NEMOTHERM traitement thermique staalharderij

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Brochure

www.nemotherm.com

Content

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We (Tr)Heat Your Products Right ...

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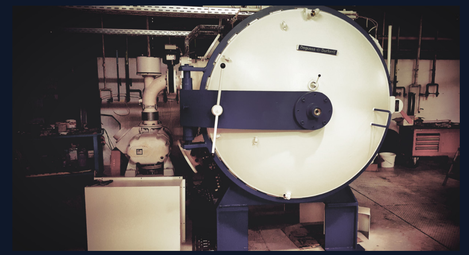
Located at the heart of Belgium Nemotherm is the specialist in heat treatments of steel and non-ferro products. Our company was founded in 1976 and is one of the leading service heat treaters.



About Us

Our competency has led to customers from a wider area knowing us, always entrusting their products and being advised by us in the choice of material and the associated heat treatment. The right choice of material in combination with the correct heat treatment makes an essential contribution to the strength, wear resistance and / or life of the product. Our goal is to build up a long time relationship with our customers. To meet the ever changing higher demands to your products we are certified to the following quality standards:

- ISO 9001: 2015
- AS9100 C / JIS Q 9100:2016 / EN 9100:2016

Our Skills

Highest Service Level

Diversity is our strength

Our Mission is to keep servicing customers from all over the Industry like Aerospace, Defense, Nuclear, Agriculture, Machine building, Automotive and other Industries in a most wide area. We believe that in an ever changing market it is important to deliver best technical support, highest quality and proactive communication to our customers . To be and stay the best we are continuously working on improvements.

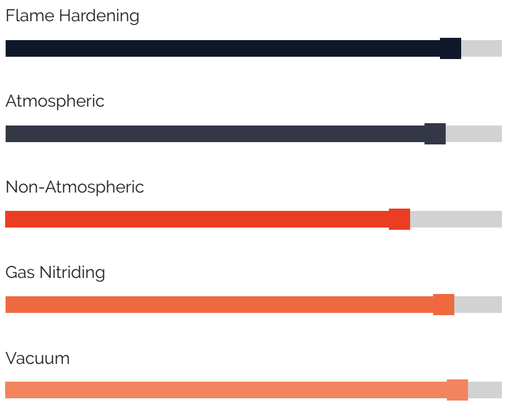
Strength And **Diversity**

CARBURIZING I
CARBONITRIDING I
HARDENING AND TEMPERING I
NORMALIZING I
FERRITIC ANNEALING I
SOLUTION ANNEALING I
RECRISTALLISATION ANNEALING I
STRESS RELIEVE ANNEALING I
SOFT ANNEALING I
FLAME HARDENING I
GAS NITRIDING I
VACUUM HARDENING I
AUSTENIZING WITH SEQUENT COOLING IN FORCED/ QUITE AIR I
OIL QUENCH I
POLYMER QUENCH I
WATER QUENCH

Completing services:
MAGNETIC CRACK CONROL I BLASTING I CRYOGENIC TREATMENT

Please contact us for possibilities to treat your parts at your location

Our Heat Treatments



We offer a wide range of heat treatment processes and have a strong know how and experience to find the best solutions for your products.

Hardness Conversion

Tensile Strength	Vickers Hardness	Brinell Hardness	Rockell Hardness		
N/mm2	HV [F ≥98 N]	HB	HRB	HRC	HRA
255	80	76	-	-	-
270	85	80,7	41	-	-
285	90	85,5	48	-	-
305	95	90,2	52	-	-
320	100	95	56,2	-	-
335	105	99,8	59,3	-	-
350	110	105	62,3	-	-
370	115	109	64,5	-	-
385	120	114	66,7	-	-
400	125	119	69	-	-
415	130	124	71,2	-	-
430	135	128	73,1	-	-
450	140	133	75	-	-
465	145	138	-	-	-
480	150	143	78,7	-	-
495	155	147	-	-	-
510	160	152	81,7	-	-
530	165	156	-	-	-
545	170	162	85	-	-
560	175	166	-	-	-
575	180	171	87,1	-	-
595	185	176	-	-	-
610	190	181	89,5	-	-
625	195	185	-	-	-
640	200	190	91,5	-	-
660	205	195	92,5	-	-
675	210	199	93,5	-	-
690	215	204	94	-	-
705	220	209	95	-	-
720	225	214	96	-	-
740	230	219	96,7	-	-
755	235	223	-	-	-
770	240	228	98,1	20,3	60,7
785	245	233	-	21,3	61,2
800	250	238	99,5	22,2	61,6
820	255	242	-	23,1	62
865	260	247	101	24	62,4
850	265	252	-	24,8	62,7
865	270	257	102	25,6	63,1
880	275	261	-	26,4	63,5
900	280	266	104	27,1	63,8
915	285	271	-	27,8	64,2
930	290	276	105	28,5	64,5
950	295	280	-	29,2	64,8
965	300	285	-	29,8	65,2
995	310	295	-	31	65,8
1030	320	304	-	32,2	66,4
1060	330	314	-	33,3	67
1095	340	323	-	34,4	67,6
1125	350	333	-	35,5	68,1
1155	360	342	-	36,6	68,7
1190	370	352	-	37,7	69,2
1220	380	361	-	38,8	69,8
1255	390	371	-	39,8	70,3
1290	400	380	-	40,8	70,8
1320	410	390	-	41,8	71,4
1350	420	399	-	42,7	71,8
1385	430	409	-	43,6	72,3
1420	440	418	-	44,5	72,8
1455	450	428	-	45,3	73,3
1485	460	437	-	46,1	73,6
1520	470	447	-	46,9	74,1
1555	480	456	-	47,7	74,5
1595	490	466	-	48,4	74,9
1630	500	475	-	49,1	75,3
1665	510	485	-	49,8	75,7
1700	520	494	-	50,5	76,1
1740	530	504	-	51,1	76,4
1775	540	513	-	51,7	76,7
1810	550	523	-	52,3	77
1845	560	532	-	53	77,4
1880	570	542	-	53,6	77,8
1920	580	551	-	54,1	78
1955	590	561	-	54,7	78,4
1995	600	570	-	55,2	78,6
2030	610	580	-	55,7	78,9
2070	620	589	-	56,3	79,2
2105	630	599	-	56,8	79,5
2145	640	608	-	57,3	79,8
2180	650	618	-	57,8	80
-	660	-	-	58,3	80,3
-	670	-	-	58,8	80,6
-	680	-	-	59,2	80,8
-	690	-	-	59,7	81,1
-	700	-	-	60,1	81,3
-	720	-	-	61	81,8
-	740	-	-	61,8	82,2
-	760	-	-	62,5	82,6
-	780	-	-	63,3	83
-	800	-	-	64	83,4
-	820	-	-	64,7	83,8
-	840	-	-	65,3	84,1
-	860	-	-	65,9	84,4
-	880	-	-	66,4	84,7
-	900	-	-	67	85
-	920	-	-	67,5	85,3
-	940	-	-	68	85,6

Flame Hardening

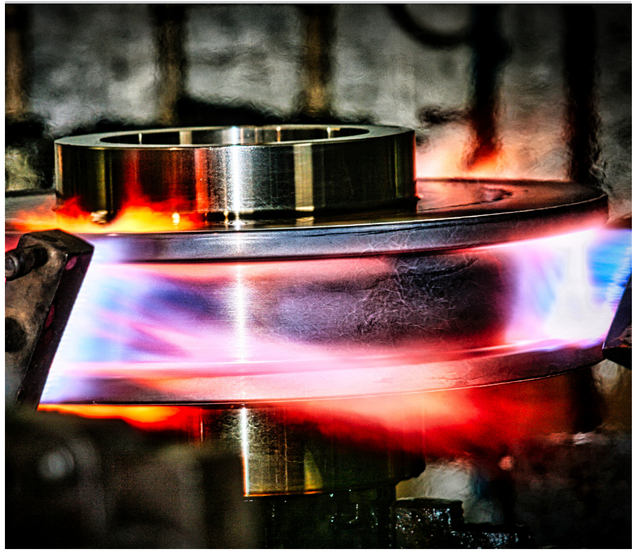
Less distortion and higher hardness

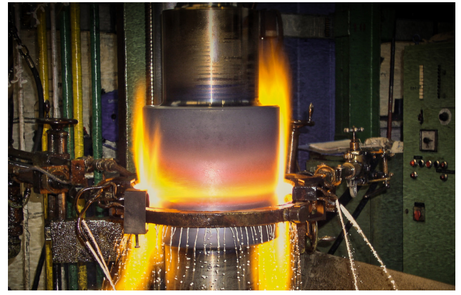
Flame hardening is a technique used to harden (or soften) certain areas of a steel part, creating a difference in hardness between these areas. The advantage of local heating of parts is less distortion and for some steel types a higher hardness.

Description

Flame hardening is most related to Induction hardening but others than Induction hardening, Flame hardening is almost unlimited is size or shape of the part so no need to build a special inductor for complex geometries. In general you can say that Flame hardening starts there where induction hardening stops. However, from a hardening profile point of view there is a significant difference between these technologies. The heating time. Whereas Induction heating time is normally very short, the Flame hardening takes a longer heating time. This has its influence on the hardening profile. The Induction hardened profile show a very abrupt hardness decrease whereas the Flame hardened profile show a smoother decrease of hardness. A smoother decrease of hardness can be very helpful for heavy loaded applications to prevent the skin from popping off.

Size: up to 7meters length and 20 Tons





Atmospheric Heat Treatment

High and Low Temperature

In general you can say that the more carbon the more hardness after quench.

Description

Atmospheric high and low temperature heat treatments, usually followed by rapid cooling (quench) in either oil, polymer or water are characterized by an atmosphere consisting carbon-bearing material to either enrich or restore the carbon content at the surface of the part, or just to avoid decarburization. In general you can say that the more carbon the more hardness after quench.

Typical processes are

- Carburizing
- Carbon restoration
- Carbonitriding
- Neutral hardening
- Normalizing

Size: up to 2meters length and 1,5 Tons

Non-Atmospheric Heat Treatment

Processes Under Air

Non-atmospheric high and low temperature heat treatments are processes under air.

Description

These kind of processes are mainly used for parts that have to be post machined for several millimeters, parts that do not have or need a specific carbon content at the surface or high alloyed steels with low carbon content. Especially very large and heavy parts are treated this way. Also stress relieving is a process that is typically done in these furnaces.

Size: up to 8 meters length and 40 Tons

Gas Nitriding Or Nitrocarburizing

Low Temperature Surface Treatments To Improve Strength

Very high surface hardness with minimum distortion.

Description

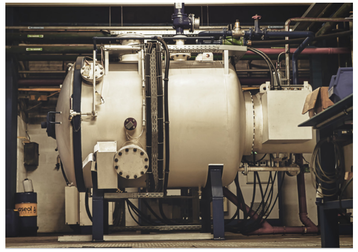
Gas Nitriding or Nitrocarburizing are low temperature surface treatments to improve strength, gliding properties, wear resistance, temperature resistance and fatigue strength under reversed bending stresses. The process is carried out in a temperature range of 500-580°C. In a cracked ammonia atmosphere, either with or without carbon, nitrogen diffuses into the parts. Because the temperature is low there will be no transformation of the steel resulting in less distortion than e.g. with carburizing or carbonitriding. Very often parts do not need to be post machined as distortion is very little.

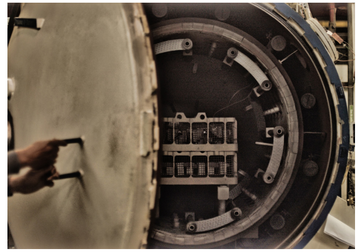
Size: up to 2meters length and 1,5 Tons

Vacuum Heat Treatment

Avoiding Oxidation Or Decarburization

To avoid oxidation or decarburization parts can be heated under vacuum.





Description

The heating can be followed by slow or fast cooling with gaseous nitrogen. This process is mainly used for high alloyed steels. Typical characteristic for vacuum treatments is the bright surface that is free of oxidation and colorization.

Typical processes are:

- Hardening
- Brazing
- Solution annealing
- Soft annealing
- Normalizing

Size: 900x900x1100 mm , max. 600 kg

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Interested in a strong partnership?

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