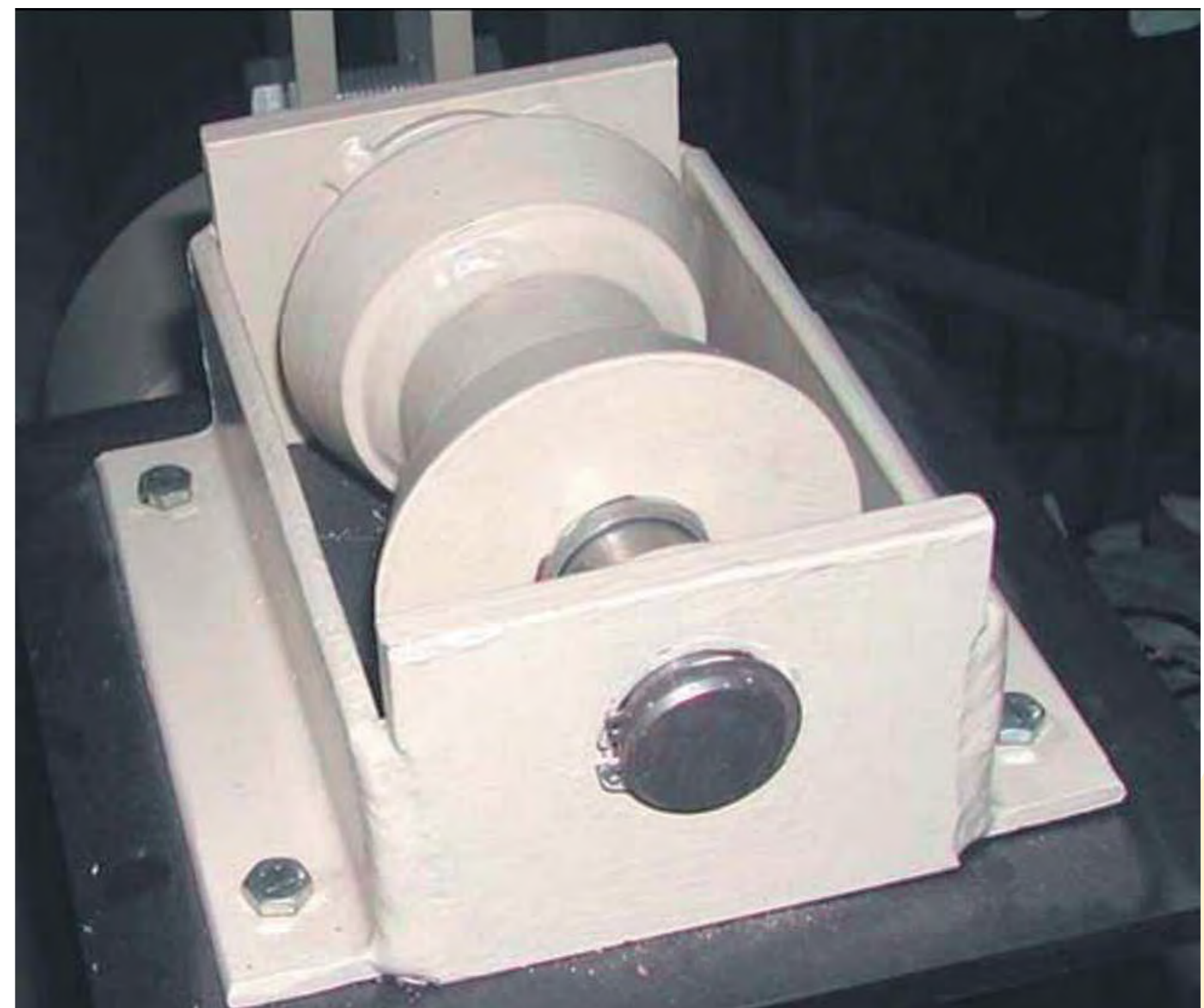
For example: to order a Ca.S.T.Im. 2000 patented roll spring hanger size 560, max. load 4000, type A, you should write:

S	R	560	A	4000
Hanger	Roll	Size	Type	Load (Kg)

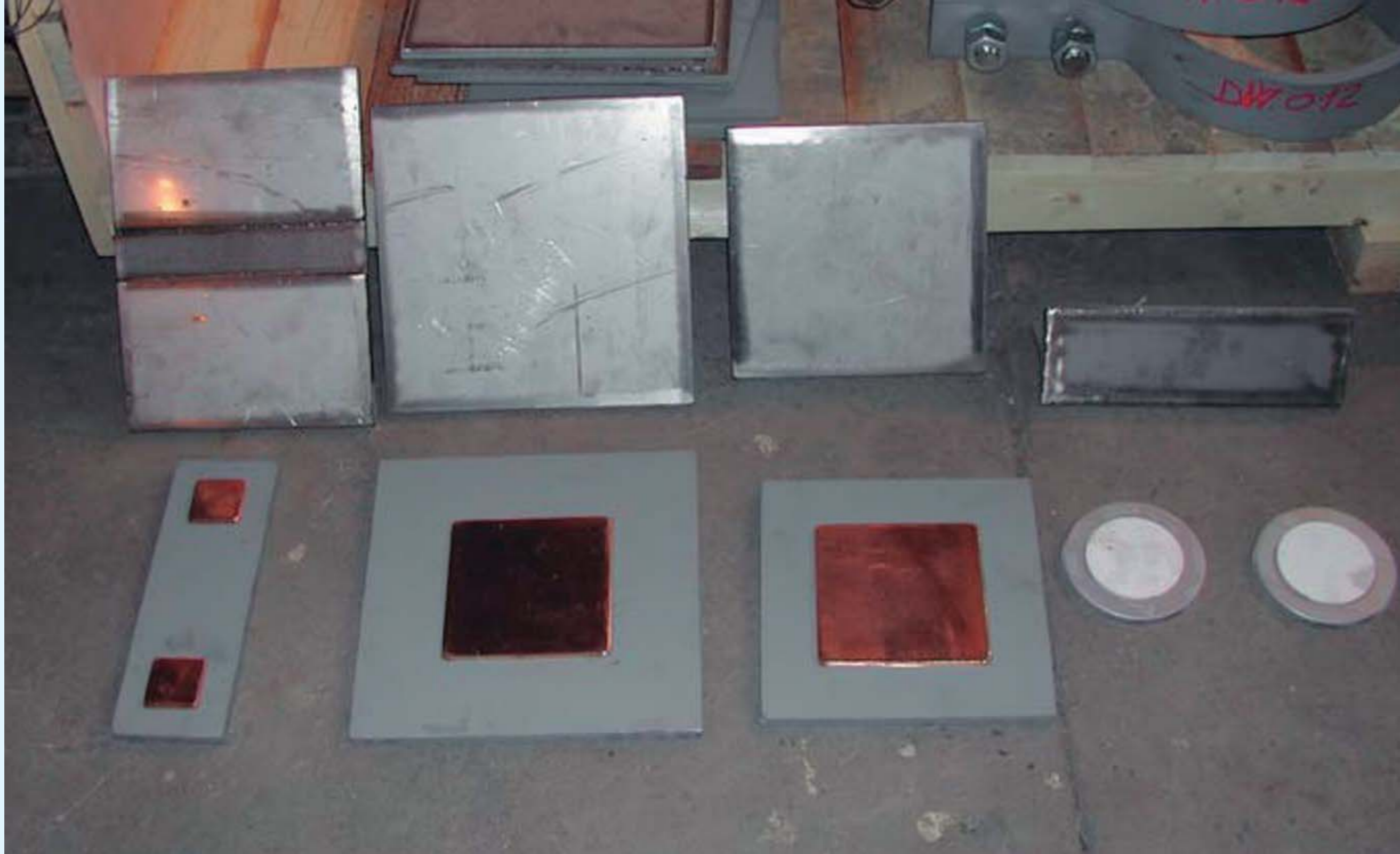
If requested we can supply rolls for pipes with diameters and /or vertical loads other than those indicated.

If requested it is possible to supply standard seating with axial lengths over 300 mm and/or suitable for pipes with diameters other than the projected ones.

The strengthened seating for pipes with big diameters and/or when there are big loads and the seating to be connected to the pipes with bolts are sized and supplied for special uses and on the base of the indications given by the client.



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GENERAL NOTES

Sliding plates are used to support the weight of pipes which, because of temperature variations and other reasons, have support points with shifts along the two directrices coplanar with the bearing base.

FUNCTIONAL CHARACTERISTICS

Ca.S.T.Im. 2000 sliding plates are projected and manufactured in order to:

- **guarantee perfect reliability of service**
- **make installation easier**
- **facilitate control during operations**

Quality materials as well as low stress levels to which the plate components are subject during operation guarantee reliability of service. Our sliding plates are designed to be manufactured in small series by using suitable equipment which remarkably shortens manufacturing times and speeds up deliveries.

As described above, slide plates are basically composed of:

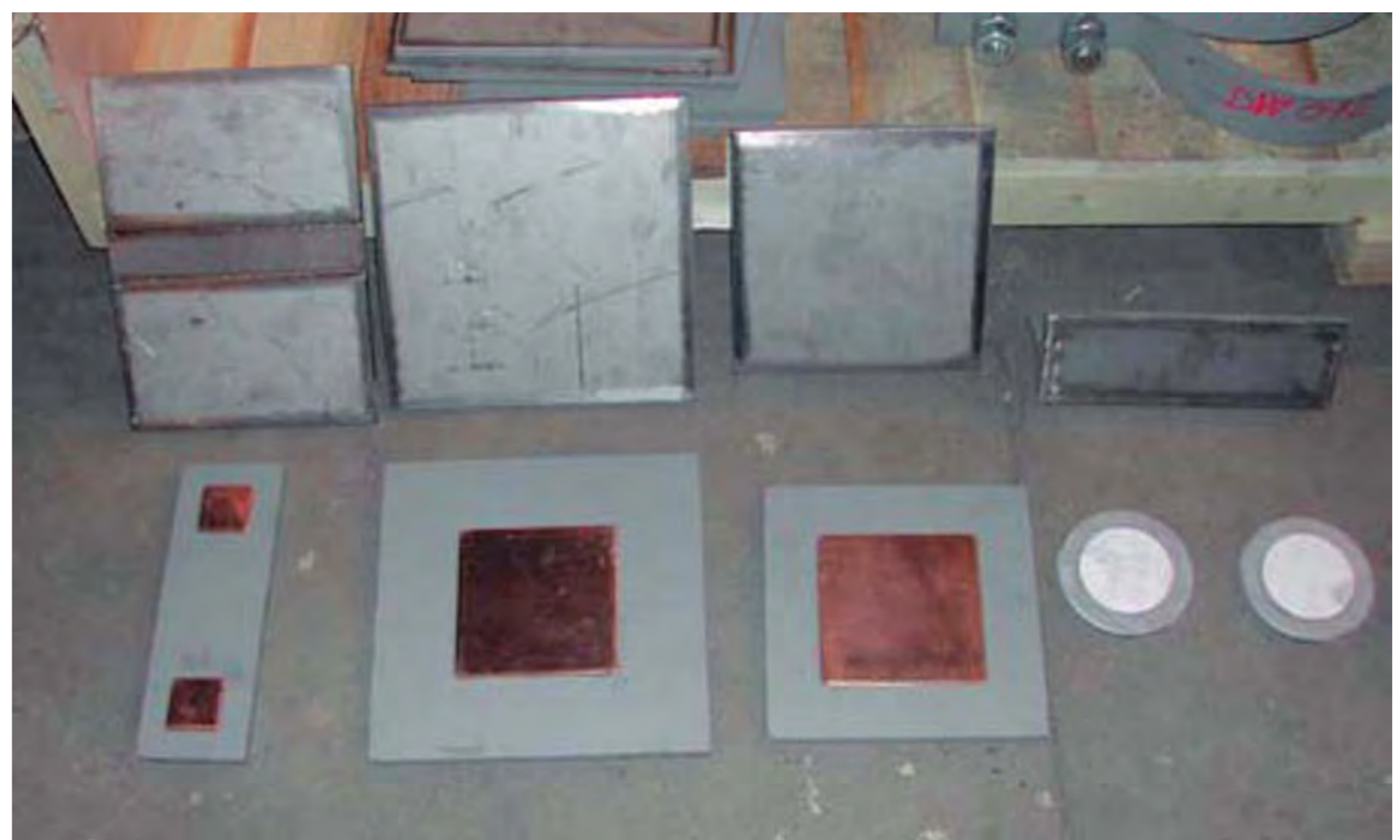
- **a carbon steel base having a suitable housing for an antifriction plate**
- **an antifriction plate dimensioned to the required load and having a material able to withstand operation temperatures**
- **a stainless steel counter-plate having a mirror polished front which must be protected with a plastic layer in order to avoid damage during handling**
- **a carbon steel plate to be welded, upon customer's request, to the stainless steel plate which will be then welded to the support base of the pipes**

Ca.S.T.Im. 2000 sliding plates have the following features:

- **no lubrication is required**
- **unlimited duration at the specific usage conditions**
- **friction coefficient values remain unchanged during time**
- **no first separation friction**
- **plate characteristics remain unchanged if operation temperature varies from -30 to +250 °C (P.T.F.E. up to 200°C; Cu82 Ni4 A110 Fe4 < 250°C, Graphite > 250°C)**
- **suitability for alternate movements**
- **high bump resistance**

DELIVERY & SURFACE FINISHING

Our sliding plates are delivered already assembled and marked according to the customer's specifications, so as to make recognition easier when opening the case. The surface of Ca.S.T.Im. 2000 sliding plates, the carbon steel part only, is protected by spray painting using an anti-rust or silicon aluminium varnish; electrolytically zinc coated plates are supplied as well. In case of particularly aggressive environments, the surface may be protected by means of hot dip galvanizing.



ORDERING

When ordering our sliding plates, you must specify, in the bid request, the following data:

- load on the plate (daN / kg)
- possible shifting (mm)
- operation temperature (°C)
- characteristics of the outward environment

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GENERAL NOTES

Rigid supports are used to hold the weight of pipes by fixing them to the main and secondary holding structures.

Ca.S.T.Im. 2000 rigid supports are generally composed of the following details:

- upper linkage: it can be a single or double tab, a nut with a plate..,
- eye bolts and forks,
- right/right and right/left tie rods,
- regulation screw coupling,
- pipe linkage: it can be a single or double tab, a collar, a spring equalizing rocker arm,...



FUNCTIONAL CHARACTERISTICS

Ca.S.T.Im. 2000 rigid supports are delivered according to the client's requests and to the table below showing the maximum tolerable loads compliant with the safety measures indicated in the MS-SP58,59,68 Specifications.

The maximum load for STD deliveries is approximately 32000 daN .

Size	Threading according to UNI 4534:1964	Max load da N
6	M 6x1	125
8	M 8x1,5	250
10	M 10x1,5	375
12	M 12x1,75	500
14	M 14x2	750
16	M 16x2	1000
18	M 18x2,5	1250
20	M 20x2,5	1500
22	M 22x2,5	2000
24	M 24x3	2500
27	M 27x3	3000
30	M 30x3,5	4000
33	M 33x3,5	5000
36	M 36x3	6000
39	M 39x3	7000
42	M 42x3	8000
45	M 45x3	9000
48	M 48x3	10000
52	M 52x3	12000
56	M 56x4	14000
60	M 60x4	16000
64	M 64x4	18000
68	M 68x4	20000
72	M 72x6	24000
76	M 76x6	28000
80	M 80x6	32000



Table with the main materials being employed:

Fe 430 B	UNI 7070
Fe 410.1kW	UNI 5869
12CrMo910	UNI 5869
X 8 CN 1910	UNI 4047 (AISI 304)

We can provide any kind of stainless steel catenaries.



Ca.S.T.Im. 2000 rigid supports are designed and manufactured in order to:

- **guarantee a perfect reliability of service**
- **make installation easier**
- **facilitate control during operations**

Low stress levels to which the support components are subject during operation as well as the high quality of materials which are easily welded together and/or threaded, guarantee reliability of service. The rigid supports are designed to be produced in small series by using suitable equipment which remarkably lowers manufacturing times and speeds up deliveries.

Ca.S.T.Im. 2000 rigid supports have the following features:

- **no lubrication is required because threaded parts are delivered with an appropriate protective layer**
- **unlimited duration at the specific usage conditions, with appropriate surface protection cycles**
- **depending on the materials employed they operate at temperatures ranging from -40 to +650 °C.**



DELIVERY & SURFACE FINISH

Rigid supports are delivered already assembled, at the customer's requested length.

Ca.S.T.Im. 2000 rigid supports are delivered with a surface spray painting protection using an anti-rust varnish, but only after shot-blasting on an automatic machine to obtain a Sa 2 1/2. finishing is carried out.

Upon customer's request, we can perform different protection cycles considering environmental conditions and operation temperatures.

For particular environmental conditions we perform hot dip galvanizing with an eventual plastic covering of the whole component.

ORDERING

When ordering a support, you must indicate the following data:

- **operation load (daN / kg)**
- **distance between centres of connection points (mm)**
- **upper linkage type**
- **lower linkage type**
- **eventual requested regulation measure (mm)**



We are constantly improving our production an for this reason the descriptions and information reported on this document may vary without notice and are not binding for us

CA.S.T.IM. 2000 s.r.l.

Regione Mombello, 6 - 12040 VEZZA D'ALBA (CN) - ITALY
Tel. +39-017365137 - Fax +39-017365142 - E-Mail: info@castim2000.it - www.castim2000.it



GENERAL NOTES

If requested by the customer, Ca.S.T.Im. 2000 can manufacture prefabricated carbon steel, low alloy steel and stainless steel pipes with considerable diameter and length values as well.



SURFACE FINISH & DELIVERY

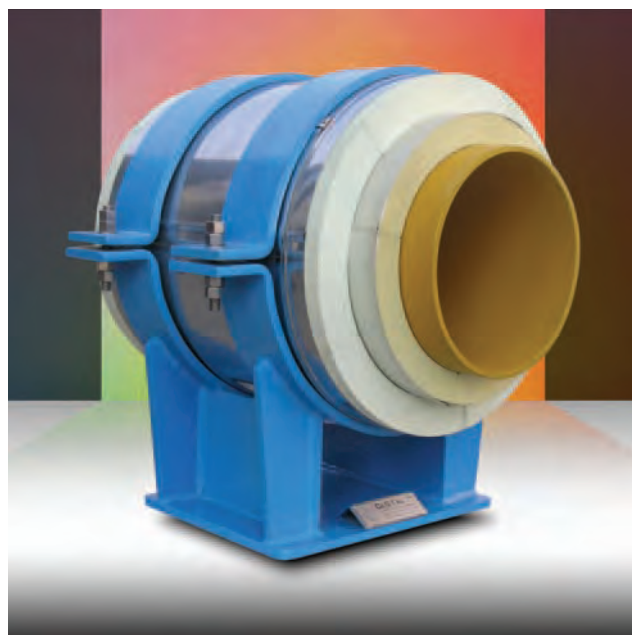
The surface of Ca.S.T.Im. 2000 prefabricated pipes is protected by sandblasting and spray painting using an anti-rust varnish and/or other procedures requested by the customer.

Prefabricated pipes are supplied already assembled and are marked in accordance with the customer's specifications so as to be easily recognized during assembling in the plant.



SUPPORTI PER BASSE TEMPERATURE

CRYOGENIC SUPPORTS



GENERALITA'

I supporti criogenici Ca.S.T.Im. 2000 sono particolari supporti adatti a sostenere tubazioni di impianti che lavorano a basse temperature, che quindi necessitano di isolamento particolare, che prevedono uno o più strati di poliuretano ad alta densità tra la tubazione e il supporto vero e proprio.

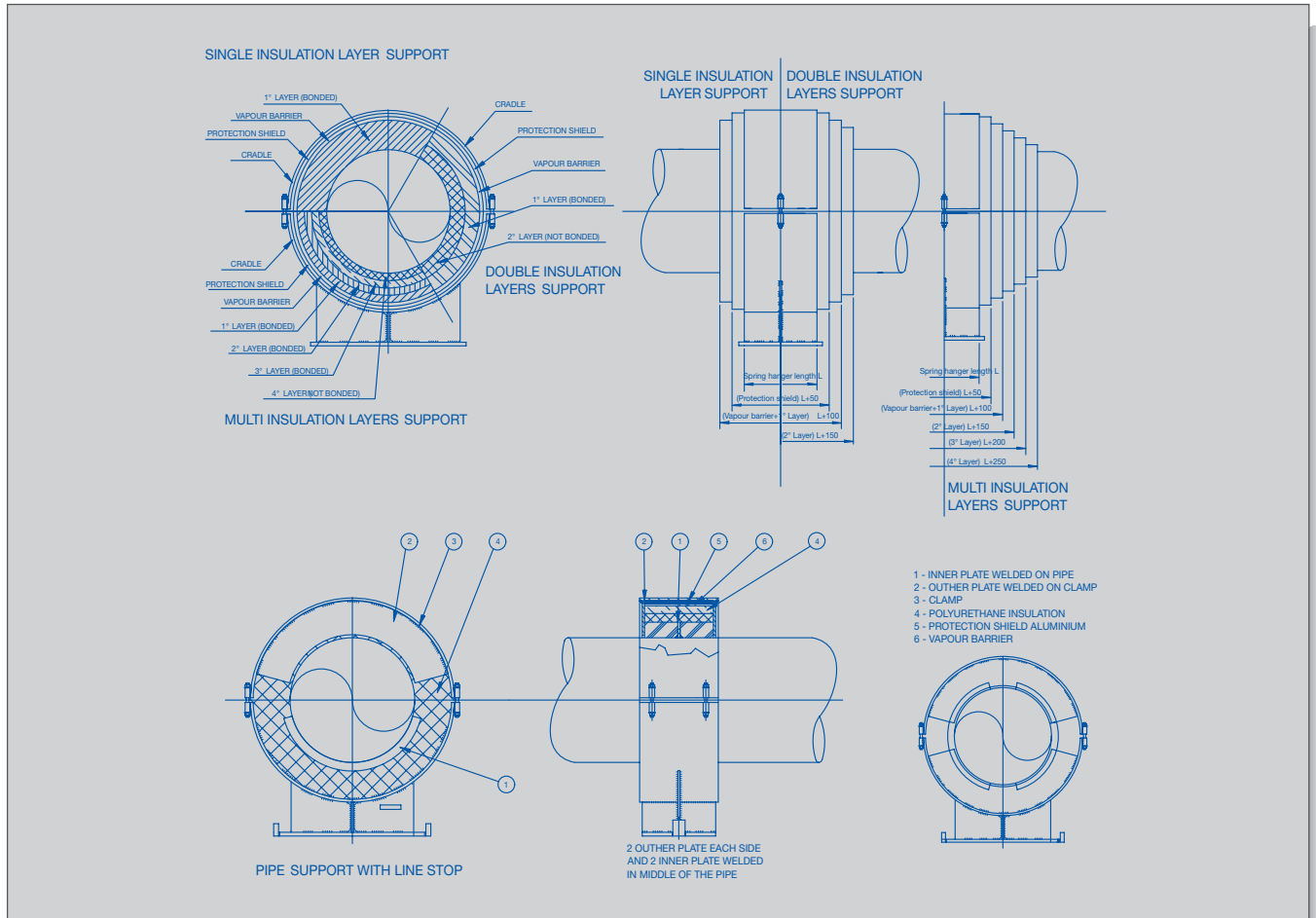
I supporti possono presentarsi in differenti tipologie, ad esempio a sella o a collare, lo strato isolante può essere composto di diversi strati che possono essere solidali o svincolati tra loro, a seconda delle richieste di fornitura presentate nelle specifiche del cliente, tra lo strato di poliuretano e il supporto vero e proprio è anche previsto l'utilizzo di una barriera al vapore (un bendaggio degli strati di poliuretano con materiali atti alle temperature cui dovranno operare) e di un ulteriore rivestimento di alluminio.

Materiali:
Carpenteria: ASTM A36 o EN 10025 S235JR (galvanizzati secondo ASTM A123) o equivalenti su specifica del cliente
Poliuretano: Alta densità - 160 - 240 - 320 kg/mt
Collanti: Speciali collanti per basse temperature o su specifica del cliente

INTRODUCTION

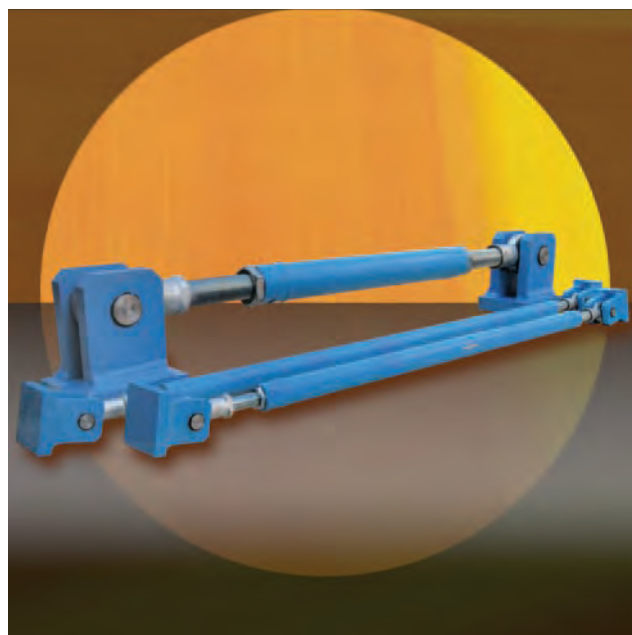
Ca.S.T.Im. 2000 cryogenic supports are a special kind of pipe support capable of holding up pipes working at cold temperatures, therefore they need a particular kind of insulation made of one or more polyurethane high density layers between the pipe and the supports. The supports may be of different types, pipe clamp or saddle Insulation thickness may be made up of several layers and each one of them may be bonded with other layers, following customer's request; between polyurethane and support there may also be a steam barrier made of special mastic capable of working at cold temperatures and a protection shield made of aluminum.

Materials:
Carpentry: ASTM A36 or EN 10025 S235JR (hot dip galvanized according to ASTM A123) or equivalent or under customer's specification
Polyurethane: High density 160 - 240 - 320 kg/mt
Adhesives: Special cryogenic adhesive or under customer's specification



PUNTONI

RIGID STRUTS



GENERALITA'

Questo particolare tipo di struttura trova applicazione in diversi campi come elemento di sostegno in trazione-compressione quando è necessario ridurre i carichi di tipo dinamico.

Le estremità sono costituite in modo da poter essere agevolmente saldate ai collari o alle strutture metalliche in qualsiasi posizione; i puntoni Ca.S.T.Im. 2000 possono essere adoperati come guida di tubazioni sostituendo costose strutture metalliche.

I terminali dei puntoni sono costituiti da cuscinetti sferici che rendono la tubazione libera in movimenti perpendicolari agli assi dei perni dello snodo; i puntoni possono essere facilmente regolati come tenditori.

Materiali:
 Snodo Sferico: Acciai speciali con PTFE/
 Bronzo Sinterizzato
 Orecchia: SJR 275 UNI/EN 10025:92
 o equivalente
 Barre filettate: SJR 235 UNI/EN 10025:92
 o equivalente
 Tubo tenditore: SJR 275 UNI/EN 10025:92
 o equivalente
 Dadi: UNI 5587

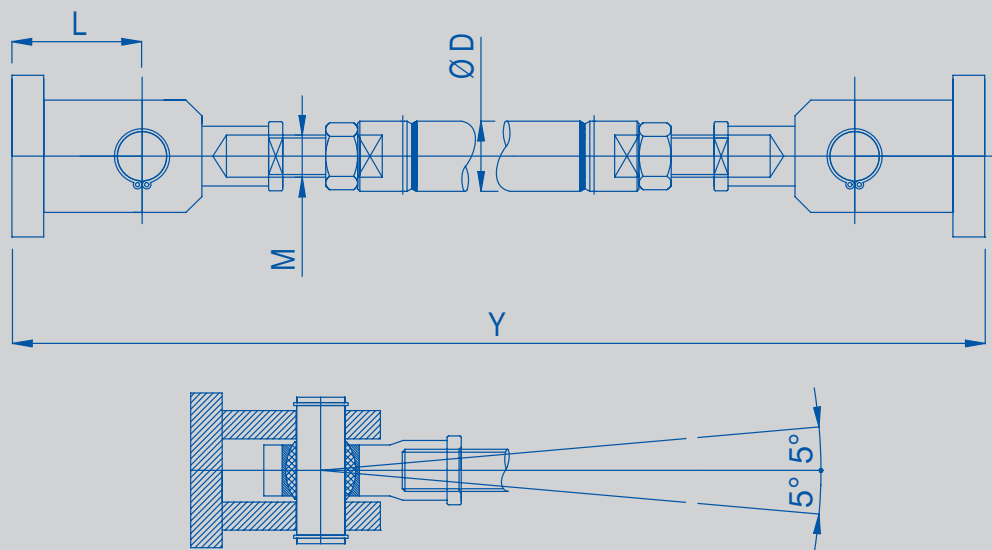
INTRODUCTION

A particular kind of structure is employed in many fields as a compression-tension element when it is necessary to reduce dynamic loads.

Extremities are made in such a way that they can be welded to pipe clamps or iron structures in all the positions. Rigid struts can be used as a pipe guide instead of expensive steel constructions.

The ends of rigid struts are made of a spherical bearing which makes the pipe free to move in a direction perpendicular to the axis of the pin of the bearing; rigid struts can be easily regulated as a turnbuckle.

Materials:
 Spherical bearing: Alloy Steel, PTFE,
 Bronze Synthesized
 Lug: SJR 275 UNI/EN 10025:92
 or equivalent
 Rods: SJR 235 UNI/EN 10025:92
 or equivalent
 Pipe: SJR 275 UNI/EN 10025:92
 or equivalent
 Nuts: UNI 5587



SELEZIONARE COEFFICIENTE DI SNELLEZZA λ
 SELECTION SLENDERNESS RATIO λ

$\lambda \geq 100$
 $100 < \lambda \leq 150$
 $150 < \lambda \leq 200$

ESEMPIO D'ORDINE: Y = λ = Load = daN
 ORDERING EXAMPLE: Y = λ = Load = daN

LOAD daN	ADJUSTMENT mm	Ø D mm	L mm	SIZE M
500	100	30	55	12x1,5
1000	100	35	65	16x2
1500	100	40	70	20x1,5
2500	150	50	80	24x2
4000	150	60	95	30x2
6000	150	70	110	36x3
8000	200	80	135	42x3
10000	200	90	160	45x3
14000	200	100	185	56x4
18000	300	110	210	64x4
32000	300	115	260	80x4

CA. S. T. IM. 2000 *s.r.l.* _____

AMMORTIZZATORI

SHOCK ABSORBERS



FUNCTIONAL CHARACTERISTICS

This plant doses chemical reagents into the main temperature cycle of each section with combined cycle in thermal power plants.

Ammonia, diluted deoxygenating solution, preserving reagents, concentrated reagents and phosphate are injected by means of diaphragm metering pumps which regulate capacity automatically.

There are storage tanks for reagents as well.

The tanks are provided with electrical agitators which mix the solution and which are located in a non central position in order to avoid eddies.

All tanks have breather pipes to reduce hazardous smokes.

These plants generally operate as follows:



1. OPERATION STAGE : SERVICE

In this stage, washing valves are closed whereas all the others remain open. In the aspiration lines, before the pumps, there are Y-shaped filters whose task is to absorb impurities. On the pressure pump lines injecting phosphate and ammonia there are safety valves to limit over-pressure of the liquid. They discharge into funnel-shaped inserts, which are located in an exhaust manifold. Fluid pressure is indicated on manometers.

- Diluted deoxygenating solution: the metering of this reagent is aimed at reducing oxygen concentration in water and preventing corrosion.

reduces pH in boilers in order to avoid corrosion.

- Trisodium phosphate: the metering of this reagent takes place in MP (medium pressure) and HP (high pressure) cylindrical elements of each recovery steam generator; its function is correcting pH and reducing scaling.

- Metering system for preserving reagents: it is used to protect materials from thermal cycles during interruption intervals.

2. OPERATION STAGE : WASHING

It is recommended to wash pipes, pumps and valves after every production cycles, whereas the tank should be washed every three cycles.

These operations are completely manual and the operator must operate as follows:

2.1 Washing of pipes, pumps and valves.

2.2 Washing of tanks

3. EMERGENCY: PLANT ANOMALIES

If the valves are closed because of plant anomalies at the lower section of the metering system, the plant has a safety system based on safety valves, which let the solution flow to the exhaust manifold when it is open.



If one of the pumps of the dosing system breaks down, spare pumps will be manually or automatically activated.
Ca.S.T.Im. 2000 already supply Dosing System for Water Treatment of Power Plant Cooling Tower



We are constantly improving our production an for this reason the descriptions and information reported on this document may vary without notice and are not binding for us



GENERAL NOTES

The plant is suitable for the treatment of industrial waters having specific chemical-physical design features and delivers demineralised water at the requested capacity. A different water composition (increase in salinity or quality variation) may affect cycle length and consumption of regenerating elements.

FUNCTIONAL CHARACTERISTICS

Demineralizing takes place when pressure water is being introduced in an exchanger containing cationic resins, regenerated in H^+ acid, where cations are exchanged with the same quantity of H^+ ions, and all the salts are transformed into their corresponding acids. Simultaneously, carbonic acid develops in a quantity equal to the value of the contained bicarbonates and is completely eliminated by a decarbonisation tower through air pushed by a counter-current airflow ventilator. After that, water flows into the second exchanger which has a bed of anionic resins which have been regenerated in OH^- cycle.

In this stage, there is an exchange of anions with the same quantity of OH^- ions. The water demineralizing phase can be considered as completed.

When a cyclic capacity has been obtained, the resins are exhausted and must therefore be regenerated. Cationic resin is regenerated by means of HCl and there is an inverse exchange in comparison with the operation exchange, that is the cations being kept are eluted, while the resin regains its H^+ acid exchange power. Anionic resin is regenerated by means of $NaOH$ to eliminate the anions being kept and regain the resin's OH^- exchange capacity.





MAIN COMPONENTS

POS.	DESCRIPTION
1	Cartridge self-ventilating filters
2	Cationic resin exchangers
3	Degassing unit
4	Ventilator for degassing unit (1 assembled + 1 complete in warehouse)
5	Pumps for degassed water
6	Anionic resin exchangers
7	Mixed bed exchangers
8	Y-shaped filters for keeping resins in the demi water manifold
9	Storage tanks for concentrated acid
10	Hydraulic guide for breather pipe of tank containing acid
11	Storage tank for concentrated soda
12	Electrical resistance for heating soda and storage tank
13	Metering pumps for acid regeneration and neutralization
14	Metering pumps for soda regeneration and neutralization
15	Demi water pumps for diluting reagents
16	Vertical recycling pumps with neutralized effluents discharge
17	First load of resins
18	PLC control board, buffer battery which supplies power to CPU in case of voltage shortage, serial signal repetition to DCS, operating interface with graphic display on the switchboard and a control keyboard

We are constantly improving our production and for this reason the descriptions and information reported on this document may vary without notice and are not binding for us

GENERAL NOTES

Ca.S.T.Im. 2000 can design and manufacture atmospheric and pressure tanks according to the rules and regulations in force, for instance ASTM, ASME, PED (I.S.P.E.S.L.), MERKBLATT,...

Ca.S.T.Im. 2000 s.r.l. can also guarantee assistance to its customers, from the design to the final assembly phase and supply them with a team of experts for assistance on the field.

Ca.S.T.Im. 2000 s.r.l. has a wide range of certifications complying with UNI 287 and 288 as well as ASTMs for the welding of the various requested materials.



FUNCTIONAL CHARACTERISTICS

Atmospheric and pressure tanks are used for storing liquid and gaseous products.

In case of particular weather conditions and/or depending on the substance contained in the tank, Ca.S.T.Im. 2000 s.r.l. can insulate its tanks using specific material and/or cover them completely with heating jackets.

Our products are employed in different branches:

- **food industry: foodstuff stored in stainless steel tanks**
- **pharmaceutical industry**
- **chemical and petrochemical industry**
- **heating and thermoelectric power plants,...**

DELIVERY & SURFACE FINISH

Depending on the material employed and the internal and external finish and cleanness degree, the tanks can be delivered as follows:

- unfinished if they are in stainless steel,
- painted/ebonized /galvanized....according to the customer's specifications.

All the controls of the different production stages are carried out through standard monitoring cycles during the manufacturing phases, with the use, if necessary, of certified instruments.



ORDERING

Given the specific and different needs of each customer, Ca.S.T.Im. 2000 is ready to assess each single case and produce a technical/economic offer to satisfy any need coming from its customer.



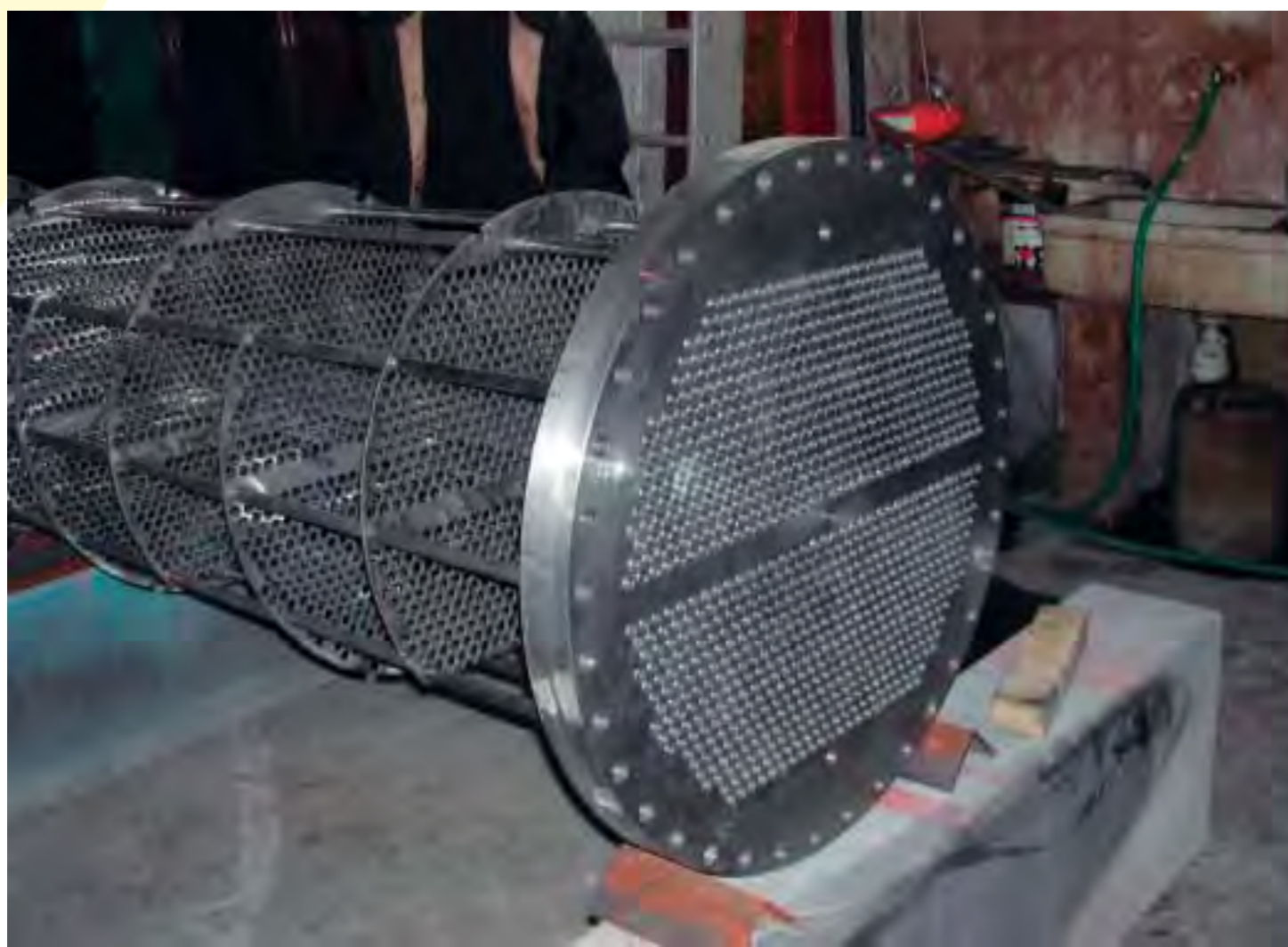
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GENERAL NOTES

Tube nest heat exchangers are used to exchange heat between two fluids. Ca.S.T.Im. 2000 manufactures exchangers according to the following regulations: I.S.P.E.S.L., PED, TEMA, ASTM straight horizontal tube nest type TEMA mod. CEN type, or BEU, AEL,....

FUNCTIONAL CHARACTERISTICS

Ca.S.T.Im. 2000 tube nest heat exchangers are supplied according to the customer's requests and in compliance with the regulations force (I.S.P.E.S.L., PED, TEMA, ASME).



Following is a table describing the basic materials employed:

shell

ASTM A515 Gr. 60 o 70 ; ASTM A106 gr. B ; AISI 304L /316L

water case

ASTM A515 Gr. 70 ; ASTM B169/D ; ASTM A106 gr. B ; AISI 304L /316L

tube plate

ASTM A515 gr. 70 - CuNi 90/10 ; ASTM B171-614 ; AISI 304L /316L

tubes

ASTM B111 687 ; ASTM B556-B2 ; ASTM A179 ; ASTM A312 /316L / 316 TI

We can also supply the entire stainless steel exchanger for the food industry.

Ca.S.T.Im. 2000 tube nest heat exchangers are designed and manufactured in order to:

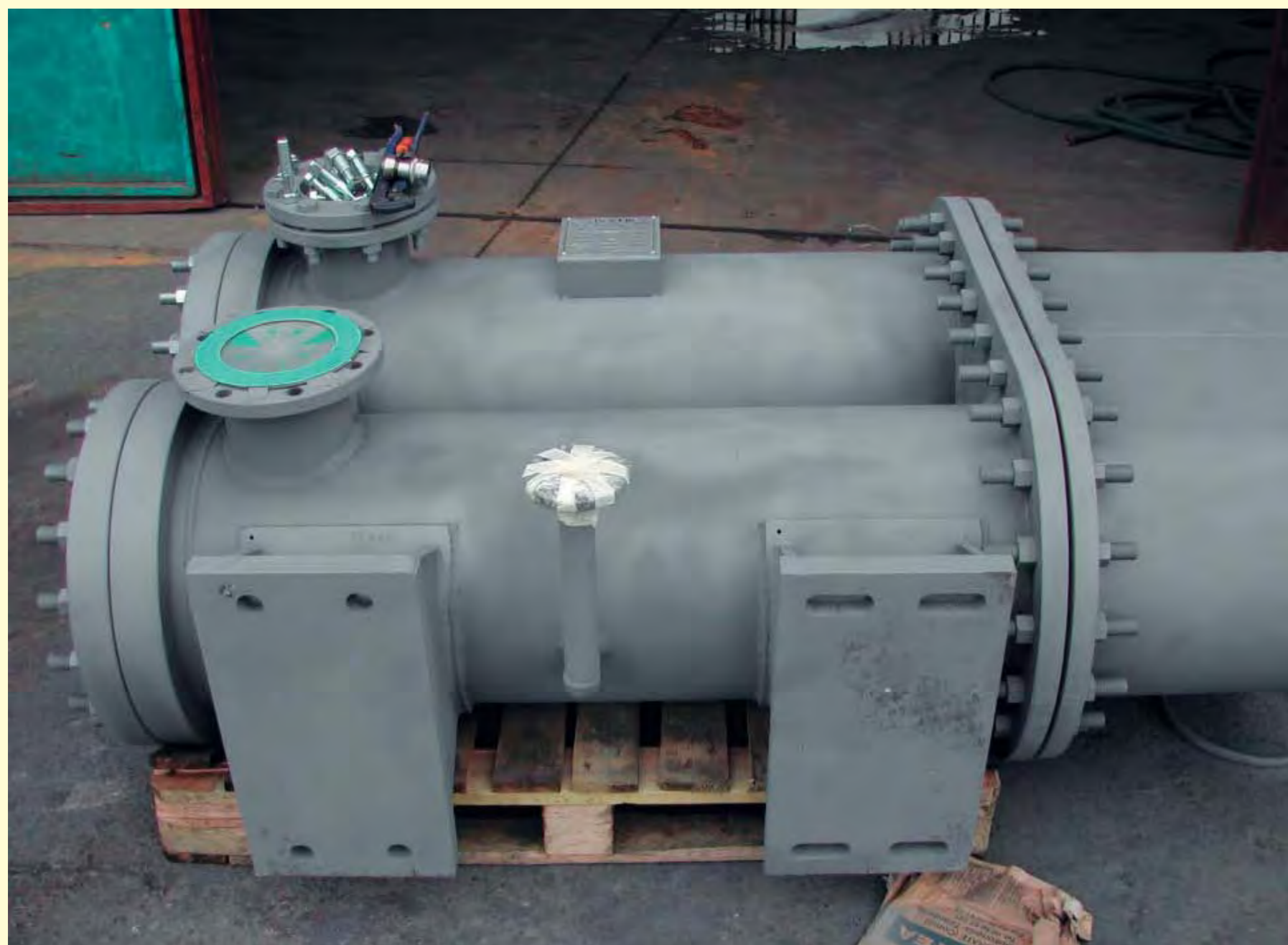
- **make installation easier**
- **facilitate control during operations**

Low stress levels to which components are subject during operation as well as the quality of materials which are easily welded together and/or threaded, guarantee reliability of service.

Ca.S.T.Im. 2000 rigid supports have the following features:

- **no lubrication is required because threaded parts are delivered with a protection layer**
- **unlimited duration at the specific usage conditions, with appropriate surface protection cycles**
- **depending on the materials employed they operate at temperatures ranging from -40 to +650 °C.**





DELIVERY & SURFACE FINISH

Tube nest heat exchangers are supplied thoroughly assembled and ready-to-use.

Ca.S.T.Im. 2000 tube nest heat exchangers are tested according to the customer's control plan or alternatively, if there no specific plan, according to our STD monitoring plan.

The external surface is usually finished using an inorganic 75 micron zinc painting after a Sa 2 1/2 sandblasting.

Upon customer's specific request, it is possible to perform protective cycles depending on environmental conditions and operation temperatures. Under particular circumstances we perform ebonite covering of inner parts as well.

ORDERING

When ordering, you should indicate the following information:

- fluid type and heat exchange coefficients (casing side and tubes side)
- capacities and/or requested exchanged heat (casing side and tubes side)
- reference regulations
- design/operation temperatures (casing side and tubes side)
- design/operation pressure (casing side and tubes side)
- tube nest type
- possible maximum overall dimensions
- possible number of crossings



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CA.S.T.IM. 2000 s.r.l.

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Tel. +39-017365137 - Fax +39-017365142 - E-Mail: info@castim2000.it - www.castim2000.it

GENERAL NOTES

Upon customer's requests and specifications, Ca.S.T.Im. 2000 can manufacture steel structures in carbon steel, low and high alloy steel and stainless steel.

These components can weigh up to 10 tons and be 18 m long.



SURFACE FINISH & DELIVERY

The surface of Ca.S.T.Im. 2000 prefabricated carbon steel, and low and high alloy steel can be supplied satisfying any specification of the client. The standard procedure involves SA 2 1/2 and 40-60µ bicomponent inorganic galvanizing substance rich in zinc.

The structures are delivered already assembled and marked according to the customer's specifications, in order to ease assembling operations on site.



da gennaio 2023

ASSISTENZE ON SITE

RILIEVI
(REVERSE ENGINEERING)

PROGETTAZIONE

CENSIMENTO

ISPEZIONI

365
GIORNI
L'ANNO

SUPERVISIONE
ATTIVITÀ DI CANTIERE

EXPEDITING

MANUTENZIONI

RIPARAZIONI

Castim 2000 incrementa le proprie potenzialità
nel mondo dell' "On Site Service"

*Con l'esperienza storica dei propri tecnici specializzati **Castim 2000**
garantisce ai suoi clienti una consulenza tecnica a 360°*

PETROLCHIMICO \ ENERGETICO \ NUCLEARE

*Questi sono i mercati che rappresentano il mondo nel quale **Castim 2000** salvaguardia
funzionalità e corretto esercizio degli impianti relativamente ai seguenti prodotti:*

GIUNTI
METALLICI

CLAM
SHELL

COMPENSATORI
DI DILATAZIONE

GIUNTI IN
GOMMA

GIUNTI DI
SMONTAGGIO

CATENARIA
RIGIDA

SUPPORTI
ELASTICI
A MOLLA

SUPPORTI
A RULLO

AMMORTIZZATORI

CARPENTERIA DI
SUPPORTAZIONE

