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Hydro Stormwater Grate and Frame

Technical Guide SP2.5

Hydro Stormwater Grate and Frame offers a quality product that is visually appealing, high performance, complies with recognised standards, and has a superior flow capture capability.

Applications

Stormwater applications, where higher performance is critical

Product Attributes

Ductile Iron casting sustains high impact loads

Large open area gives an increased hydraulic capture

A visually appealing grate that is cycle friendly

Grate is hinged and bolted down – no more stolen grates

Lightweight and flat level design replaces the heavy concave conventional grate and frame

Approvals/Standards

Manufactured and tested to AS/NZS 3996:2006 Class D rating 210 kN

HN-HO-72 Transit Loading 250 kN

Quality

ISO 9001:2008 Quality Management Standard

Hydro Stormwater Grate and Frame offers a quality product that is visually appealing, high performance, complies with recognised standards, and has a superior flow capture capability.

Design Specifications

- Fits the correspinding standard concrete sumps
- Frame incorporates side locking for better anchoring in surrounding concrete apron
- With its unique wavy pattern, the Hydrograte disrupts and captures water flow far more efficiently than a conventional slotted grate.
- Manufactured with ductile iron – up to 35% lighter than a conventional cast iron grate and frame.
- To enable identification, all castings are marked with product weight, manufacturer, standard and class rating, in accordance with standard AS/NZS 3996:2006.

Testing

- Tested in accordance with required standards by third party accredited laboratory of Opus International Consultants Ltd.

Durability

- Ductile iron material provides excellent corrosion resistant properties and sustains high impact loads

Availability

- Hydro Grate available in the following sizes

TABLE 1 **Product Range**

Code	**Description**	**Class** (mm)
DIHSTGFD	Hydro DI S/W Grate and Frame	Class D 675 x 450
DIHSTGFD800450	Hydro DI S/W Grate and Frame	Class D 800 x 450
DIHSTGFD580350	Hydro DI S/W Grate and Frame	Class D 580 x 350
DIHSTGFD580350C	Hydro DI S/W Concave Grate and Frame	Class D 580 x 350
DIHSTGFD450450	Hydro DI S/W Grate and Frame	Class D 450 x 450

FIG. 1 HYDRO 675x450 on std concrete sump, displaying increased capture capability

Volumetric Flow Calculation Comparison for Standard 675 x 450 mm concrete grate and Hydro D.I. grate

TABLE 2 Product Dimensions and Characteristics

Parameter	Hydro 675 x 450 Grate	675 x 450 Cesspit Cover
Slot Length	60 mm	39 mm
No. of longitudinal slots	10	10
Slot width	45 mm	338 mm
No. of traverse slots	7	1
Area of single slot gap	2700 mm^2	13182 mm^2
Total No. of grate slots	70	10
Net clear opening area	189000 mm^2	131820 mm^2

TABLE 3 Hydro D.I. Grate Flow Capacity

Depth of Water (mm)	Flow Capacity (no blockage) (L/s)	Flow Capacity (80% blockage factor) (L/s)
10	3.0	0.6
20	8.6	1.7
50	34	6.8
100	96	19.2
150	176	35
200	225	45

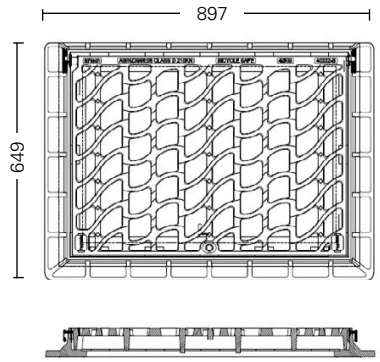
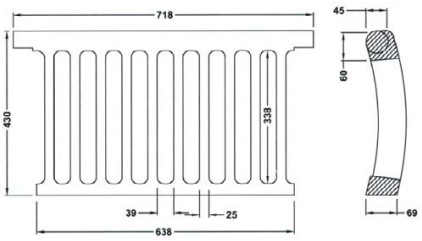


TABLE 4 Std. C.I. 675 x 450 Cesspit Grate Flow Capacity

Depth of Water (mm)	Flow Capacity (no blockage) (L/s)	Flow Capacity (80% blockage factor) (L/s)
10	2.4	0.5
20	6.8	1.4
50	27	5.4
100	76	15.3
150	136	27
200	157	31



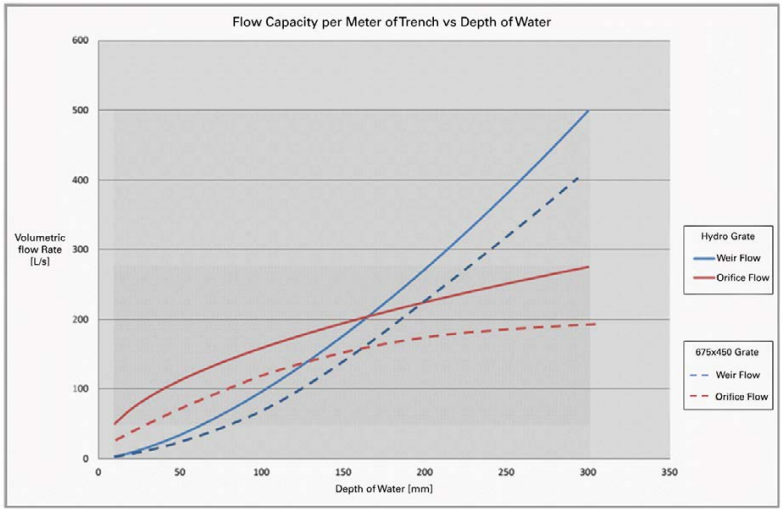


FIG. 2 Flow Capacity per Meter of Trench Vs. Depth of Water. Hydro and Standard Grate Comparison

Volumetric Flow Calculation Comparison for 800 x 500 mm grates and Hydro DI Grate

TABLE 5 Product Dimensions and Characteristics

Parameter	Class DHydro Grate	Tasman Grate	Manning Grate
Slot Length	65 mm	150 mm	390 mm
No. of longitudinal slots	10	5	2
Slot width	50 mm	20 mm	15 mm
No. of traverse slots	7	8	12
Area of single slot gap	3250 mm^2	3000 mm^2	5850 mm^2
Total No. of grate slots	70	40	24
Net clear opening area	227500 mm^2	120000 mm^2	140400 mm^2

TABLE 6 Class D Hydro Grate Flow Capacity

Depth of Water (mm)	Flow Capacity (no blockage) (L/s)	Flow Capacity (80% blockage factor) (L/s)
10	3.3	0.7
20	9.4	1.9
50	37	7.4
100	105	21.0
150	193	39
200	270	54

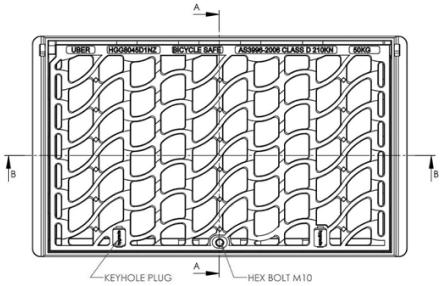


TABLE 7 Tasman Grate Flow Capacity

Depth of Water (mm)	Flow Capacity (no blockage) (L/s)	Flow Capacity (80% blockage factor) (L/s)
10	3.0	0.6
20	8.5	1.7
50	34	6.8
100	96	19.1
150	123	25
200	143	29

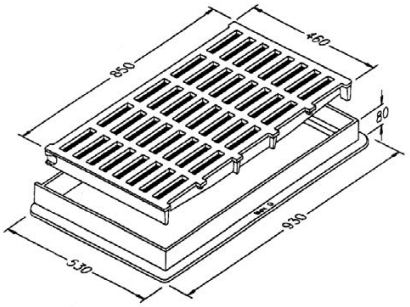
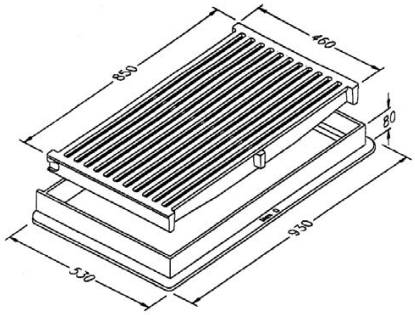


TABLE 8 Manning Grate Flow Capacity

Depth of Water (mm)	Flow Capacity (no blockage) (L/s)	Flow Capacity (80% blockage factor) (L/s)
10	3.2	0.6
20	9.0	1.8
50	36	7.1
100	101	20.2
150	144	29
200	167	33



Note: *Flow report available on request*