

Dogal H LAD

High strength low alloy steels for cold forming

General

Dogal H LAD grades are galvanized hot rolled micro-alloyed steels suitable for cold-forming from SSAB and fulfills the demands for standard GMW 3032. The steels are thermo-mechanically rolled in modern plants where the heating, rolling and cooling processes are carefully controlled. The chemical analysis, consisting of low levels of carbon and manganese, has precise addition of grain refiners such as niobium, titanium or vanadium. These steel grades are designated according to their lowest guaranteed yield strength. The difference between their yield strength and tensile strength is small. LAD grades have good formability and bendability in relation to their yield strengths.

The consistency of the mechanical properties of Dogal H LAD steels are guaranteed within the specified minimum and maximum values.

Dimensions

Dogal H LAD steels are available in thicknesses between 2,0 mm and 2,5 mm and in widths up to 1170 mm.

Applications

The steels are intended for general presswork, forming and bending operations. These grades can be bent, sheared and punched on standard workshop equipment.

The steels were developed to answer the car industries demand for structural components that combines low weight and corrosion protection with a cost effective production. Dogal H LAD steels successfully fulfill these tough demands. There is a big interest from the silo industry that wants the possibility to build lighter silos which will be easier to transport and install than conventional silos.

Tolerances

Dogal H LAD steels are supplied with tolerances in accordance with EN 10051.

Zink coating

The various coating thicknesses are classified into weight classes which specify the minimum zinc weight in g/m² on both sides, as determined by means of the triple-spot test in accordance with EN 10327. Coating thickness is available up to 450 g/m² on request.

Weight class	Coating thickness per side * µm	Weight determination g/m ² on two sides,	
		Triple spot test min	Single test min
Z100	7	100	85
Z120	8	120	100
Z140	10	140	120
Z200	14	200	170
Z275	20	275	235

* The values are calculated on the basis of the minimum values for the triple-spot test (1 µm = 7,14 g/m²).

Surface treatment

LAD steels are provided with chemical passivation and/or oiling as surface protection. The chemical passivation is chromate free and fulfills the demands in the End-of-life Vehicles Directive (2000/53/EC) and the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (2002/95/EC).

Heat treatment

Heat treatment of Dogal H LAD steels should be avoided. The heating can affect the zinc coating which can result in poor appearance and deterioration of the corrosion properties. If the material is heated the temperatures should be limited to max 200°C.

Mechanical properties

Steel grade longitud direction	Yield strength R_{eH} N/mm ² min - max	Tensile strength R_m N/mm ² min - max	Elongation A_{80} % min	Minimum inner radius in 90° bend (t = thickness)
Dogal H 420LAD	420 - 520	480 - 620	16	1xt
Dogal H 500LAD	500 - 600	560 - 700	14	1xt
Dogal H 550LAD	550 - 650	610 - 760	14	1xt
Dogal H 600LAD	600 - 720	650 - 820	13	1xt
Dogal H 650LAD	650 - 780	700 - 880	12	1xt
Dogal H 700LAD	700 - 850	750 - 950	10	1xt

Chemical composition

Steel grade	C (%) max	Si (%) max	Mn (%) max	P (%) max	S (%) max	Al (%) min	Nb (%) max	V (%) max	Ti (%) max
Dogal H 420LAD	0.10	0.03	1.50	0.025	0.010	0.015	0.09	0.20	0.15
Dogal H 500LAD	0.10	0.10	1.60	0.025	0.010	0.015	0.09	0.20	0.15
Dogal H 550LAD	0.12	0.10	1.80	0.025	0.010	0.015	0.09	0.20	0.15
Dogal H 600LAD	0.12	0.10	1.90	0.025	0.010	0.015	0.09	0.20	0.15
Dogal H 650LAD	0.12	0.10	2.00	0.025	0.010	0.015	0.09	0.20	0.15
Dogal H 700LAD	0.12	0.10	2.10	0.025	0.010	0.015	0.09	0.20	0.15

Welding

Dogal H LAD offer excellent welding characteristics. All the conventional fusion welding methods can be used.

All steel grades fulfill standard GMW 3032 except Dogal H 600LAD.

Specifications herein are for general reference only. They are valid at date of publication and are subjects to change without notice due to ongoing product development.

Specifications are binding only if confirmed in writing.

Technical service and information

Knowledge Service Center will be pleased to assist with additional information concerning this product from SSAB, +46-243-729 29, or use SSAB own website www.ssab.com.



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