



Specializing in the supply of
horticultural products and equipments to
the greenhouse and nursery
industry since 1992.

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OPERATION OF THE ELECTRONIC CATALOG AND LINKS

The catalogue is available in electronic format which provides additional information, to shop or proceed quickly to the desired parts catalogue. Moreover, the links are constantly updated to bring you the latest information possible.

How to operate the manual and the meaning of pictograms.

Installing the software on your desktop.

- *Via our website: www.ghlinc.com*

Navigation in the catalogue

To move through the catalogue you can click on items in the TOC or to go directly to the desired section

Additional information:

• *Info @ Click on this icon for a web link and see the updated information or additional related to this product.*

@ *Spec Click on this icon for a web link and see the specifications of the product such as: sheets, size, weight, construction etc. ...*

@ *Follow the product number using this option, you can also buy online, products related to the catalogue, weather you have an account already set up or not.*

If you do not have an account you can buy online, but your purchases will be confirmed by credit card at the end of your shopping session.

"With an "open account"

If you have an account with GHL, You can buy online from your line of credit. Simply contact us to get a user ID and password. Also the price list that will apply used for purchases made through our Representatives.

***** If you need help or want to create your password, please contact Nathalie Ledoux at
1-888-791-2223 ext: 2225**

INTRODUCTION

OUR STORY ...

It was in the basement of the Ledoux family home where the business started in august 1992. From the beginning the company has offered products to a very specific clientele. Being vegetable and ornamental greenhouse growers.

One year later, in 1993, we first entered the Mexican market and in 1995 we began sales to the US. With this rapid growth additional warehousing was required in 1998, in 2000 and most recently 2009. Through the addition on new employees & agronomists etc.. We have been able to offer increased levels of service and customer commitment.

GHL is proud to have a team of 16 to 32 people year round offering their own qualifications and pursuing the same objectives.

OUR MISSION ...

Our goal is to satisfy our customers through every stage of the buying process.

The main target are a professional quality service, increase the right use of right product for our customer in order to set our self as a better supplier on the market.

Our quality rules are to offer service above the standard of the industry in terms of the right choice of product, quality of information, quality of logistics and finally in the follow up of current and future needs of our customers and of the industry in general.

A SATISFIED CLIENTELE...

GHL is constantly evaluating the market to bring together the best and latest technology with our clientele. Our typical customer is looking to optimise the quality of their crops. And for that reason our customers can rely on us.

A QUALIFIED TEAM...

You can rely on our multidisciplinary team. Our specialists are always doing their best to offer their agronomic or technical knowledge.

Our technical representatives are trained to understand your need and give you their support in order to help you choose the right product or service for your specific needs.

All of our team has been trained under ISO 9001:2000. You can rely on us!

A team you can trust!



CONDITIONS OF SALE

Your order and subsequent acceptance of the material constitutes acceptance of the terms and conditions below.

➤PRICE

Prices are FOB Ste-Helene (Quebec), unless otherwise specified, and are subject to change without notice.

➤TERMS

Payment terms are net 30 days from the shipping date with approval credit. Payment will be requested in advance of delivery on orders where a credit application has not been completed or accepted. An administration fee of 1.25% per month (15% years) will be applied to all accounts over 30 days.

➤TAXES

Taxes: federal and provincial governments are added to products for which they are applicable unless you present a certificate of exemption recognized with your order or provide a valid copy for our records.

➤SEEDS

All claims on the seed must be submitted within the time prescribed by the breeder, allowing them to inspect the germination or crop. In the event of an error by the seed companies, liability is limited to replacement of the defective seed free or refund of the payment made. This becomes the limit and only guarantee of our obligations. (This guarantee is the maximum accepted by the seed companies).

➤RECOMMENDATIONS

All recommendations given by our representatives, or presented in this catalogue come from experimental results specific locations and multiple recognized sources. GHL and its employees will in at no way responsible for any damage or failure incurred due to recommendations given by its representatives.

➤WARRANTY

All guarantees in relation to various products and equipment sold by GHL or described in the present catalogue are those of the manufacturer. The Company shall not be liable for damage caused to any equipment, person or crop, by defective hardware. Any equipment repaired or altered by other suppliers, without written consent from our company will avoid any warranty.

SEEDS

In this catalogue, we give a complete description of our most popular varieties and new introductions. Under certain environmental conditions and culture, some varieties show better performance. We recognize the importance of these factors, although some varieties are not shown in this catalogue, they remain available. For more information on seed availability, please contact your representative, our website or our seed dealers.

DE RUITER SEEDS Inc.



VARIETIES OF GREENHOUSE CUCUMBER**ENGLISH CUCUMBER****‘ADDISON’*****New*****Upcoming**

Productive cultivar with high resistance to powdery mildew. Vigorous plant, open and well balanced. PMR, CMVR, CVYVR Length: 34-40 cm.

**‘KALUNGA’*****Organic available!*****110-02010075**

Early and productive cultivar that adapts well to weather and crop times. Strong plant, compact, open and well balanced. PMT HR: Cca / CCU Length: 31-34 cm.

**‘CAMARO’*****DE RUITER SEEDS Inc.*****110-02010100**

Vigorous variety, Balanced plant habit, High yield even under low light, Partial tolerance to Powdery Mildew, Low susceptibility to Fusarium, Dark green color, Nicely ribbed, Medium to long even under low light, Ideal variety for winter production, Can be sown in the spring or fall as well Length: 34 to 40 cm.

**‘LOGICA’*****DE RUITER SEEDS Inc.*****110-02010060**

Early into production, Strong against burnt heads, High yield potential, Generative-vigorous variety, Open plant, Tolerance to Fusarium, High Mildew tolerance, Less spraying, Fruits medium to long, Dark color, slightly ribbed and no shoulder Very good shelf life. PMT Length 34 to 42 cm.

‘DISCOVER’***DE RUITER SEEDS Inc.*****110-02010040**

Culture late spring and summer (sowing after March 1), produces well in hot conditions. High tolerance to white (powdery mildew). Plant growth moderate. Good performance and good quality fruit. PMT Length 32-40cm.

‘DOMINICA’***DE RUITER SEEDS Inc.*****110-02010055**

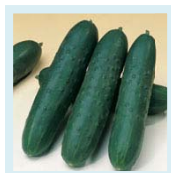
Vigorous variety, High yield potential, Strong against burnt heads, Strong tolerance to Powdery Mildew, Medium to long (34 to 40 cm), Dark green with excellent shelf life, Very straight, Slightly ribbed

MINI CUCUMBER**‘JAWELL’*****DE RUITER SEEDS Inc.*****110-02010050**

Partial Powdery mildew Tolerant, Year round planting, CMVT and CVYVT, 1-2 fruits per node, Generative variety with nice vigorous laterals, Early into production, 14-16cm

**‘PICOLINO’****110-02010050**

This great variety is ideal for manufacturers looking for excellent quality. Extremely uniform, the cucumbers are 12 cm long and are dark green and shiny. Plants compact, vigorous and well balanced produce three to four fruits per node. HR: Cca / CCU. | IR: SF / CMV / CVYV

CUCUMBER AMERICAN**‘AKITO’*****Organic available!*****110-02010050**

An early variety resistant to white (gynoecious). Akito grows steadily and produces well. The fruit is approximately 20cm. Very good resistance to Cladosporium. HR: CCU. | IR: SF / CMV

VARIETIES OF GREENHOUSE TOMATO**TOMATO RED (Beefsteak)*****Reference product*****‘TRUST’****DE RUITER SEEDS Inc.**[110-01030130](https://www.de-ruiter-seeds.com/110-01030130)

High yielding varieties. The fruit is firm, sweet with good storage capabilities and size, around 200g. Good fruit setting under low light conditions. (Tm, C5, V, F2, Fr, Wi)

**‘GERONIMO’****DE RUITER SEEDS Inc.**[110-01030130](https://www.de-ruiter-seeds.com/110-01030130)

Tolerance to powdery mildew. Fruit are 240g beautiful coloured and taste. Resistant to micro cracking. (HR ToMV / Ff: 1 -)

**‘STARBUCK’****DE RUITER SEEDS Inc.**[110-01030130](https://www.de-ruiter-seeds.com/110-01030130)

Variety with large fruit, and much stronger than the variety QUEST, with significantly improved appearance and firmness and fruit retention. ToMV / Ff :1-5 / Fol: 0,1 / Va / Vd

‘HERITAGE’[110-01030130](https://www.de-ruiter-seeds.com/110-01030130)

Early production of high performance. Fruit quality and uniform in size, about 250gr. Good capacity retention and good taste. Plant well-balanced, regular fruit set.

**‘MARIACHI’**[110-01030130](https://www.de-ruiter-seeds.com/110-01030130)

Vigorous uniform clusters around 210gr. Early to set fruit even in difficult condition. Must be grown generatively. ToMV / Cf :1-5 / Fol: 0,1 / For / Va / Mi

TOMATO ROSE**‘TOMIMARY MUCHOO’ (DRK-568) DE RUITER SEEDS Inc. [110-01030085](https://www.de-ruiter-seeds.com/110-01030085)**

Fruit of about 160-180g. Firm, round tomatoes. Less spoiled fruit than the cultivars 'DRK-452' and 'DRK-453' in times of low light but susceptible to blossom end rot in summer. To manage individual in the greenhouse. More productive than 'DRK-452' and 'DRK-453'. (HR ToMV; FF1-5; Fol0, 1; For, Ma, Mi, Mj, Si)

Reference product**‘MAKARI’ (DRK-453) DE RUITER SEEDS Inc.**[110-01030080](https://www.de-ruiter-seeds.com/110-01030080)

180-240 g of fruit, very good early and total yield. Less susceptible to blossom end rot and good resistance to cracking. Good quality fruit without green collar with a sweet taste. (Tm, C5, V, F2, Fr)

CLUSTER TOMATO



‘CLARANCE’

DE RUITER SEEDS Inc.

[110-01020030](tel:110-01020030)

Fruits of 140-160g on clusters generally 5 with beautiful red color. It is best to sow in spring and summer. The clusters form "boom" are flat making it easy canning. Variety resistant to blossom end rot.



‘TRICIA’

DE RUITER SEEDS Inc.

[110-01030125](tel:110-01030125)

Fruit size of 135-150g prone generative. Good performance but must be transplanted to many cultures. Clusters firm fruit firmly attached and uniform maturation and enlargement. Variety more suited to a spring production. (ToMV; C5, V, F2, Fr, Wi)

TOMATO SPECIALTY

‘AMSTERDAM’



‘FLAVORINO’

Cocktail red elongated



‘CONCHITA’

Cherry-red cluster



‘PICOLINO’

Cocktail red



‘DASHER’

Cherry red grape



‘GOLDINO’

Cocktail yellow



‘FAVORITA’

Cherry Red



‘RED DELIGHT’

Cocktail red



‘GOLDITA’

Yellow-orange Cherry



‘LORENZO’

Grape Yellow

ET CETERA !

Several other varieties of tomatoes are available, please consult your representative.

ROOTSTOCK**(Instructions for grafting on request)****'BEAUFORT'** (untreated, germinated)**DE RUITER SEEDS Inc.** [110-01040015](tel:110-01040015)

The standard for several years. Very vigorous, using soil and substrate. Rootstock with very good resistance. Improves yields. The root system is very strong giving more vegetative buds. Now germinated: germination more equal and more uniform than in the past. (HR ToMV; Fol0, 1; For; Pl, Va.; Vd; Ma, Mi, Mj)

**'MAXIFORT'** (untreated)**DE RUITER SEEDS Inc.** [110-01040050](tel:110-01040050)

Rootstock is more vegetation and stronger than the 'Beaufort'. Improves yields. The root system is very strong giving very vegetative buds. For use with a graft which we multiply the number of heads. Germination uneven and inconsistent. (HR ToMV; Fol0, 1; For; Pl, Va.; Vd; Ma, Mi, Mj)

VARIETIES OF GREENHOUSE LETTUCE**TYPE BOSTON** (days long)***Product reference*****'ELTON'**[110-04020030](tel:110-04020030)

Sowing: January 20 to 31 August. Variety subject to good market introduction in early summer. Plant slender to medium size / large, with attractive heart. Good tolerance to summer sun and has a firm base. Bremia, Bl 1-17, 19, 21)

OTHER LETTUCE

Other varieties of boston lettuce (short days and long days), leaf lettuce and oak leaf are available. For more details, please contact with a representative.

VARIETIES OF GREENHOUSE PEPPERS

Several varieties of peppers are available, please contact your representative.

EXPLANATION OF SYMBOLS OF RESISTANCE

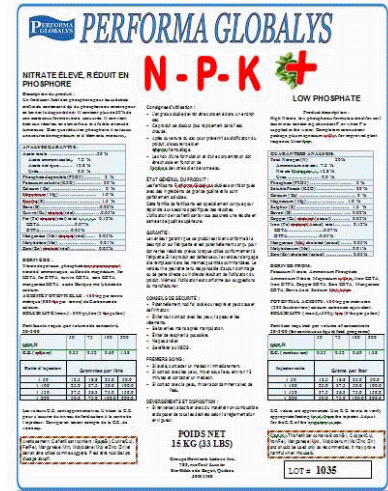
<i>Symbole</i>	<i>Latin Name</i>	<i>Name ENGLISH/FRENCH</i>
A	-	Antracnose
Aal	<i>Alternaria alternata</i> f.sp. <i>lycopersici</i>	Alternaria stem canker
As	<i>Alternaria solani</i>	Early blight / Alternariose
BCTV	<i>Beet curly top curtovirus</i>	Curly top
Bl	<i>Bremia lactucae</i>	Downy mildew / Mildiou (chez la laitue)
BWYV	<i>Beet western yellows virus</i>	Yellows
Cca ou Cc	<i>Corynespora cassicola</i>	Corynespora blight and target spot / Taches foliaires
Ccu	<i>Cladosporium cucumerinum</i>	Scab and gummosis / Cladosporiose
C5	<i>Cladosporium cucumerinum</i> races A, B, C D et E	Moississure olive
Cf	<i>Cladosporium fulvum</i> 1-5	Leaf mold / moississure des feuilles de tomate
CGMMV	<i>Cucumber green mottle mosaic tobamovirus</i>	Cucumber green mottle
ChiVMV	<i>Chili veinal mosaic virus</i>	Chili veinal mosaic
Cmm	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	Bacterial canker / Chancre bactérien
CMV	<i>Cucumber mosaic cucumovirus</i>	Cucumber mosaic / Virus de la mosaïque du concombre
Co	<i>Colletotrichum orbiculare</i>	Anthraxnose
CVYV	<i>Cucumber vein yellowing ipomovirus</i>	Cucumber vein yellowing virus
CYSDV	<i>Cucurbit yellow stunting disorder crinivirus</i>	Cucumber Yellowing Stunting disorder
Db	<i>Didymella bryoniae</i>	Gummy stem blight
Ec (ou Gc)	<i>Erysiphe cichoracearum</i> (now <i>Golovinomyces cichoracearum</i>)	Powdery mildew / Oïdium
Et	<i>Erwinia tracheiphila</i>	Bacterial wilt
Ff (ex Cf)	<i>Fulvia fulva</i> (ex <i>Cladosporium fulvum</i>)	Leaf mold / Cladosporiose
Foc	<i>Fusarium oxysporum</i> sp. <i>Cucumerinum</i> ou sp. <i>Capsici</i>	Fusarium wilt / Pourriture des racines, Fusariose
Fol	<i>Fusarium oxysporum</i> f.sp. <i>lycopersici</i> ou sp. <i>lactucae</i>	Fusarium wilt / Pourriture des racines, Fusariose
For (ou Fr)	<i>Fusarium oxysporum</i> f.sp. <i>radicis-cucumerinum</i> ou <i>radicis-lycopersici</i>	Fusarium crown and root rot / Pourriture des racines
F1 et F2	<i>Fusarium</i> races 1 and 2	Fusarium
Fsc	<i>Fusarium solani</i> f.sp. <i>cucurbitae</i>	Crown and root rot
KGMMV	<i>Kyuri green mottle mosaic tobamovirus</i>	Cucumber green mottle
LMV	<i>Lettuce mosaic potyvirus</i>	Lettuce mosaic
LNSV	<i>Lettuce necrotic stunt tombusvirus</i>	Lettuce die-back
Lt	<i>Leveillula taurica</i> (anamorph : <i>Oidiopsis sicula</i>)	Powdery mildew / Leveillula taurica / Oïdium
Ma	<i>Meloidogyne arenaria</i>	Root-knot / Nématode à galles
Mi	<i>Meloidogyne incognita</i>	Root-knot / Nématode à galles
Mj	<i>Meloidogyne javanica</i>	Root-knot / Nématode à galles
MLBVV	<i>Mirafiori lettuce big-vein ophiovirus</i>	Lettuce big vein
Mp	<i>Microdochium panattonianum</i>	Anthraxnose
N ou M	-	La plupart des nématodes (Meloidogyne)
On (ex Ol)	<i>Oidium neolycopersici</i> (ex <i>Oidium lycopersicum</i>)	Powdery mildew / Oïdium
P	-	La plupart des racines liégeuses
Pc	<i>Pseudomonas corrugata</i> ou <i>cichorii</i>	Pith necrosis / Bacterial rot
Pc	<i>Phytophthora capsici</i>	Buckeye fruit and root rot
Pcu ou Dm	<i>Pseudoperonospora cubensis</i>	Downy mildew / Mildiou
PepMoV (ou PMoV)	<i>Pepper Mottle Virus</i>	Pepper mottle
PepMV (ou PMV)	<i>Pepino mosaic potexvirus</i>	Pepino mosaic virus
PepYMV (ou PYMV)	<i>Pepper yellow mosaic virus</i>	Pepper yellow mosaic
Pi	<i>Phytophthora infestans</i>	Late blight / Mildiou
Pl ou K	<i>Pyrenochaeta lycopersici</i>	Corky root rot / racine liégeuse
Pm	Pathogène spécifique à l'espèce de plante cultivée	Powdery mildew / Oïdium
Pp	<i>Phytophthora parasitica</i>	Buckeye fruit and root rot
PRSV	<i>Papaya ringspot potyvirus</i>	Papaya ringspot
PsI	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Angular leaf spot
Pst	<i>Pseudomonas syringae</i> pv. <i>tomato</i>	Bacterial speck / Moucheture
PVY	<i>Potato Y Virus</i>	Potato Y
Rs	<i>Ralstonia solanacearum</i>	Bacterial wilt
Rs (ou Ss)	<i>Rhizomonas suberifaciens</i> (now <i>Sphingomonas suberifaciens</i>)	Corky root
S	-	Pepper stip (physiological disorder)
Sbl	<i>Stemphylium botryosum</i> f.sp. <i>lycopersici</i>	Gray leaf spot
Sf (now Px)	<i>Sphaerotheca fuliginea</i> (ou <i>Podosphaeria xanthii</i>)	Powdery mildew
Si ou Wi	-	Silvering / Argenture
Sl	<i>Stemphylium lycopersici</i>	Gray leaf spot / Stemphyliose
Ss	<i>Stemphylium solani</i>	Gray leaf spot / Stemphyliose
TBSV	<i>Tomato bushy stunt tombusvirus</i>	Lettuce die-back
TEV	<i>Tobacco etch Virus</i>	Tobacco etch
Tm :0-3	<i>Pepper mild mottle virus, Tobacco mild green mosaic virus, Tobacco mosaic virus, Tomato mosaic virus</i>	
TMV ou Tm	<i>Tobacco mosaic tobamovirus</i>	Tobacco mosaic / Virus de la mosaïque du tabac
ToMV (ou ToMV 0-2)	<i>Tomato mosaic tobamovirus</i> (0-2 = souches 0, 1, 1.2 et 2)	Tomato mosaic/ Virus de la mosaïque de la tomate
TSWV	<i>Tomato spotted wilt tospovirus</i>	Tomato spotted wilt
TYLCV	<i>Tomato yellow leaf curl begomovirus</i>	Tomato yellow leaf curl
V	<i>Verticillium albo-atrum</i> et <i>Verticillium dahliae</i>	Verticillium wilt / Verticilliose
Va	<i>Verticillium albo-atrum</i>	Verticillium wilt/ Verticilliose
Vd	<i>Verticillium dahliae</i>	Verticillium wilt / Verticilliose
WMV	<i>Watermelon mosaic potyvirus</i>	Watermelon mosaic
Xcv	<i>Xanthomonas vesicatoria</i> ou <i>Xanthomonas campestris</i> pv. <i>vitians</i>	Bacterial spot / Gale bactérienne
ZYMV	<i>Zucchini yellow mosaic potyvirus</i>	Zucchini yellows
R	Resistance : range to maintain a level of infestation under par when compared to susceptible varieties.	
HR	High resistance : maintains a level of infestation under par when compared to susceptible varieties. May show some symptoms in cases of heavy infestation.	
IR	Intermediate resistance: maintains a infestation levels below normal compared to susceptible varieties. May show more symptoms than resistant varieties.	
T	Tolerant: variety may undergo abiotic stress without serious loss of vigor or productivity. Shows that fewer symptoms lorsqu'exposée sensitive to plant pathogens.	

FERTILIZERS
WATER SOLUBLE FERTILIZER FORMULATION



GENERAL CHARACTERISTICS PRODUCT

Performa Globalys water soluble fertilizers are manufactured at our plant in Canada, with high quality ingredients and are perfectly soluble. This family of fertilizer is specially designed to meet the needs of your crops. Performa Globalys formulations consist of 3 forms of chelated iron which act independent of soil pH.. A major advantage, for producing healthier, more colourful crops.



SOLUBLE FERTILIZER	TYPICAL USE	# ITEM
13-0-45 PLUS *	Potassium nitrate	100-02011012
13-2-13 PLUS *	Full, Clean water	100-02011015
15-0-15 PLUS *	Calcium - Potassium	100-02011020
15-30-15	High Phosphorus	100-02011025
17-4-28 PLUS *	High Potash	100-02011030
20-20-20	Multipurpose	100-02011050
20-2-20 PLUS *	High Nitrate, low in phosphorus	100-02011035
20-5-30 PLUS*	Paver high potash	100-02011043
20-8-20 PLUS*	Nitrate high purpose	100-02011045
21-7-7	Acidifier	100-02011065
24-8-16	Leaf and Tropical	100-02011055
8-20-32 PLUS* New	Forestry	100-02011000
11-42-9 PLUS* New	Forestry	100-02011007
11-42-8 PLUS* New	2% Catalys	100-02011008

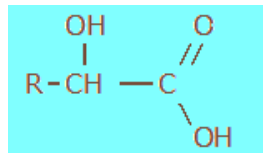
GRUPE HORTICOLE LEDOUX INC.



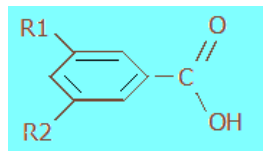


A natural stimulant !!

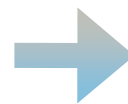
The Catalys is an additive that improves the performance of liquid fertilizer, granular and soluble in the cultures used in ground or above ground. It comes from the extraction of natural carboxylic plants allowing better absorption of captions and stimulation of systemic reactions:



Sucre pentose



Lignine



Guaranteed Minimum Analysis

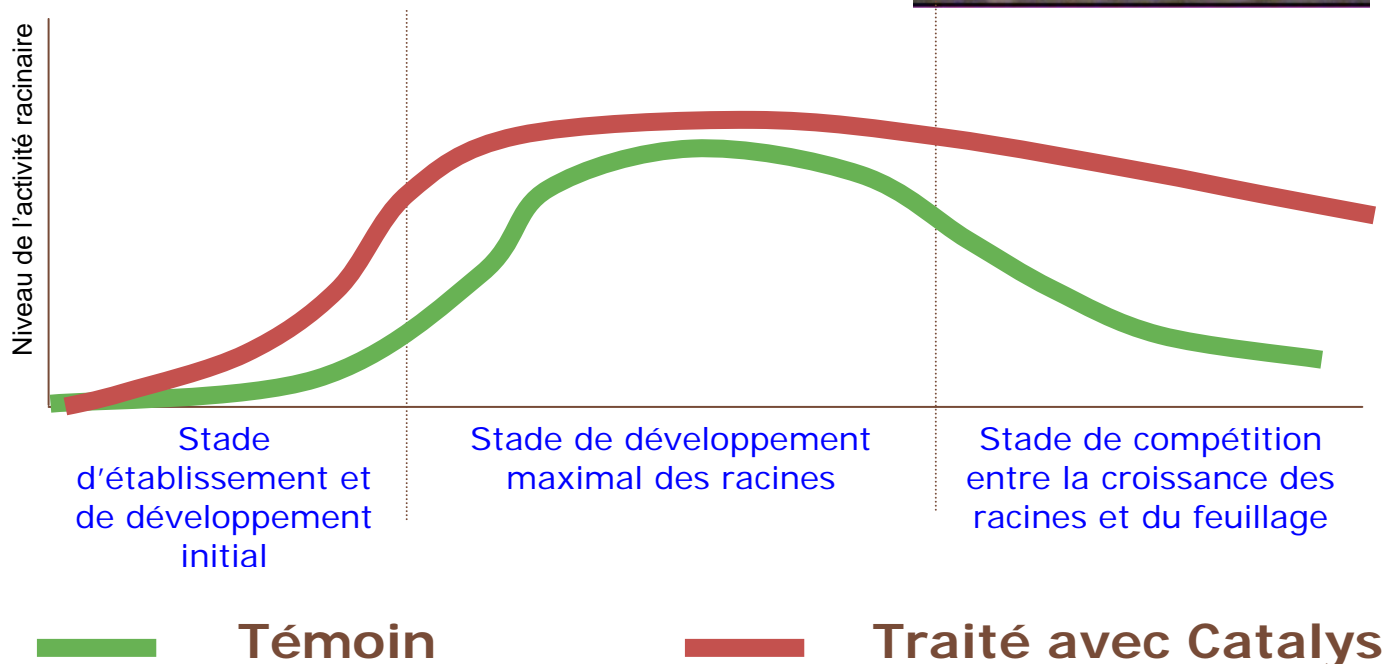
Nitrogen: 6%
 PHCA: Carboxylic acids (natural sugars) (85%)
 Content: 10 Litres
 Density: 1,15Kg/L
 pH: 6.8-6.9



*** Catalys is a product certification process for organic production***

Advantages of Catalys:

- ✦ Stimulates the absorption of Ca, Mg, K and Fe.
- ✦ Active in the prevention of blossom-end rot in tomatoes and peppers.
- ✦ Increasing dynamics in the roots :
 - More breathing
 - Better use of water
- ✦ Enhances synergy between roots and microorganisms.
- ✦ Accelerates growth of roots, stolons and sprouts (see picture).
- ✦ Very easy to use.
- ✦ To obtain higher yields and crop quality



Use of Catalys :

Conventional irrigation or drip field or greenhouse

Transplants forest

In the spring, as soon as possible after germination of seedlings, apply 1 litre per acre or 150 ppm of PHCA week for 2 to 3 weeks. Then move to the maintenance dose, 50 ppm PHCA every 3 weeks.

If plants must be transplanted into larger pots or if they suffer a stressful situation, again using 150 ppm of PHCA per week for 2 to 3 weeks. Then move to the maintenance dose, 50 ppm PHCA every 3 weeks.

(Catalys may very well be used in combination with other liquid fertilizers)

Fruit trees, vines & berries

(Apples, pears, cherries, peaches, strawberries, raspberries, blueberries)

Year established:

In the spring, as soon as possible, apply 1 litre per acre or 150 ppm of PHCA per week for 4 to 4 weeks. Apply again in mid-August, without exceeding the beginning of October, at a dose of 1 litre per acre or 150 ppm of PHCA a week for 3 to 4 weeks.

Year of production:

In the spring, as soon as possible, apply 1 litre per acre or 150 ppm of PHCA per week for 4 to 4 weeks. When flowering ends and begins the period of fruit development, implement new 1 litre per acre or 150 ppm of PHCA a week for 3 to 4 weeks.

Vegetables

(Tomatoes, cucumbers, lettuce, cabbage, celery, carrots, onions, potatoes)

After transplanting, apply 1 litre per acre or 150 ppm of PHCA per week for 3 to 4 weeks. Repeat applications of 1 litre per acre or 150 ppm of PHCA week at the beginning of flowering for 3 to 4 weeks.

Use of Catalys :

Hydroponic greenhouses:

Cucumbers

After transplanting, apply 40 ppm of PHCA in two weeks. Complete applications 2 to 3 weeks before harvest.

Tomatoes and peppers

After transplanting, apply 100 ppm PHCA week for the first 4 weeks. Between the 2nd and 4th month, apply 100 ppm PHCA to 3 weeks. From the 5th month until the end of the harvest, apply 100 ppm PHCA to 2 weeks.

Ornamental plants in greenhouses :

After transplanting, apply 40 ppm PHCA to 2 weeks. An continues application to Fertigation 10 ppm may also be used advantageously.

Caution

Application: It is preferable to use smaller doses at once and apply more often if possible.

Storage

The Catalys is no deposit and do not freeze. However, it is preferable to store at temperatures above 2°C.

Security:

Always wear protective clothing, goggles and gloves when using the product. Wash with water if contact with eyes or skin.

New

Recipes available tailored to meet your needs!!!



COMPLETE MICRO-NUTRIENTS

PERFORMA GLOBALYS PLUS (+)

GUARANTEED MINIMUM ANALYSIS:

Bore (B) (real).....	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron(Fe) chelated total (real)	0,12 %
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05 %

PERFORMA GLOBALYS

GUARANTEED MINIMUM ANALYSIS :

Bore (B) (real).....	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated EDTA (real).....	0,10 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05 %

CAUTION :

Datasheets on the fertilizers Performa globalys are subject to change, please inform your representative to get the latest details.

Fertilizer management and water quality. [Info Water Quality](#)

PERFORMA GLOBALYS
N-P-K+
 LOW PHOSPHATE

NITRATE ÉLEVÉ, RÉDUIT EN PHOSPHORE

ANALYSE GARANTIE:

Nitrate (N)	12,0%
Phosphore (P2O5)	2,0%
Potassium (K2O)	12,0%
Magnésium (Mg)	1,0%
Bore (B)	0,02%
Cuivre (Cu) chélaté EDTA	0,05%
Manganèse (Mn) chélaté EDTA	0,05%
Molybdène (Mo)	0,01%
Zinc (Zn) chélaté EDTA	0,05%

ANALYSE RÉELLE:

Nitrate (N)	12,0%
Phosphore (P2O5)	2,0%
Potassium (K2O)	12,0%
Magnésium (Mg)	1,0%
Bore (B)	0,02%
Cuivre (Cu) chélaté EDTA	0,05%
Manganèse (Mn) chélaté EDTA	0,05%
Molybdène (Mo)	0,01%
Zinc (Zn) chélaté EDTA	0,05%

POIDS NET 15 KG (33 LBS)

LOT# 1035



DESCRIPTION OF SOLUBLE FERTILIZERS AVAILABLE

13-0-44+ : NITRATE OF POTASH PLUS

PRODUCT DESCRIPTION: high quality potassium nitrate, containing chelated minor elements. Ideal in times of low light intensity or as a finisher. Mixes well with other nutrients in maintaining a level of minor elements in the proper mixture.

Derived from: potassium nitrate, iron EDTA, manganese EDTA, iron DTPA, copper EDTA, EDTA zinc, iron EDDHA, boric acid, magnesium oxide, sodium molybdate. **BASICITY POTENTIAL:** 240 kg / t (480 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 13-0-45+ :

Total Nitrogen(N)	13 %
Nitric nitrogen.....	13 %
Soluble potassium(K ₂ O).....	45 %
Bore (B) (real).....	0,02 %
Copper (Cu) chelated EDTA (real).....	0,05 %
Iron (Fe) chelated (real).....	0,12 %
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA.....	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real).....	0,05 %
Molybdenum (Mo) (real).....	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05 %

13-2-13+ : COMPLETE PURE WATER

PRODUCT DESCRIPTION: The 13-2-13 formulation is high in calcium and magnesium. The source is nitric oxide. This formulation is ideal for multi-cell, substrates and artificial sources of water too pure or too low in alkalinity. Alkalifying Its potential is moderately high or is a fertilizer with a potential basicity or moderate.

Derived from: calcium nitrate, magnesium nitrate, potassium nitrate, monoammoniacal phosphate, iron EDTA, manganese EDTA, iron DTPA, magnesium oxide, copper EDTA, EDTA zinc, iron EDDHA, boric acid, sodium molybdate.

BASICITY POTENTIAL: 170 kg / t (340 lbs / t) of CaCO₃

SOLUBILITY (max.): 360 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lb)

GUARANTEED MINIMUM ANALYSIS 13-2-13+ :

Total Nitrogen(N)	13 %
Ammoniacal nitrogen.....	0,7 %
Nitric nitrogen	12,3 %
Available phosphate(P2O5)	2%
Soluble potassium(K ₂ O).....	13 %
Calcium (Ca).....	6,6 %
Magnesium (Mg).....	3,3 %
Bore (B) (real).....	0,02 %
Copper (Cu) chelated EDTA (real).....	0,05 %
Iron (Fe) chelated (real).....	0,12%
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA.....	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real).....	0,05 %
Molybdenum (Mo) (real).....	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05%

15-0-15+ : CALCIUM-POTASSIUM

PRODUCT DESCRIPTION: The 15-0-15 is high in nitrate nitrogen. It is ideal for cool climate and during low light. This formulation is high in calcium, which is an essential component of fertility programs. It is used alternately with 20-8-20. It is a fertilizer with a high potential alkalinity.

Derived from: calcium nitrate, potassium nitrate, ammonium nitrate, iron EDTA, manganese EDTA, iron DTPA, magnesium oxide, copper EDTA, EDTA zinc, iron EDDHA, boric acid, sodium molybdate.

BASICITY POTENTIAL: 190 kg / t (380 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 15-0-15+ :

Total Nitrogen(N)	15 %
Ammoniacal nitrogen.....	1,1 %
Nitric nitrogen.....	13,9 %
Soluble potassium(K ₂ O).....	15 %
Calcium (Ca).....	12 %
Magnesium (Mg).....	0,2 %
Bore (B) (réel).....	0,02 %
Copper (Cu) chelated EDTA (real).....	0,05 %
Iron(Fe) chelated (real)	0,12%
Iron (Fe) chelated EDTA	0,07%
Iron (Fe) chelated DTPA.....	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real).....	0,05 %
Molybdenum (Mo) (real).....	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05 %



15-30-15 : HIGH PHOSPHORUS

DESCRIPTION OF PRODUCT: Excellent formulation for use when transplanting. Promotes flowering and fruit production. Especially good for planting tomatoes and cucumbers, it is also useful to emphasize the color pink in hydrangeas. It is a general purpose formulation with a high potential acidifying.

DERIVATIVE: monoammoniacal phosphate, potassium nitrate, urea, magnesium sulphate, iron EDTA, manganese EDTA, copper EDTA, zinc EDTA, boric acid, magnesium oxide, sodium molybdate.

POTENTIAL ACIDITY: 300 kg / t (680 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 15-30-15 :

Total Nitrogen(N)	15 %
Ammoniacal nitrogen	6,0 %
Nitric nitrogen	4,5 %
Urea	4,5 %
Phosphoric Acid(P ₂ O ₅)	30 %
Soluble Potassium (K ₂ O)	15 %
Magnesium (Mg)	0,5 %
Sulfur (S)	0,4 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated EDTA (real)	0,10%
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real)	0,05 %

17-4-28+ : HIGH POTASSIUM

PRODUCT DESCRIPTION: To correct the deficiencies of potassium in mid-season and to provide optimal nutrition for the majority of flowering plants and encourage finishing for sale. It contains over 70% of N as nitrate, without urea. It is a source of Mg and minor elements. Acidifying potential is zero. Used when you do not want to affect the pH.

Derived from: potassium nitrate, ammonium nitrate, phosphate monoammoniacal, magnesium sulphate, iron EDTA, manganese EDTA, iron DTPA, magnesium oxide, copper EDTA, EDTA zinc, iron EDDTA, boric acid, sodium molybdate.

POTENTIAL ACIDITY: 0 kg / t (0 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 17-4-28+ :

Total Nitrogen	17 %
Ammoniacal nitrogen	4,7 %
Nitric nitrogen	12,3 %
Phosphoric Acid(P ₂ O ₅)	4 %
Soluble potassium(K ₂ O)	28 %
Magnesium (Mg)	0,8%
Sulfur (S)	0,8 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated (real)	0,12%
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %

20-20-20 : MULTIPURPOSE

PRODUCT DESCRIPTION: A multi-purpose fertilizer balanced and designed to be used in greenhouses and outdoors. It can be used as a soil or foliar application in hot climates. It has a low electrical conductivity. It allows balanced vegetative growth.

Derived from: potassium nitrate, phosphate monoammoniacal, urea, iron EDTA, manganese EDTA, copper EDTA, zinc EDTA, boric acid, magnesium oxide, sodium molybdate.

POTENTIAL ACIDITY: 260 kg / t (580 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 20-20-20 :

Total Nitrogen (N)	19 %
Ammoniacal nitrogen	4,0 %
Nitric nitrogen	5,8 %
Urea	10,0 %
Phosphoric Acid(P ₂ O ₅)	20 %
soluble Potassium (K ₂ O)	20 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated EDTA (real)	0,10%
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real)	0,05 %



20-2-20+ : HIGH NITRATE, LOW POTASSIUM

PRODUCT DESCRIPTION: Low phosphorus substrates already containing artificial or to limit its availability. It contains over 60% of its nitrogen in nitrate form, without urea. It is well suited to crops in cool climate and low light intensity. Although reduced in P, there is also a source of Mg and minor elements.

Derived from: potassium nitrate, ammonium nitrate, magnesium sulphate, phosphate monoammoniacal, iron EDTA, manganese EDTA, iron DTPA, magnesium oxide, copper EDTA, EDTA zinc, iron EDDTA, boric acid, sodium molybdate.

POTENTIAL ACIDITY: 130 kg / t (280 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 20-2-20+ :

Total Nitrogen (N)	20 %
Ammoniacal nitrogen	7,2 %
Nitric nitrogen	12,8 %
Phosphoric Acid (P ₂ O ₅)	2 %
soluble Potassium (K ₂ O)	20 %
Magnesium (Mg)	1,0 %
Sulfur (S)	1,0 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated (real)	0,12 %
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real)	0,05 %

20-5-30+ : FINISHER HIGH IN POTASSIUM

DESCRIPTION OF PRODUCT: Excellent fertilizer during flowering and ripening of plants because of its high potassium content. Nitrogen 50% as urea fertilizer that provides luxuriant growth and bright green colour. The potential acidity of this fertilizer is low.

Derived from: potassium nitrate, urea, monoammoniacal phosphate, magnesium sulphate, iron EDTA, manganese EDTA, iron DTPA, copper EDTA, EDTA zinc, iron EDDTA, boric acid, magnesium oxide, sodium molybdate.

POTENTIAL ACIDITY: 57 kg / t (127 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 20-5-30+ :

Total Nitrogen (N)	20 %
Ammoniacal nitrogen	1,0 %
Nitric nitrogen	8,7 %
Urea	10,3 %
Phosphoric Acid (P ₂ O ₅)	5 %
Soluble Potassium (K ₂ O)	30 %
Magnesium (Mg)	0,1 %
Sulfur (S)	0,1 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated (real)	0,12 %
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real)	0,05 %

20-8-20+ : MULTI PURPOSE HIGH NITRATE

DESCRIPTION OF PRODUCT: Excellent fertilizer for artificial substrates. Over 60% of nitrogen as nitrate, without urea. It is well suited to crops in cool climate and low light intensity. It is also a source of magnesium and minor elements

Derived from: potassium nitrate, ammonium nitrate, phosphate monoammoniacal, magnesium sulphate, iron EDTA, manganese EDTA, iron DTPA, magnesium oxide, copper EDTA, EDTA zinc, iron EDDTA, boric acid, sodium molybdate.

POTENTIAL ACIDITY: 180 kg / t (360 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 20-8-20+ :

Total Nitrogen (N)	20 %
Ammoniacal nitrogen	7,6 %
Nitric nitrogen	12,4 %
Phosphoric Acid (P ₂ O ₅)	8 %
Soluble Potassium (K ₂ O)	20 %
Magnesium (Mg)	0,4 %
Sulfur (S)	0,2 %
Bore (B) (real)	0,02 %
Copper (Cu) chelated EDTA (real)	0,05 %
Iron (Fe) chelated (real)	0,12 %
Iron (Fe) chelated EDTA	0,07 %
Iron (Fe) chelated DTPA	0,04 %
Iron (Fe) chelated EDDTA	0,01 %
Manganese (Mn) chelated EDTA (real)	0,05 %
Molybdenum (Mo) (real)	0,01 %
Zinc (Zn) chelated EDTA (real)	0,05 %



24-8-16 : LEAF AND TROPICAL

PRODUCT DESCRIPTION: The ratio 3: 1: 2 (nitrogen: phosphorus: potassium) is recommended for tropical plants, lawns and indoor plants. The urea content is easily assimilated by the foliage making it a good foliar fertilizer.

DERIVED FROM: Potassium nitrate, mono ammonium phosphate, urea, ammonium sulphate, magnesium sulphate, iron EDTA, manganese EDTA, copper EDTA, zinc EDTA, boric acid, magnesium oxide, sodium molybdate.

POTENTIAL ACIDITY: 330 kg / t (742 lbs / t) of CaCO₃

SOLUBILITY (max.): 300 g / L (3 lbs / gallon)

NET WEIGHT: 15 kg (33 lbs)

GUARANTEED MINIMUM ANALYSIS 24-8-16 :

Total Nitrogen.....	24 %
Ammoniacal nitrogen.....	2,5 %
Nitric nitrogen.....	4,5 %
Urea.....	17,0 %
(Phosphoric Acid (P ₂ O ₅).....	8 %
Soluble Potassium K ₂ O.....	16 %
Magnesium (Mg).....	1,00 %
Sulfur (S) 2,5 %	
Bore (B) (réel).....	0,02 %
Copper (Cu) chelated EDTA (real).....	0,05 %
Iron (Fe) chelated EDTA (real).....	0,12 %
Manganese (Mn) chelated EDTA (real).....	0,05 %
Molybdenum (Mo) (real).....	0,01 %
Zinc (Zn) chelated EDTA (real).....	0,05 %

PROCEDURE FOR ORDERING CUSTOM FORMULATION:

Step 1: Contact a representative and communicate your needs (details of formulation and desired quantity of bags required, minimum 66 bags of 15 kg at the time) or equivalent.

Step 2: Your representative will send you a fax or an email containing a quote and a description of the formulation can be manufactured.

Step 3: Sign the description of the formulation and fax back as soon as possible to your representative to confirm the order.

Step 4: Your representative will then confirm the time of manufacture.

SINGLE ELEMENT FERTILIZERS

We keep in stock all the fertilizer needed for the composition of your nutrient solutions as well as a wide range of complete soluble fertilizer. We also distribute liquid fertilizers into simple elements. We will gladly send you suggestions for the composition of your fertilizer solutions, taking into account the needs of your specific crop and your water analysis. These are suggestions based on the results of mineral analysis or as recommended by various sources such as research and various publications and local experiences and our own in house agronomists.

LIQUID FERTILIZER

PRODUCT	ITEM (S) AVAILABLE(S)	FORMAT	# ITEM
Boron	10% B	10 L	100-0400010
Calcium	6% Ca	10 L	100-0400020
Copper	5% Cu	10 L	100-0400030
Iron	5% Fe	10 L	100-0400040
Potassium hydroxide	45% KOH	5 kg	100-0102085
Magnesium	4% Mg	10 L	100-0400060
Manganese	5% Mn	10 L	100-0400050
Molybdenum	2% Mo	10 L	100-0400070
Potassium silicate	20% Si ₂ O, 8% K ₂ O	10 L	100-01020185
Zinc	7% Zn	10 L	100-0400075

AMENDMENTS AND FERTILIZERS TO MODIFY THE PH

PRODUCT	ITEM(S) AVAILABLE(S)	FORMAT	# ITEM
FOR LOWER (↓) PH :			
Boric acid	---	1 kg	100-01010010
Citric Acid	---	25 kg	100-01010040
Nitric acid	67,2% - 68,2% HNO ₃	35 kg	100-01010050
Phosphoric acid	75% H ₃ PO ₄ , 54,3% P ₂ O ₅	30 kg	100-01010070
Ammonium nitrate	34 % N	25 kg	100-01020110
Ammonium phosphate (MAP)	12 % N, 61 % P ₂ O ₅	25 kg	100-01020098
Aluminum Sulfate		22, 7 kg	100-01020187
Ammonium sulphate	21% N	15 kg	100-01020196
Iron sulphate	21 % Fe	1 kg	100-01020200
Sulfur micro end	92 % S	22,7 kg	100-01040110
FOR INCREASE (↑) PH :			
Hydrated lime	---	22,7 kg	100-01020040
Potassium bicarbonate	---	25 kg	100-01020020
Potassium hydroxide	45% KOH	5 kg	100-01020085

*** Please refer to the literature or agricultural advisor for more information about using these products.

ACCESSORIES FOR ACID

PRODUCT	# ITEM
Beckson acid pump PVC (hand pump)	160-03040030

Various accessories are available to improve safety when using acids.

FERTILIZERS

NUTRIENTS	ELEMENT (S) AVAILABLE (S)	FORMAT	# ITEM
Boric Acid	17,5% B _o	1 kg	100-01010010
Boric Acid	17,5% B _o	22,7 kg	100-01010020
Nitric Acid	67,2% - 68,2% HNO ₃	35 kg	100-01010050
Phosphoric Acid	75% H ₃ PO ₄ , 54,3% P ₂ O ₅	30 kg	100-01010070
Potassium Bicarbonate	---	25 kg	100-01020020
Borax 15 %	15 % B _o	1 kg	100-03010010
Borax 15%	15% B _o	25 kg	100-03010014
Calcium Chloride	77% CaCl ₂	22 kg	100-01020060
Sodium Chloride	---	20 kg	100-01020070
Chelated Copper EDTA 13 %	15 % Cu	1 kg	100-03010030
Chelated Copper EDTA 13 %	15 % Cu	25 kg	100-03010035
Chelated Iron DTPA 11%	11%	25 kg	100-03010070
Chelated Iron DTPA 11%	11%	1 kg	100-03010060
EDTA Chelated Iron 13 %	13%	1 kg	100-03010080
EDTA Chelated Iron 13%	13%	25 kg	100-03010090
Iron EDDHA 6 %	6 %	25 kg	100-03010095
Chelated Manganese 13%	13%	1 kg	100-03010100
Chelated Manganese 13%	13%	25 kg	100-03010110
Sodium Molybdate	46 % Mo	1 kg	100-03010120
Mono potassium phosphate	52,1% P ₂ O ₅ , 34,5% K ₂ O	25 kg	100-01020090
Mono ammonium phosphate	12 % N, 61 % P ₂ O ₅	25 kg	100-01020098
Muriate de potash	51,8% K	25 kg	100-01020105
Ammonium Nitrate	34 % N	25 kg	100-01020110
Calcium Nitrate	19 % Ca	25kg	100-01020140
Magnesium Nitrate	16 % Mg	22,7 kg	100-01020150
Potassium nitrate	13,5 % N, 46 % K ₂ O	25 kg	100-01020162
Trace elements flowers	---	2 kg	100-03020010
Trace éléments vegetables	---	10 kg	100-03020030
Solubor	20% B	1 kg	100-03010130
Ammonium Sulphate	---	22.7 Kg	100-01020195
Copper Sulphate	25 % Cu	1 kg	100-03010140
Copper Sulphate	25 % Cu	22.7 kg	100-03010153
Iron Sulfate	21 % Fe	1 kg	100-01020200
Magnesium Sulphate	9,8 % Mg, 10% MgO	22,7 kg	100-01020210
Manganese Sulphate	31,5% Mn	1 kg	100-03010160
Manganese Sulphate	31,5% Mn	25 Kg	100-03010173
Sulphate of potash	50 % K ₂ O	22,7 kg	100-01020220
Zinc Sulphate	35% Zn	1 kg	100-03010180
Zinc Sulphate	35% Zn	25 kg	100-03010192
Urea 46%	46 % N	25 kg	100-01020245
Chelated Zinc 15 % EDTA	15 % Zn	1 kg	100-03010200
Chelated Zinc 15 % EDTA	15 % Zn	25 kg	100-03010205

*Note : sizes, formulations and product codes are subject to change.
All of our fertilizers are compliant for use in horticultural situations (greenhouse grade,
technical grade, horticultural grade).*

ANALYSIS**MINERAL ANALYSIS OF AGRI-FOOD LABORATORIES****Enjoy our tips!**

We offer a wide range of mineral analysis including:

COMPLETE WATER	<u>195-0100010</u>
pH, CE, hardness, NO ₃ , Na, P, K, Mg, total dissolved solids, Ca, Cl, sulphates, bicarbonates, Zn, Fe, Mn, Cu, B, Si, Mo.	
COMPLETE FERTILIZER SOLUTION	<u>195-0100045</u>
pH, CE, NH ₄ , NO ₃ , Na, P, K, Mg, Ca, Cl, sulphates, bicarbonate, Zn, Fe, Mn, Cu, B, Si, Mo.	
COMPLETE MEDIA (SUBSTRATE)	<u>195-0100030</u>
pH, CE, NO ₃ , NH ₄ , P, K, Ca, Mg, Na, Cl, sulphates, Al, Zn, Cu, Fe, Mn, Mo.	
SOIL ORGANIC BASIC I (standard analysis)	<u>195-0100040</u>
pH (and buffer solution), P, K, Mg.	
SOIL ORGANIC BASIC III (standard analysis)	<u>195-0100035</u>
pH (and buffer solution), P, K, Mg, Ca, % Organic matter, rates of base saturation, CEC.	
SOIL ANALYSIS OF FULL FIELD (MehlichIII, standard analysis)	<u>195-0100055</u>
pH (and buffer solution), P, K, Mg, Ca, % Organic matter, rates of base saturation, CEC, Al, B, Cu, Fe, Mn, Zn.	
COMPLETE FOLIARE ANALYSIS	<u>195-0100020</u>
N, P, K, Mg, Ca, Zn, Mn, Cu Fe, B.	
TOTAL BACTERIAL COUNT	<u>195-0100050</u>
Total coliforms and fecal.	

PROCEDURE:

Step 1: Contact us for an analysis application and the sampling protocol.

Step 2: Collect samples according to the sampling protocol.

Step 3: Send samples via courier with the number written on the application form for analysis.

Step 4: You will receive the results by the method chosen (Fax, mail or email) and we will retain a copy for future reference.

Step 5: One of our agricultural adviser GHJ can help you interpret your results.

SUBSTRATES

COIR FROM PERFORMA GLOBALYS

PRODUCTS AVAILABLE

Totally natural, recyclable and biodegradable.
 Increased root development throughout the substrate.
 Pre washed to eliminate salt content
 Less water required for saturation
 Completely dust free

PRODUCT	TYPE OF FIBER	DIMENSION (cm) (Leng. X width. X High)	VOLUME (litres)	# ITEM
Performa Globalys Balanced	Balanced water retention / aeration	50 x 21 x 15cm	15,8 L	<u>120-0201002430</u>
		72 x 19,5 x 13cm	15,8 L	<u>120-0201002435</u>
		100 x 17 x 13cm	22,1 L	<u>120-0201002440</u>
Performa Globalys Production	A mix of fine and course fibre	50 x 21 x 15cm	15,1 L	<u>120-0201002350</u>
		72 x 19,5 x 13cm	15,8 L	<u>120-0201002375</u>
		100 x 17 x 13cm	22,1 L	<u>120-0201002370</u>
Performa Globalys Drive High	A courses mix with higher aeration	100 x 17 x 13cm	22,1 L	<u>120-0201002455</u>
Performa Globalys Long Life	A high fibre blend resistant to decomposition			

Balanced



Production



Long Life

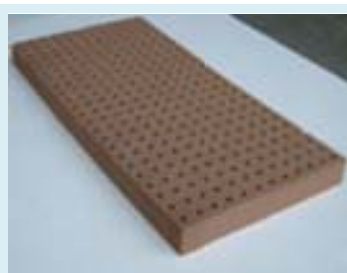


High Drive



EQUIPMENT FOR PROPAGATION WITH ROCK WOOL

CUBE « OASIS »



DESCRIPTION	QTY/SHEET	QTY/CS	# ITEM
Oasis # 5231 "LC-1 Medium Thin cut"	276 (12"x23")	5520	120-0400040
C Oasis # 5225 "LC-1 Medium"	162 (9"x18")	3240	120-0400025

u
For propagation, especially popular for growing lettuce. The Oasis "# 5231 SC-1 Thin cut" is the most used for lettuce. Culture medium inert, clean and sterile to begin production without diseases and insects. Each cube has a dimension of 1 "x 1" x 1 1 / 2 ". Other sizes are also available.

ROCK WOOL ROOTING STRIPS



SIZE OF CUBES L x W x H (cm)	HOLE DIA x H (cm)	QTY/CS	# ITEM
3,6 x 3,6 x 4,0	0,6 x 1,5	2940	120-01010020

KIEM PLUG 



SIZE OF ROLLS DIA x H (cm)	QTY/CS	# ITEM
2,5 x 3,5	3120	120-01010040

Plate polystyrene tubes with rock wool.

GROWTH CUBES



DIMENSION L x W x H (cm)	HOLE DIA x H (cm)	QTY/CS	# ITEM
7,5 x 7,5 x 6,5	4,2 x 4,0 (square)	384	120-01020030
10 x 10 x 6,5	4,2 x 4,0 (round)	216	120-01020045
10 x 10 x 6,5	2,7 x 3,5 (round)	216	120-01020040
10 x 15 x 6,5 (double)	2,7 x 3,5 (round)	144	120-01020060

ROCK WOOL SLABS



DIMENSION L x W x H (cm)	QTY/CS	# ITEM
15 x 7,5 x 90	16	120-01030010
15 x 7,5 x 100	16	120-01030020
20 x 7,5 x 90	12	120-01030030
20 x 7,5 x 100	12	120-01030040
15 x 10 x 100	12	120-01030080

Subject to availability

BEES



Bumblebees (*Bombus impatiens*) have proven in recent years to be cost-effective workers in the cultivation of greenhouse vegetables. Indeed, the benefits of using drones are numerous:

- Fruit quality is better methods
- Technically efficient (saving time and money compared to manual)
- The technique is natural!
- Bumblebees are active during the day in cloudy and cool weather.




Consult a representative who will advise you on the number of hives needed to achieve good pollination (90%) depending on your area. The use of hives is simple and not dangerous. A little training will be provided to verify the effectiveness of hives.







Attention hives can be introduced in the presence of pesticides. Please see the compatibility of bumblebees with the chemicals and procedures to be followed when spraying.



CLEANING AND DISINFECTION**WEST PENETONE CLEANING PRODUCTS**

 West Penetone products are manufactured in Montreal and are less expensive than many other disinfectants used in the greenhouse! Moreover, many are approved by the Canadian Food Inspection Agency (CFIA) and selected by Health Canada.




***** Always clean before disinfecting! *****

NAME OF PRODUCT	DESCRIPTION	ACTIVE INGREDIENT	DILUTION	FOR-MAT	# ITEM
Foamchek 	-Acid foam cleaner low -Designed to clean irrigation lines -Removes calcium deposits and minerals as well as biofilm Sweet odour and red color to see where it has been applied "Very efficient and inexpensive	Phosphoric acid and non-ionic detergent	10 à 20 mL/L	4 L	170-09000417
				20 L	170-09000420
Ridstone 	High-performance acid cleaner -For outdoor use, walls, floors, structure and water tanks -Removes calcium deposits and minerals as well as biofilm A low-concentration sufficient to obtain the desired results Non-volatile and low viscosity -Approved by CFIA	Hydrofluoric acid, phosphoric acid, glycol ether and detergents.	10 à 50 mL/L	20L	170-09000375
				205L	170-09000380
Penblitz 228M 	- High performance foaming alkaline cleaner -None caustic not a solvent, it displays a sudsing action which allows its use in automated high-performance foam cleaning equipment, for tools, buildings, packaging lines, trucks etc.. Emits virtually no odor	Sodium metasilicate, sequestering organic, non-ionic detergents.	20 à 50 mL-L	20L	Upcoming
				205L	Upcoming
Bio-Eze 3 	-Foaming alkaline degreaser highly biodegradable and certified EcoLogo -Designed to remove food deposits on floors, walls and equipment High-foaming, chlorine-free, phosphate free and non corrosive	Detergents, sequestering organic ether glycol, ethanolamine.	20 à 50 mL/L	20L	Upcoming
				205L	Upcoming
Special 10 	Chlorinated alkaline cleaner-non-foaming, safe on aluminum -Designed for cleaning automatic washing trays, tanks, trays and pots -Safe on aluminum and other soft metals Controls calcium deposits due to its high content of water softener -Approved by CFIA	Phosphate, potassium hydroxide, silicate, sodium hypochlorite.	10 mL/L	20L	Upcoming
				205L	Upcoming
Adhere CPM 	Chlorinated alkaline cleaner-gel -Forms a gel when dissolved in water, allowing it to adhere to surfaces coated -Ideal for vertical and inclined surfaces "This grip reduces the volume of solution applied (20-50% reduction) and the time and volume of water required for rinsing -Approved by CFIA	Potassium hydroxide, detergent, sodium hypochlorite.	10 à 20 mL/L	20L	Upcoming
				205L	Upcoming

A guide to use products Penetone West is available from your representative.





DISINFECTING PRODUCTS WEST PENETONE



NAME OF PRODUCT	DESCRIPTION	ACTIVE INGREDIENT	DILUTION	FORMAT	# ITEM
Teramine NR 	Disinfectant-based quaternary ammonium; -Designed to disinfect equipment, pruning tools, pots, multi-cell buildings, lines of packaging and transport trucks; -Requires no rinsing when used at 2 mL / L and may leave a thin film that helps to maintain sterile surfaces. -Odourless, chemically stable, noncorrosive, non-volatile, pH neutral; -Remains for 30 days, harmless to metals and other materials; -Approved by CFIA and Health Canada (DIN: 02012294).v	10% Quaternary ammonium (N-alkyl dimethyl benzyl ammonium chlorides)	2 mL/L	4 L	170-09000385
				20 L	170-09000390
				205 L	170-09000395
Foam-It 	Foaming Sanitizer -Designed for use as a foot bath foam to protect access to growing areas; -Effective on bacteria within 30 seconds; -Approved by CFIA.	Quaternary ammonium (N-alkyl dimethyl benzyl ammonium chlorides)	10 mL/L	20 L	170-09000310
				205L	170-09000313
Bio-San 	Disinfectant-based quaternary ammonium highly biodegradable and certified EcoLogo; -Designed to disinfect equipment, pruning tools, pots, multi-building cells, packaging lines and trucks; -Approved by CFIA and Health Canada (DIN: 02309920).	Quaternary ammonium (N-alkyl dimethyl benzyl ammonium chlorides)	7 mL/L	4L	170-09000475
				20L	170-09000480
				205L	170-09000485

DISINFECTION EQUIPMENT WEST PENETONE



NAME OF PRODUCT	PICTURE	DESCRIPTION	# ITEM
Foot bath bubble machine		Used with FOAM-IT, a reliable device that produces a rich foam that fights against bacterial growth, it is perfect for cleaning boots and some equipment.	Upcoming
Test Strips		Simple, fast, reliable and easy to use test strips measure the quaternary ammonium contained in your solutions, ensuring optimal performance and sanitation that meets all industry standards. (Up to 400 PPM)	170-09000450
Test swab		Quick and easy method to accurately monitor the cleanliness of surfaces and ensure the safety and quality of products. Pro-Clean detects protein residues on surfaces after cleaning and disinfection.	Upcoming
Mobile Atomizer		Light, practical and very useful, portable fogger allows you to move around the greenhouse to apply the products you want. Manageable, it can go in all corners often inaccessible. It adjusts in height and can carry 20 to 40 gallons. Possibility of adding a flexible extension of 28 feet.	170-09000490

OTHER PRODUCTS OF DISINFECTION




NAME OF PRODUCT	DESCRIPTION	INGREDIENT(S)	FORMAT	# ITEM
Perone 35	-Algaecide (often injected into the irrigation systems for control of algae on the surface of the substrate). -Disinfection-under tables and on floors.	Assets: 35% hydrogen peroxide Inert: 65% water	4 kg	100-01020175
			64 kg	100-01020170
			Kit Analysis 0-100ppm	160-06050135
			Kit Analysis 25-250ppm	160-06050140

Please contact a representative to learn more about using this product.

SPRAYERS and THERMONÉBULATEUR Dramm



Custodian **Dramm** products, we offer a wide range of products to meet the specific needs of our customers.

NAME OF PRODUCT	PICTURES	FEATURES	# ITEM
<p><u>SPRAYERS</u> Sprayers low volume, easy to use, can apply fertilizers, pesticides, fungicides, disinfectants, etc..</p>			
<p>COLDFOGGER 606S</p>		<ul style="list-style-type: none"> - Treats 45 000 ft² in 45 minutes - 3000 PSI - 120 Volts, 60 HZ, 8,5 amp. - 45 microns - 45 liter tank 	<p><u>160-16000050</u></p>
<p>MINI-COLDFOGGER 600M</p>		<ul style="list-style-type: none"> - Treats 30 000 ft² in 30 minutes - 3000 PSI - 30 to 60 microns - 30 liter tank - 120 Volts, 60 Hz, 7.8 amp. 	<p><u>160-16000950</u></p>
<p><u>PULSEFOGGER</u> Thermal fogging is the production of ultra fine droplets of a size of 1 to 50 microns using heat energy. Liquids are sprayed from the device and form aerosols condensing on contact with cold air. Thermal fogging is used for all types of work to eliminate parasites when they are spread, even in inaccessible places, without leaving undesirable residues. It is a good solution for treating large areas and spaces with a minimum quantity of solution-based pesticides while having the least amount of work and being less harmful to the environment (less residual effects, no soil penetration).</p>			
<p>PULSEFOG</p>		<p>Several models available. Contact a representative for more information</p>	

❖ *Other types of sprayers are also available. For more details, please consult your representative.*




SULFUR BURNER

Fumigation in greenhouse using a sulphur burner is an easy, simple and economical way to fight against white (powdery mildew). Once evaporated (sublimation), sulphur falls on the foliage of plants in production, changing the pH of the leaf surface, thereby impeding the development of pathogenic fungi.



CHARACTERISTICS:

- Easy to use, and economical to operate
- Secure against mold, and corrosive gases
- Temperature control proportional
- Evaporation slow to protect the plants
- Covers 80 to 100m2 depending on the culture and conditions in the greenhouse

NAME OF PRODUCT	PICTURE	DESCRIPTION	FORMAT	# ITEM
Sulfur Burner		Connects to the 110V and 120V. Using a timer is recommended.	Per Unit	160-20000050
Sulfur shelf		Sulphur sticks sold specifically for use with a sulphur burner.	1 kg	100-01040120
Sulfur Micro End 92%		Sulphur powder containing a minimum of 92% sulphur. Can be applied with a burner or dusting the ground.	1 kg	100-01040100
			22,7 kg	100-01040110

TIPS FOR USING THE FUMIGATION / SUBLIMATION OF SULFUR

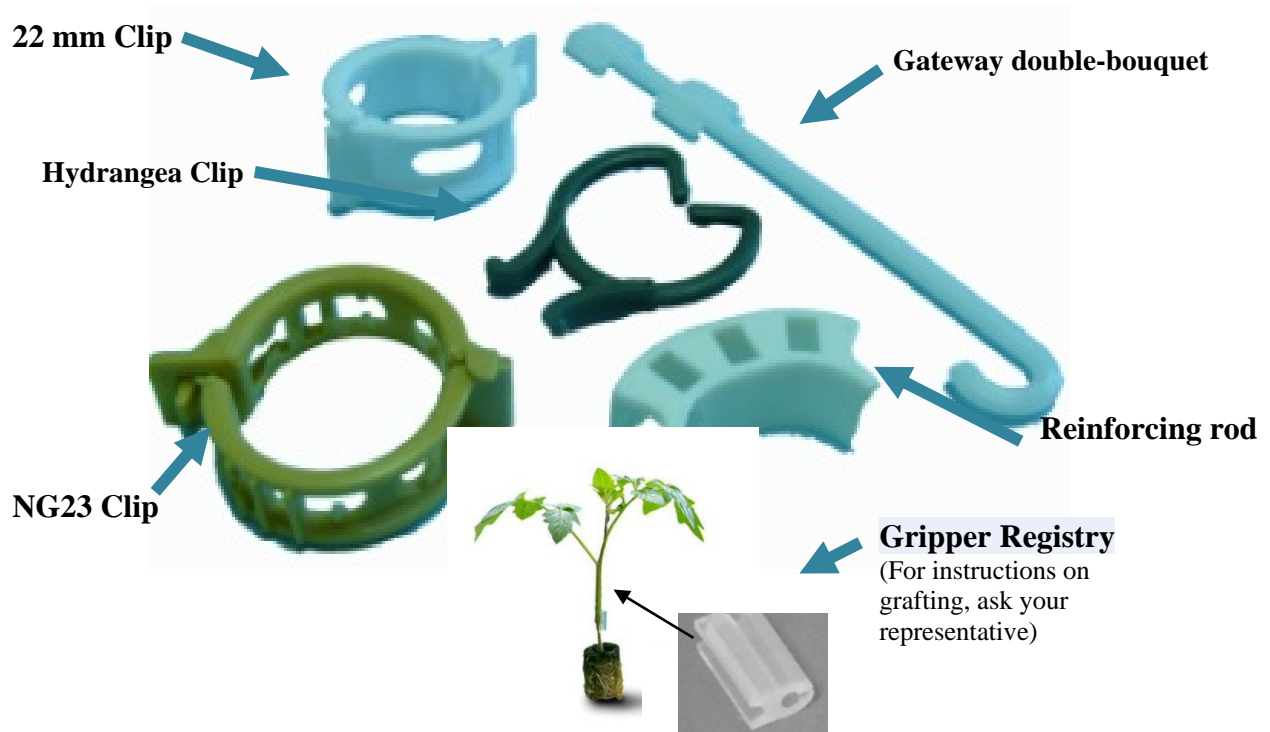
- 1:** To 150 grams of sulphur micro end or sulphur shelf (sticks) in the metal basin.
- 2:** Do not add water or other chemicals to sulphur.
- 3:** Do not use at temperatures above 26 ° C or if there is a lot of condensation on the polyethylene.
- 4:** Do not place the burner where water is dripping.
- 5:** Keep the concentration of CO2 in the greenhouse to normal values (300-400 ppm).
- 6:** Close the ventilation to the outside before fumigation and make the treatment when the sun has set, the movement of air inside the greenhouse will make treatment more effective.
- 7:** Operate the burner for a period of 3 to 5 hours. In the presence of bumblebees in the greenhouse, limit the operation to 3:30 am, 3 X per week.
- 8:** Do not touch the burner during operation and cool the unit before handling or storing.
- 9:** Limit air exchange of the greenhouse , as long as possible and then vent completely for 2 hours before entering the treated area.
- 10:** Add 20 to 30 grams of sulphur micro end or sulphur shelf after 100 hours of operation.
- 11:** Attention extensive use of sulphur can reduce the lifetime of polyethylene films.

SUPPLIES

CLIPS FOR TOMATO

We distribute a complete range of products to attach to your stand or transplanted seedlings.

PRODUCTS	QUANTITY/CASE	# ITEM
20 mm Clip	9000	170-05010200
22 mm Clip	7 500	170-05010220
NG23 (25mm) Clip openwork	7 500	170-05010250
Reinforcing rod	8 800	170-05010315
Biodegradable reinforcement rod	8 000	170-05010295
Gateway double-bouquet	6 000	170-05010265
Hydrangea 13 mm Clip	1 000	170-05010020
Hydrangea 16 mm Clip	1 000	170-05010040
Hydrangea 20 mm Clip	1 000	170-05010060
Hydrangea 25 mm Clip	1 000	170-05010080
Grafting clips 1,2 mm	1 000	170-05010100
Grafting clips 1,5 mm	1 000	170-05010120
Grafting clips 2,0 mm	1 000	170-05010140
Grafting clips 2,5 mm	1 000	170-05010160



LOTION FOR HANDS PRETOM



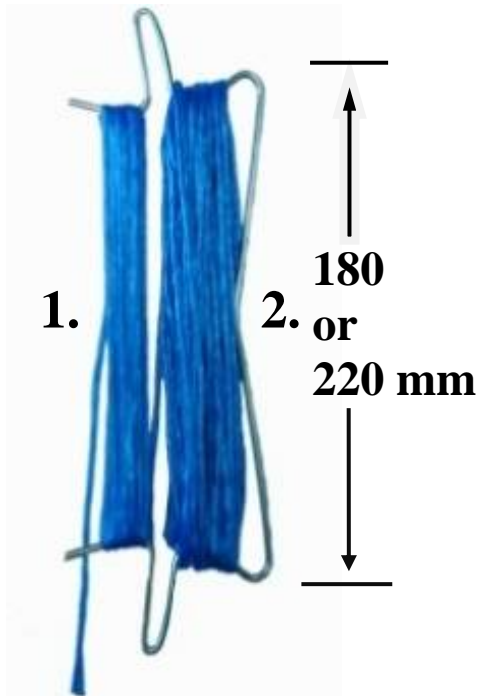
PRODUCTS	DESCRIPTION	FORMAT	# ITEM
Pretom	Hand protecting lotion (chlorophyll and plant resin)	250 ml Bottle	170-09000060

PRE-WOUND HOOK

We manufacture custom ordered pre wound tomatoes hooks using quality UV resistant twine, in order to save time and money when managing your crop. Accurately, measured and consistently wound based on your operational demands.

Due to the individuality of this product please allow 4-8 weeks for delivery.

HOOK CHARACTERISTICS



Types of hooks and twine colors available (UV resistant)

Double Hook 180 mm

Double Hook 220 mm

White..... [170-05020100](#)
 Pink [170-05020140](#)
 Green..... [170-05020160](#)
 Yellow [170-05020165](#)
 Blue [170-05020162](#)

White..... [170-05020170](#)
 Pink [170-05020175](#)
 Green..... [170-05020180](#)
 Yellow..... [170-05020197](#)
 Blue..... [170-05020198](#)

Winding the string around the hook


The brackets are rolled into 2 parts:

1. Fall: by pulling the string, you easily get the required length to allow the plant to grow.


2. Reserve: corresponds to the length of string needed for plant growth throughout the production depending on the height of the greenhouses, production scheduling, etc..

*****Order as soon as possible*****

HOOK TOMATO

PRODUCTS	PICTURES	DESCRIPTION	FORMAT	# ITEM
Hook Tomato		<ul style="list-style-type: none"> • Made of heavy gauge galvanized steel • Can hold enough twine for the duration of the crop • Always cut to the right length based on your requirements. • Easy to hang on the support; • Reusable 	Double 180 mm	170-05020040
			Double 220 mm	170-05020050

STRING OF STAKING

PRODUCTS	PICTURES	DESCRIPTION	FORMAT	COLOR	# ITEM
String type tesicol		<ul style="list-style-type: none"> • Treated U.V. resistant 1 or 2 years • Flexible and strong • Specially designed for growing tomatoes 	5000 meter (5 kg)	White (1 an)	170-05030100
				Pink (1 an)	170-05030140
				Green (1 an)	170-05030180
				Yellow (1 an)	170-05030200
				Blue (1 an)	170-05030170
			Black (1 an)	170-05030165	
			6000 meter (6,6 kg)	Black (2 ans)	170-05030160
String type Guelph P1500	-	<ul style="list-style-type: none"> • Style polypropylene tape • Treated U.V. resistant 1 year • Flexible and strong; • Used for growing tomatoes 	6600 meter (6,6 kg)	White (1 an)	170-05030030
				Beige (1 an)	170-05030031
				Blue (1 an)	170-05030032
				Green (1 an)	170-05030033
				Yellow (1 an)	170-05030034
				Pink (1 an)	170-05030036
String type Guelph P2000	-	<ul style="list-style-type: none"> • Like P1500 but thinner; • Used for growing peppers. 	7581 meter (5,7 kg)	White (1 an)	170-05030035
String biodegradable	-	<ul style="list-style-type: none"> • Biodegradable. 	3360 meter (5,6 kg)	Beige	170-05030230

FRUIT TRAYS

Box cells of 15 pounds of tomatoes are available in blue in the following formats:

DESCRIPTION	# ITEM
Cell 18 - 403 g (14,4 oz) blue	170-0600005
Cell 20 - 340 g (12,2 oz) blue	170-0600010
Cell 22 - 310 g (10,9 oz) blue	170-0600020
Cell 25 - 270 g (9,5 oz) blue	170-0600030
Cell 28 - 240 g (8,8 oz) blue	170-0600040
Cell 30 - 225 g (7,9 oz) blue	170-0600050
Cell 32 - 210 g (7,4 oz) blue	170-0600060
Cell 35 - 195 g (6,9 oz) blue	170-0600070
Cell 37 - 185 g (6,5 oz) blue	170-0600080
Cell 39 - 175 g (6,2 oz) blue	170-0600090
Cell 42 - 160 g (5,6 oz) blue	170-0600100
Cell 45 - 150 g (5,3 oz) blue	170-0600110
Cell 48 - 140 g (4,9 oz) blue	170-0600120
Cell 52 - 130 g (4,6 oz) blue	170-0600130
Cell 56 - 105 g (3,7 oz) blue	170-0600140
Cell 66 - 105 g (3,7 oz) blue	170-0600150

500 cells per case, but can to purchase by the unit.



GREENHOUSE COVERINGS
KLERK'S-Hyplast POLYETHYLENE

Produces very high quality environment suitable for all types of structures and crops. Klerk's-Hyplast a new name but still the same superior product!



New

K 50 White / 6mil – 4 years

- 55% opacity, 45% light transmission

K 50 White / 4mil – 1 year

- 55% opacity, 45% light transmission

K 50 Clear / 6mil – 4 years

- Resistant to ultraviolet rays
- Contains an anti-dust additive ‘to repel dust and dirt’

K 50 IR AC / 6mil – 4 years (infrared / anti condensation)

- Formula proven anti-condensation
- Produces 30% more diffused light for a more uniform environment.
- Infrared resistance increases energy savings



PROCEDURE FOR PRICING/ORDERING POLYETHYLENE:

Step 1: Contact your representative with your requirements (*quantity, size and date of delivery*).

Step 2: Your representative will send you a quote by fax or email.

Step 3: Sign and return the quote by fax to your representative to confirm the order.

Step 4: Your representative will advise the expected delivery time.

Higher is the percentage of thermicity, better is the polyethylene.

K-50 CLEAR VS K-50 IR/AC		
	Film K-50 Clear	Film K-50 IR/AC
Characteristics of films:		
Single or Triple Layer	Triple Layer	Triple Layer
Protection UV	4 years	4 years
Thickness	6 mil	6 mil
Anti-condensation	No	Yes
Total light transmission (%)	92 %	88 %
Diffuse (%)	Less than 20 %	52 %
Direct (%)	80 % +	36 %
Thermicity (%)	40,30 %	17,3 %
Characteristics of resistance :		
Dard test* (gramme ± 10%)	700	600
Traction at the fracture** MD (Mpa ± 10%)	26	25
Traction at the fracture** TD (Mpa ± 10%)	26	26
Elongation at break*** MD (% ± 10%)	530	500
Elongation at break*** TD (% ± 10%)	680	700
Tear strength MD**** (g/u ± 10%)	11	11
Tear strength TD**** (g/u ± 10%)	23	23

*Dard test : Quantity of energy used to cause failure under impact..

**Traction at Fracture : Amount of tension to cause a stretching of the film to rupture.

***Elongation at break : Increases the strength of the film before the breaking point.

****Tear Strength : Amount of force to cause the tear film

TIPS FOR INSTALLATION OF KLERK'S POLYETHYLENE

Please consult these pages before proceeding!

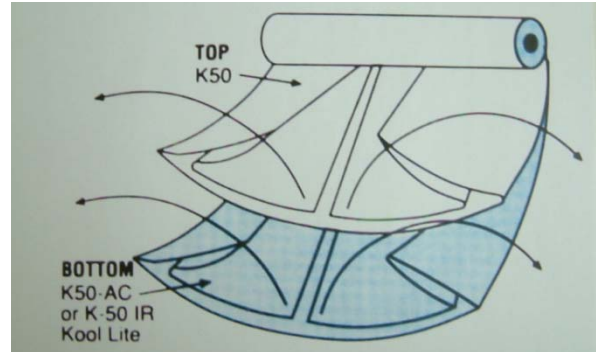
SUMMARY OF INSTALLATION TIPS :

1. PROVISION OF LAYERS :

- K-50 Clear = External Layer
- K-50 IR/AC = Internal Layer

2. INTALLING POLYTHENE :

- The polythene film should be installed with the open side up, that is to say that the edges of the polythene must unfold upwards (see diagram).



3. THE INFLUENCE OF CLIMATE IN THE PLACEMENT OF POLYETHYLENE ANTI-DRIPS :

- Ideal weather: Warm and dry.

4. HOW TO MAXIMIZE THE LIFE OF POLYETHYLENE :

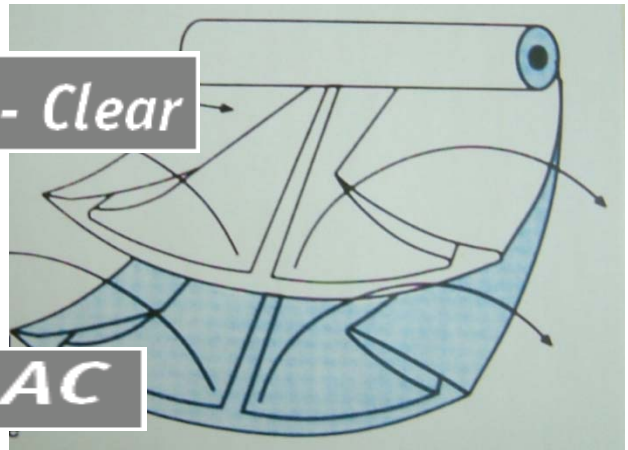
- Reduce friction contact points.
- Keep the polyethylene taut without waves.
- Avoid : Sulphur contact with the film
- Accurately manage internal air pressure.

EXTERIOR

K50 - Clear

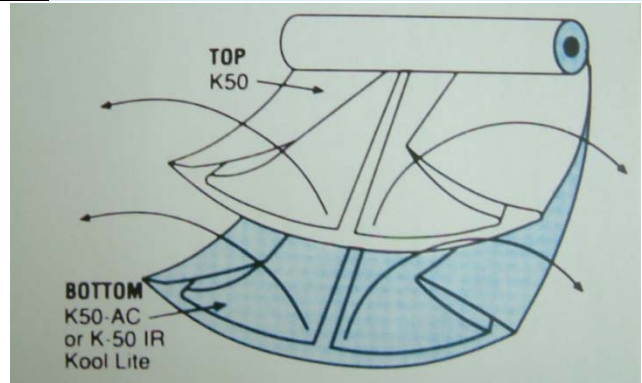
INTERIOR

IR-AC



1. INSTALLATION OF POLYETHYLENE :

To ensure that the layer of poly K-50 ICAR is positioned to provide maximum anti-condensation, it is important to ensure the flow direction of polyethylene during its installation. When installed on the greenhouse polyethylene film must be situated such that the uncut side is down against the structure and the open (cut) side is on top as in the photo.



2. THE INFLUENCE OF CLIMATE ON THE INSTALLATION OF POLYETHYLENE WITH ANTI-CONDENSATION :

The installation of polyethylene in summer is ideal and recommended. The anti-condensation is provided by a chemical agent that is applied between the 3 layers that make up each sheet during manufacture. There is a risk that this agent may not have had time to settle in cold conditions and smudging may occur. Smudging will reduce the anti drip qualities of the product and also effect light transmission. To minimize this situation it is advisable to gradually increase the temperature inside of the greenhouse after installation. This will allow a more controlled migration of the additive from the core of each sheet to the surface where it can bind and play its role.

The manufacturer does not provide information as to the precise definition of cold because other factors should also be considered i.e. sunlight, humidity, and temperature of the film itself. To our knowledge the action of cold on the plastic as described above is similar for all types of anti-drip products on the market.

3. HOW TO MAXIMIZE THE LIFE OF POLYETHYLENE :

Points of contact between the polyethylene film.

Structure emissions of steel :

Where the film comes in contact with the structure, it is necessary to protect it with a layer of opaque white paint vinyl-acrylic or white tape on the metal. This protective layer must completely cover the supports (hoops, braces or joists) to reduce their temperature and prevent degradation of the film at these locations.

Film Tension :

In the documentation provided by the manufacturer, it is mentioned that the polythene be installed at a temperature above 15 ° C. If installation is performed under lower temperatures, there is a risk of polyethylene creep (stretch) when the temperature will rise. It may then be flapping in the wind and aging prematurely. Following installation in cold weather, it might be desirable to re-tension the film in the spring.

Chemical attack :

Sulphur affects the life of the polyethylene and may result in cancellation of the warranty provided. It is important to note that pine and fir woods have a negative influence on the life of polyethylene.

Management of air pressure between the two films of polyethylene :


- Managing the pressure of air flowing between the 2 layers of polythene is very important to maximize the lifetime of polyethylene. A double layer of polythene too heavily inflated will cause a stretch (creep) of polythene while a lack of pressure will cause a loss of efficiency of the double layer of polythene and increase the risk of lacerations caused by the wind. To adjust the air pressure of the double layer of polythene, a valve break pressure should be installed to regulate the pressure according to the following guidelines:

- **In summer : 0,2 inch water column**

- **In winter : 0,45 inch water column**

The pressure gauge DWYER MARK III can take readings of air pressure between the roofs and adjust the valves to release air pressure.


GAUGE (air pressure between the films of polyethylene)

PRODUCTS	PICTURES	DESCRIPTION	# ITEM
Pressure gauge DWYER MARK III		Gauge which allows the lowering of pressure in the summer to avoid plastic deformation due to stretching by the heat. Recommendation of pressure between the 2 films <i>Summer = 0.2 "</i> , <i>Winter = 0.45"</i>	170-08010050



POLYETHYLENE INFLATORS

Complete blower units are available. We offer several models to suit your needs. Ask your representative.


POLY TAPE

PRODUCTS	PICTURE	DESCRIPTION	LENGTH	WIDTH	# ITEM
Poly Tape		This acrylic, UV resistant tape is ideal for making repairs on your greenhouse coverings.	100'	2"	170-08010101
			48'	4"	170-08010111
				6"	170-08010121
			108'	10"	170-08010130

WIRELOCK and POLYLOCK




PRODUCTS	PICTURE	DESCRIPTION	TYPE	FORMAT	# ITEM
Wirelock		Perfect for installing barriers to insects as well as attaching polyethylene.	Wirelock male	Bar 4' and 6'	160-12000220
			Wirelock female	Bar 10'	160-12000210
Polylock in aluminium		Polylock single female and male polylock tool are also available. When ordering, please specify if gutter mounted steel, square tube, etc.. For more details, please consult with a representative.			

ANTI-MIST (SUN CLEAR)

PRODUCTS	PICTURE	DESCRIPTION	FORMAT	AREA COVERED*	# ITEM
Anti-mist (Sun Clear)		Sun Clear reduces condensation in greenhouses, plastic or glass tunnels to facilitate the transmission of light. Treatment can be effective for 3 to 6 months. This product is nontoxic and easy to apply.	0,946 L (1 QT)	10 000 ft ²	170-08000020
			3,785 L (1 GL)	40 000 ft ²	170-08000040
			18,925 L (5 GL)	200 000 ft ²	170-08000060

* The area covered is approximate. A ratio of 1: 100 is usually applied to plastic greenhouses. Please consult a representative to learn more about the application of this product.

SHADING

PRODUCTS	PICTURES	DESCRIPTION	FORMAT	# ITEM
Shading Eclipse LD		Shading can greatly reduce your greenhouse's temperature. Resistant to leaching by rain and disappearing naturally in the fall by frost. Action	20 kg	170-08000230
Shading TransPAR		Is permeable to PAR (Radiation Active in Photosynthesis). By not reflecting the infrared long or heat waves, it reduces the temperature without hindering the growth of sun-loving plants.	15 kg	170-08000225
Cleaner LDnet		On spray is enough to rid the greenhouse of the shading before the arrival of the first frosts of autumn. No need to brush.	15 kg	170-08000235




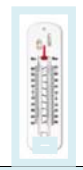


* Please consult a representative to learn more about the application of this product.

COVER SOIL

PRODUCTS	PICTURES	DESCRIPTION	DIMENSIONS*	# ITEM
<u>GEOTEXTILE</u>				
Green lined Permeable geotextile.		Ground cover of woven polypropylene for production nurseries and garden centers that installs direct on the ground to prevent the growth of weeds. Offer increased protection against UV rays and resists tears and punctures. Permeable.	3,66 m x 91 m (12'x300')	170-01000237
			1,90 m x 91 m (6'x300')	170-01000225
<u>WOVEN POLYETHYLENE FLOOR BLACK AND WHITE TYPE FABRENE</u>				
Woven polyethylene floor.		Woven Polyethylene very resistant to several years of crops in greenhouses. More durable than the fabric and available in black and white. Waterproof.	Sold-to-measure (pi ²)	140-02030030
<u>GROUND COVER BLACK AND WHITE OPAQUE</u>				
Ground cover black and white.		Large ground cover in white and black co-extruded polyethylene 4 mil. The black side prevents weeds and the white side reflects the light towards the plants. U.v. treated Waterproof 12 months.	32' x 100' (4mil)	140-02020065
			40' x 190' (4mil)	140-02020085
			Other sizes available upon request.	
<u>NFT JACKET BLACK AND WHITE</u>				
NFT jacket black and white		Narrow, thick bands of black and white polyethylene co-extruded. Sold in full rolls only. The number of units is based on the weight of the roll. U.v. Treated 12 months. Waterproof.	24" x 1000' (5,5mil)	140-02020100
			30" x 1000' (6,0mil)	140-02020120

* Dimensions subject to change, please check availability with a representative before placing your order.




MEASURING INSTRUMENTS

PRODUCTS	PICTURES	DESCRIPTION	PRÉCISION	EXTENDED	# ITEM
<u>MONITOR AND RECORDER TEMPERATURE AND HUMIDITY</u>					
Oakton Temperature Monitor		<ul style="list-style-type: none"> • Monitor data taking for long periods, very economical; • Memory of 16000 data taken at intervals of 10 seconds to 2 hours; • waterproof housing; 	±0,6°C	-30 à 50°C	<u>160-01060100</u>
Monitor temperature and humidity Oakton		<ul style="list-style-type: none"> • Reading • min / max line; • Selectable alarm; • Transfer data to software to analyze and translate them into graphical (visualization software included). 	T°: ±0,6°C Humidity: ±3% si <90% ±6% si >90%	T°: - 30 à 50°C Humidity: 0-100%	<u>160-01060160</u>
<u>HYGROMETER DRY AND WET BULB</u> <u>@ charter info psychometric Brannan</u>					
Dry and wet bulb hygrometer		<ul style="list-style-type: none"> • Professional model • Water container screwed to the housing • additional wick and instructions included • Very good precision • Charter psychometric included allowing moisture estimation by differential dry bulb temperature and wet 			<u>160-08020070</u>
<u>MAXIMUM-MINIMUM THERMOMETER</u>					
Min-Max Thermometer		<ul style="list-style-type: none"> • Lets you know the minimum and maximum temperature • Shows the current temperature • It resets with a magnet • Economical 		-40 to 48°C	<u>160-07020030</u>
<u>INFRA RED THERMOMETER</u>					
Infra-Red Thermometer Oakton		<ul style="list-style-type: none"> • Contactless temperature readings • Laser dot directed • Select between ° C and ° F • Quick response 		-30 to 200°C	<u>160-07020100</u>
<u>SOIL THERMOMETER ELECTRONIC MINIMUM-MAXIMUM</u>					
Soil thermometer electronic minimum-maximum Oakton		<ul style="list-style-type: none"> • Box resistant to water; • Stainless steel probe; • Highly resistant to heat; • Includes protective envelope for the probe; • Select between ° C and ° F. 		10 to 200°C	<u>160-07020005</u>



MEASURING PH AND ELECTRICAL CONDUCTIVITY






[Info @ Education Oakton pH tester 1 & 2](#)

PRODUCTS	PICTURES	DESCRIPTION	ÉTENDED	DISPLAY UNIT (resolution)	# ITEM
EC METER (measuring the electrical conductivity)					
Oakton EC pocket meter		<ul style="list-style-type: none"> • Convenient size, waterproof casing and dust resistant • Replaceable sensor • Easy calibration • Turns off after 8.5 minutes if not used; • Temperature compensation system. 	EC : 0-19,99 mS/cm	EC : 0,10 mS/cm	160-06020100
Oakton EC portable meter		<ul style="list-style-type: none"> • Ergonomic, waterproof case, dustproof and easy to clean • Temperature reading integrated with automatic compensation • Memory can store more than 50 real-time data (indicating the date and time) 	EC : 0-199,9 mS/cm en 5 tracts	EC : 0,01 µS/cm 0,1 µS/cm 1 µS/cm 0,01 mS/cm 0,1 mS/cm	160-06020160
pH METER					
Oakton Pocket PH meter		<ul style="list-style-type: none"> • Convenient size, waterproof casing and dust resistant • Replaceable Probe with double junction (greater precision and longer life) • Auto Calibration (1 to 3 pts) • Error messages specific • Temperature compensation function and automatic shut off. 	pH : 0,0-14,0	pH : 0,1	160-06010100
EC METER AND PH METER COMBINED					
New Oakton pH/EC/T° meter handheld		<ul style="list-style-type: none"> • Convenient size, waterproof casing • Measure pH, EC, Temperature , total dissolved solids (TDS) and salinity. 	pH : 0,00-14,00 EC : 0 à 19,99 mS/cm en 3 tracts T : 0,0-100,0°C	pH : 0,01 CE : 0,01 µS/cm 0,01 mS/cm T°:0,1°C	160-06010155
Oakton pH/EC/T° portable meter		<ul style="list-style-type: none"> • Ergonomic; • Simultaneously temperature display • Easy calibration of EC and pH (several points available); • Automatic compensation for temperature • Scale selection for measuring salinity and recognition of the self-calibration solution; • Is not waterproof. 	pH : 0,00-14,00 EC : 0 à 19,99 mS/cm en 4 tracts T° : 0,0-50,0°C	pH : 0,01 CE : 0,01 µS/cm 0,1 µS/cm 1 µS/cm 0,01 mS/cm T°:0,1°C	160-06040220


Other instruments measures Oakton are also available.

For inquires, contact your representative!



SOLUTIONS FOR PH AND EC METER

PRODUCTS	PICTURE	DESCRIPTION	# ITEM
<u>CALIBRATION SOLUTION FOR EC METER</u>			
Calibration Solution 5mS/cm (500 ml)		Liquid solution at 5 mS / cm (variation of ± 0.05) at 25 ° C Color transparent, necessary to calibrate a pH meter. For calibration instructions, consult your representative.	170-03010015
<u>SOLUTION FOR CALIBRATION OF PH METER</u>			
Calibration Solution pH 4 (500 ml)		Liquid solution at pH 4 (pink) and pH 7 (green) at 25 ° C, necessary to calibrate a pH meter. Shelf life variable (a deposit resulting from the growth of certain microorganisms that float on the surface of the solution is a sign of contamination). Uncontaminated, solutions can be kept for up to 1 year. Can be stored in the refrigerator, except that to use solutions, they must always be at the same temperature (25oC).	170-03010020
Calibration Solution pH 7 (500ml)			170-03010040
<u>CLEANING SOLUTION FOR PH METERS</u>			
Cleaning solution for PH sensor (500 ml)		Cleaning solution for pH meter is used to remove accumulations of material, thereby maintaining the sensitivity of the electrode and obtaining accurate readings.	160-06050440
<u>STORAGE SOLUTION FOR PH METERS</u>			
Storage solution for PH probe (500 ml)		Storage Solution for pH meter electrodes to maintain the electrode moist bulb readings more quickly and accurately. Complete storage solution able to fully accommodate the electrode and insert the device when not in use. Helps extend the life of the electrodes and maintain an accurate reading.	160-06050460

APPARATUS FOR MEASURING THE LIGHT

PRODUCTS	PICTURE	DESCRIPTION	# ITEM
Lux-meter		<ul style="list-style-type: none"> • Lux meter from 0 to 50 000 Lux / FC • Economical • 4 reading scales 	160-06050175

ELECTRONIC SCALE

PRODUCTS	PICTURES	MAXIMUM CAPACITY	SCALE (RESOLUTION)	# ITEM
Electronic Scale SK 0500		500 grams	0,1 gram	160-18020005
Electronic Scale SK 5000		5000 grams	1 gram	160-18020015

FERTILIZER INJECTION

PH AND SALINITY CONTROLLER

- Controls the injection of fertilizer (EC) and acid (pH)
- Features self-diagnostic and sensor integrated Temperature
- For use with BELLOWS pump dosing
- Several alarms available
- Digital (easy reading)
- Integrated temperature sensor
- Password protected
- Output 4 to 20 mA
- Accurate



Mountable enclosure available:

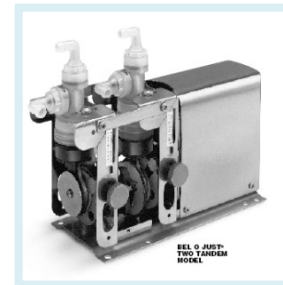
- Quick and easy installation.
- PH and conduct. probes not included.
- Choice of sensors for mounting on pipe or tank
- 120 volt
- Waterproof NEMA-4 and CSA approved double insulated circuits;
- Safety Timer
- Dimensions: 15 "H (38cm) x 12" L. (30.5 cm) x 10 "D. (25.5 cm). Voltage: 115 Volts, 60 Hz, 5 amp.

PH CONTROLLER		CONDUCTIVITY CONTROLLER	
Scale	0,00 – 14,00 pH	Scale	0 – 19,99 mS
Accuracy	± 0,01 pH	Accuracy	2% scale
Resolution	0,01 pH	Resolution	0,01 mS

- PH Controller** [160-01010000](tel:160-01010000)
- EC Controller** [160-01010010](tel:160-01010010)
- EC Probe**..... [160-01030010](tel:160-01030010)
- pH Probe** [160-01030000](tel:160-01030000)
- Mounting Box** [160-01010025](tel:160-01010025)
- Bellows metering pump (Gorman RUPP)** [160-03020010](tel:160-03020010)

BELLOWS INJECTION PUMP METERING (GORMAN RUPP)

- Most economical injection pump
- Resistant to high concentrations of acid
- Ideal for use with a pH and salinity controller
- Variable flow rate
- Durable and repairable
- Accuracy 1% and positive displacement
- Several configurations are available






- Metering Pump Bellows (Gorman RUPP)**..... [160-03020010](tel:160-03020010)

MIX RITE™ PROPORTIONAL INJECTOR

Are a range of water activated fertilizer injectors? That control precisely soluble fertilizers, growth regulators or pesticides.

They operate with very low pressure and are not affected by variations in flow or pressure.

- The injector is powered by water flow;
- Easy installation, operation and maintenance;
- Adjusting the ratio of injection is easy
- The body of the injector is made of durable plastic with ultra-violet protection and is also resistant to many aggressive chemicals;
- Can be installed permanently or as a mobile unit
- The Mix-Rite™ is virtually maintenance free. If necessary the body of the unit unscrews into two parts to give free access to all parts.

PRODUCTS	PICTURES	WATER FLOW	INSTALLATION	RATIO OF INJECTION	PRESSURE OF OPERATION	DIMENSION	# ITEM
MIX RITE 2502 PROPORTIONAL METERING PUMP							
Mix Rite 2502		0,088-11 gpm 20-2500 liters/h	-Hose 3/4' MPT -Includes installation media outlet	0,3-2% (1:50 to 1:333)	2,9-120 PSI (0,2-8 bar)	56x18,5cm 22''x7,27'' 1,270 kg 2,8 lbs	160-04010005
MIX RITE TF 10 PROPORTIONAL METERING PUMP							
<i>New</i> Mix Rite TF10		2-45 gpm 500- 10000 liters/h	-Pipe 1 1/2" MPT -Includes installation vertical feet.	0,2-2% (1:50 to 1:500)	17,7-120 PSI (1-8 bar)	5,530 kg 12,2 lbs	160-04010003
MIX RITE TF 25 PROPORTIONAL METERING PUMP							
<i>New</i> Mix Rite TF25		9-110 gpm 2000- 25000 liters/h	-Pipe 2" MPT -Includes installation vertical feet.	0,3-2,5% (1:40 to 1:333)	17,7-120 PSI (1-8 bar)	15,5 kg 34,2 lbs	160-04010004

IRRIGATION CONTROLLER

New

STERLING CONTROLLER 8M

APPLICATIONS :

Improve your productivity with this powerful and programmer-friendly. Unit the STERLING 8M programmer is the solution for commercial applications requiring great flexibility in the management of irrigation or misting. Combined with a tensiometer, the STERLING 8M is the ultimate tool for automated optimal irrigation in the greenhouse!



CHARACTERISTICS :

- Controller is simple, reliable and flexible;
- 8 stations operating (4 to 36 station models on request);
- 6 independent programs that can run simultaneously;
- Up to 9 cycles by date, by program or irrigation cycles
- Timer adjustable from 1 minute to 24 hours or 1second to 24minutes.
- 6 programs can be activated by an external sensor dedicated to connecting a blood pressure sensor (measuring soil moisture) for maximum efficiency of irrigation or thermostat (to operate the irrigation to protect the culture of frozen;
- Modulating water supply (1 to 255%) adjusts watering simultaneously at all stations of a program;
- waterproof metal housing, lockable, with solid internal wiring for proper installation;
- Memory retains the program during a power outage (lithium battery included);
- Possibility to install a remote control and lightning protection (sold separately);
- Power: 120VAC @ 50/60Hz Primary, Secondary: 24VAC @ 40VA, 1.5A (internal transformer);
- Surge protected
- French version of the manual operation available on request.

Sterling Controller 8 M..... 160-01040105

TENSIOMETER **IRRIGOMETER CO.**

- For optimal irrigation management
- Measures the voltage of a substrate (water availability) on a window from 0 to 16 kPa. This sensor requires an electronic interface (control computer or controller) for an accurate reading of the tension of the substrate.
- Using the combined tensiometer + stand-alone controller, you can tell the STERLING to wait for a desired tension before irrigation begins to limit the cracking of tomato's and creates deeper roots..



Tensiometer + black block RSU cal. 0-16 KPa 160-06030300

Tensiometer controller 160-06030330

Syringe pump 160-06030060

RAINBIRD ELECTRONIC IRRIGATION CONTROLLER



APPLICATIONS :



Improve your productivity with these user friendly programs. The ESP and ESP LX Modular Controller is the solution for small size residential and commercial applications.

CHARACTERISTICS :

- Different models offer the possibility of irrigation from 4 to 32 stations
- Cycle time: 7 days week - even days, odd days + / - 31 customizable fixed day without watering
- Modulating water supply (from 0 to 200%) adjusts watering times for all stations
- Terminals dedicated to connecting a sphygmomanometer or a rain sensor for maximum efficiency of irrigation
- Large LCD screen for easy programming
- Memory that retains the program during a power failure and protection against power surges
- advanced diagnostic functions, prevent users from programming errors, preventing the start of a station and circuit breaker showing a station in short-circuit or overload and continuous irrigation with stations
- Spacious lockable housing, with internal wiring for a clean and professional installation
- Power: 120VAC @ 60Hz Primary, Secondary: 24 VAC (internal transformer)
- Ability to power two 24 VAC 7A solenoids per station plus a master valve.

ADDITIONAL ACCESSORIES :

- Tensiometer [See previous page](#)
 Electronic Solenoid valves..... [See next page](#)
 Wire electric PVC/PVC..... [See next page](#)





PRODUCTS	PICTURES	DESCRIPTION	SPECIFICATIONS	# ITEM
Controller ESP-4M (4 stations)		Basic controller, allowing the addition of 3 expansion modules 3 zones.	-3 Independent irrigation programs; -4 Starts per program (total: 12);	160-04010005
Module ESP-SM3 (+3stations)		Expansion module adding 3 stations ESP-4M Controller.	Watering time 0 to 6 hours for all stations.	160-01040015
Controller ESPLXM (8 stations)		Basic controller, allowing the addition of 4 expansion modules of 4 or 8 zones	-4 Independent irrigation programs; -8 Starts per day, per program (total: 32);	Upcoming
Module ESPLXMSM4 (+ 4 stations)		Expansion module adding 4 stations ESPLXM controller.	Watering time 0 to 12 hours for all stations. (adjusted by jumping from 1 minute to 120 minutes, then rest for 10 minutes).	Upcoming
Module ESPLXMSM8 (+ 8 stations)		Expansion Module adds 8 stations to the controller E ESPLXM.		Upcoming

Let us help you decide on the model.



ELECTRIC SOLENOIDS VALVES

PVC construction. Available in 24V or 110V 3 / 4 "to 3".

PRODUCT	PICTURES	SPECIFICATIONS	# ITEM
Electric Valve 3/4" FPT 24Volts		Right Series DV	<u>150-08020020</u>
Electric Valve 1" FPT 24Volts			<u>150-08020030</u>
Electric Valve 1" FPT 24Volts		Angle Series DV	<u>150-08020040</u>
Electric Valve 1" FPT 24Volts		Flow controller Series DV	<u>150-08020050</u>
Electric Valve 1 1/2" FPT 24Volts		And right angle, set PGA	<u>150-08020060</u>
Electric Valve 2" FPT 24Volts		Angle Series PGA	<u>150-08020080</u>

The DC series valves are available as well as other models in the range of Rain Bird. (price on request).

WIRE ELECTRIC PVC / PVC (with and without shielding "shield")

Wire of electrical low voltage with protective cover, multiple drivers for 24-volt solenoid valves and other equipment. Each driver is a different color. The wire is sold by the yard or roll.



ARMS	LENGTH	# ITEM
18/2 unshilded	300 m	<u>180-02000450</u>
18/3 unshilded	300 m	<u>180-02000460</u>
18/4 unshilded	300 m	<u>180-02000470</u>
18/6 unshilded	300 m	<u>180-02000490</u>
18/7 unshilded	300 m	<u>180-02000495</u>
18/8 shilded	300 m	<u>180-02000500</u>
18/9 unshilded	300 m	<u>180-02000510</u>
18/10 unshilded	300 m	<u>180-02000520</u>
22/2 shielded	300 m	<u>180-02000540</u>
18/2 shielded	300 m	Upcoming

Other types of wire are also available.

CLIMATE CONTROL AND AUTOMATION

ARGUS

Versatile, powerful and reliable :

Integrated control systems which are specially designed manage the environment. Within your greenhouse:

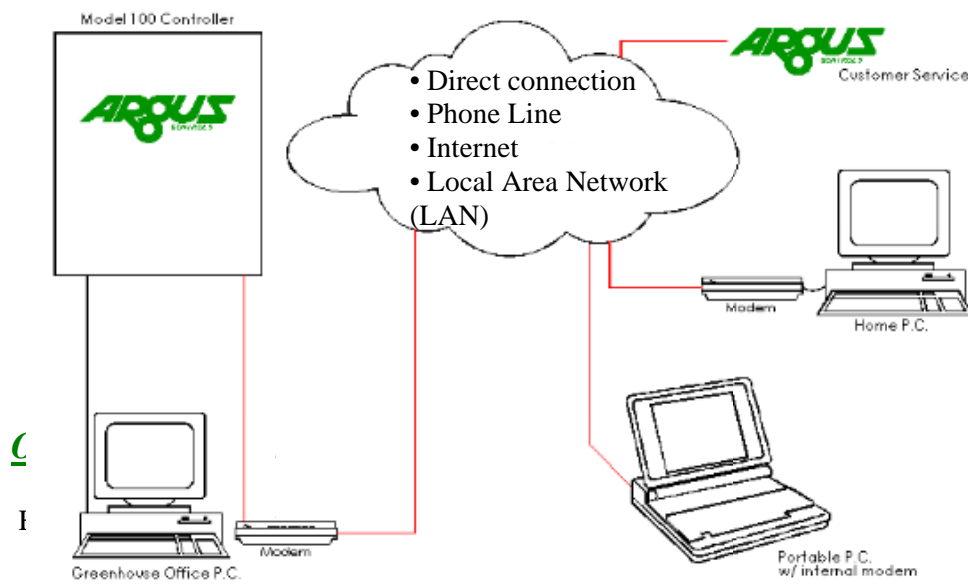
- Temperature control
- Control of evaporation
- Control of humidification or dehumidification
- Control of CO2
- Control of light intensity
- Control of nurseries
- Control of thermal fabrics
- Control irrigation
- Control Misting
- Control of fertilizer injector
- Control of heating
- Control of roof or side opening



Here are some good reasons to choose a system ARGUS:

- A leader in control technology
- Suitable for all crops
- Flexible
- Easy to use, easy to install
- Remotely operated
- Easily expandable

Multi Accessibility, password protected :



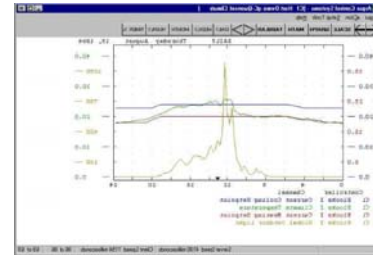
- ✓ At the **cutting edge of technology** in integrated climate control in greenhouses.
- ✓ **Used** in North America in the areas of production, research and education.

- ✓ Modular design adaptable to **your needs** = **economical and flexible.**
- ✓ Easy to use Computer Interface
- ✓ Multiple Climate and irrigation to set instructions are **reliable and easy to**
- ✓ **Alarms simple and safe.**
- ✓ Reading sensors and weather in **real time.**
- ✓ Applications system available in **real time.**
- ✓ **Layout follows easily modified** to your preferences.




Recording and graphing of data :

- ✓ **Optimization of climate and management inputs (\$\$\$).**
- ✓ Better understanding and monitoring processes related to integrated climate management.
- ✓ **Data** compatible with MS Excel.
- ✓ **Allows remote monitoring** by your agronomist or consultant **GHL.**





Service After Sale Service:

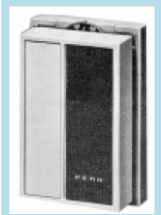
- ✓ **24hours a day, 7 days a week.**
- ✓ **FREE LIFETIME**
- ✓ Online Help.
- ✓ Distributed and supported for  ars.



THERMOSTATS

PRODUCTS	PICTURES	APPLICATIONS	CHARACTERISTICS	# ITEM
<u>THERMOSTAT ENVIRONMENTAL CR2095</u>				
Environmental thermostat CR2095		<ul style="list-style-type: none"> • Heating system • Ventilation system. 	<ul style="list-style-type: none"> • Temperature Sensor stainless steel • Resistant to mold and moisture • Differential: 3.5 of or 1.9 oC • Scale: 30-110°F or 0°C-43°C • 120 V (16 A) and 240 V (8 A) • transparent and waterproof cover. 	160-07010040
<u>DUAL THERMOSTAT (T15-2)</u>				
Dual Thermostat (T15-2)		<ul style="list-style-type: none"> • 2 fan speeds • Managing high and low Temperature 	<ul style="list-style-type: none"> • 2 thermostats in one housing; • Sensors in stainless steel; • Scale: 40-100oF or 5oC-37oC; • Differential: 2.5 of or 1.4 oC; • 120 V (12 A) and 240 V (10 A). 	160-07010030
<u>ELECTRIC PROGRAMMABLE THERMOSTAT</u>				
On request				
<u>SWITCH TIMER</u>				
We offer a wide variety of electromechanical and electronic timers. For more information, please contact us.				

HUMIDISTAT

PRODUCTS	PICTURE	APPLICATIONS	CHARACTERISTICS	# ITEM
Humidistat (W42AA-1C)		<ul style="list-style-type: none"> • Control humidification & dehumidification. 	<ul style="list-style-type: none"> • 10 to 90% RH (± 4%); • Maximum operating temperature: 38 ° C; • 125VA at 120/240 VAC. 	160-08010040

CO₂GENERATOR

CO₂ GENERATOR JOHNSON

This generator provides steady, reliable and safe CO₂. Models available in propane or natural gas.

Specifications

- * Natural gas or propane
- * BTU see chart below
- * 24 volts , Gas valve
- * Size of connection to the gas supply 3 / 8"
- * Flame extinguishing safeguard
- * The values of CO₂ generation with propane are slightly lower than natural gas.





PROPANE			NATURAL GAS		
Gas pressure water column	Entry	Feet ² /box	Gas pressure water column	Entry	Feet ² /box
11	60,000	4800	5	63,800	4250
9	54,500	4320	4	57,500	3850
7	47,800	3820	3	50,200	3350
5	40,400	3220	2	40,400	2700
3	31,300	2500	1	28,475	1900
1	18,100	1440			

Note: This information was obtained from Johnson Gas Company

CO₂ Generator..... [160-01020020](tel:160-01020020)

CO₂ GAS MONITOR

PRODUCTS	PICTURES	DESCRIPTION	# ITEM
<u>CO₂ GAS MONITOR GREYSTONE (infrared)</u>			
Greystone CO ₂ Gas Monitor		<ul style="list-style-type: none"> * Based on the level of CO₂ (carbon dioxide) in the greenhouse * Can be used for effective control of any of the CO₂ generator * Detection Range 0-2000 ppm or 10 to 20 000 ppm, accuracy + 3% * Response Time: 35 seconds (90% of readings) * LCD and lifetime of the sensor: 5 years 	160-02000320
<u>GREYSTONE CO DETECTOR</u>			
Greystone CO ₂ Detector		<ul style="list-style-type: none"> * Based on the level of CO₂ (carbon monoxide) in the greenhouse; * Detection Range 0-300 ppm or 500 ppm + 3 to 5%. 	Upcoming

SYSTEM OF MONITORING AND SECURITY




SENSAPHONE SERIES 400 & 800

Commercial features including a new look, durability, keyboard security requiring the use of a password to access the system. This unit will warn:

- Increased or decreased of temperature
- Power Outages
- abnormally high noise levels
- Fire and smoke

With some inexpensive accessories, the Sensaphone will also detect:

- Intrusions
- Leaks and flooding
- Differences in temperature

PRODUCTS	PICTURES	DESCRIPTION	# ITEM
<u>SENSAPHONE SERIES 400</u>			
Sensaphone series 400		<ul style="list-style-type: none"> • Can be connected to 4 accessories (sensors) • When an alarm is triggered, it can call 4 different numbers. 	160-21000105
<u>SENSAPHONE SERIES 800</u>			
Sensaphone series 800		<ul style="list-style-type: none"> • Can be connected to 8 accessories (sensors) • When an alarm is triggered, it can call 8 different numbers. 	160-21000115
<u>ACCESSORIES SENSAPHONE</u>			
Temperature Sensor Remote		Connects to the Sensaphone to detect changes in temperature	160-21000160
<p><i>Other accessories are also available on request eg:</i></p> <ul style="list-style-type: none"> • Infrared Motion Detector • Water level sensor • Thermal alarm • Optical Detector 			

IRRIGATION

IRRIGATION HOSE



Designed for watering in the greenhouse, table and row crops and for irrigation of outdoor crops.

THICK WALLS	SPACING OF HOLES	FLOW (GPM/100')	LENGTH/ROLL	# ITEM
4 mil	8"	0,50 gpm	7500'	150-01060047
6 mil	8"	0,50 gpm	5000'	150-01060050
6 mil	12"	0,50 gpm	5000'	150-01060060
8 mil	2"	1,50 gpm	3750'	150-01060070
8 mil	4"	1,00 gpm	3750'	150-01060090
8 mil	8"	0,50 gpm	3750'	150-01060110
8 mil	12"	0,50 gpm	3750'	150-01060130
10 mil	2"	1,50 gpm	3000'	150-01060140
10 mil	4"	1,50 gpm	3000'	150-01060160

Made of low density polyethylene, they are available in thicknesses of 4 to 15mm. The thickness required is determined by the type of application. For example, for non-woody plants produced in greenhouses, we suggested 4 or 8 mm. For outdoor production , we would recommend 10 or 15 mm. A 200 mesh filter should be used ahead of the system.



HOSE CONNECTORS

These poly fittings are designed for use with the above hose.

PRODUCT	PICTURES	# ITEM
Drip-lock x 0.250 barb		190-04000005
Drip-lock x union		190-04000080
Drip-lock x turnstile female 3/4" HT		190-04000040
Valve 5/8 on x 0.250 barb		150-08010067
Drip-lock x screw cap		190-04000065
Drip-lock x discharge valve		190-04000085
Drip-lock x 1/2" male		190-04000015
Drip-lock x 0.350" compression		190-04000010
Drip-lock x tee		190-04000075
Drip-lock x elbow		190-04000070

PRESSURE REGULATORS

Operates without restriction until the pressure reaches the desired setting. No adjustment required. Construction PVC / stainless steel, simplifies the installation of irrigation system.

ENTER , EXIT DIAMETER	MAXIMUM PRESSURE	RATE	TYPE	# ITEM
3/4" FPT	6 PSI	0,5 to 5 gpm	PMR-LF	150-0700040
3/4" FPT	10 PSI	0,5 to 5 gpm	PMR-LF	150-0700045
3/4" FPT	10 PSI	4 to 16 gpm	PMR-MF	150-0700050
3/4" FPT	12 PSI	3,5 to 20 gpm	PRV 3/4	150-0700070
3/4" FPT	12 PSI	0,1 to 8 gpm	PMR-LF	150-07000125
3/4" FPT	15 PSI	0,5 to 5 gpm	PRV 3/4	150-07000075
3/4" FPT	20 PSI	0,5 to 5 gpm	PRV 3/4	150-07000080
3/4" FPT	20 PSI	2 to 20 gpm	PMR-MF	150-07000090
1" FPT	20 PSI	2 to 20 gpm	PMR-MF	150-07000095
3/4" FPT	20 PSI	3,5 to 20 gpm	PRV 3/4	150-07000100
3/4" FPT	25 PSI	0,5 to 5gpm	PRV 3/4	150-07000110
3/4" FPT	35 PSI	3,5 to 20 gpm	PRV 3/4	150-07000120
3/4" FPT	35 PSI	0.1 to 8 gpm	PMR-LF	150-07000122
1" FPT	6 PSI	4 to 16gpm	PMR-MF	150-07000130
1" FPT	10 PSI	4 to 16 gpm	PMR-MF	150-07000140
1" FPT	15 PSI	2 to 20 gpm	PMR-MF	150-07000150
1" FPT	35 PSI	2 to 20 gpm	PMR-MF	150-07000170
1 1/4" X 1" FPT	6 PSI	10 to 32 gpm	PR-HF	150-07000180
1 1/4" X 1" FPT	10 PSI	10 to 32 gpm	PR-HF	150-07000190
1 1/4" X 1" FPT	15 PSI	10 to 32 gpm	PR-HF	150-07000200
1 1/4" X 1" FPT	20 PSI	10 to 32 gpm	PR-HF	150-07000160
1 1/4" X 1" FPT	50 PSI	10 to 32 gpm	PR-HF	150-07000205
1 1/2" FPT	12 PSI	7 to 40 gpm	PRV 1 1/2	150-07000210
1 1/2" FPT	20 PSI	7 to 40 gpm	PRV 1 1/2	150-07000220
1 1/2" FPT	25 PSI	7 to 40 gpm	PRV 1 1/2	150-07000230
1 1/2" FPT	35 PSI	7 to 40 gpm	PRV 1 1/2	150-07000240
2" FPT	12 PSI	15 to 80 gpm	PRV 4S	150-07000250
2" FPT	20 PSI	15 to 80 gpm	PRV 4S	150-07000260
2" FPT	35 PSI	15 to 80 gpm	PRV 4S	150-07000270

TYPE PMR-LF/PMR MF/PR-HF



TYPE PRV 3/4



TYPE PRV 1 1/2



TYPE PRV 4S



CARLON



DIAMETER	MAXIMUM PRESSURE	LENGTH/ROLL	TYPE	# ITEM
1/2"	75 PSI	400'	Standard	150-01030040
3/4"	40 PSI	500'	Low Pressure	150-01030030
3/4"	75 PSI	500'	Standard	150-01030050
1"	75 PSI	300'	Standard	150-01030062
1 1/4"	75 PSI	300'	Standard	150-01030080
1 1/2"	75 PSI	250'	Standard	150-01030100
2"	75 PSI	250'	Standard	150-01030120
Other sizes available upon request.				

PERMA-LOC LINE CONNECTERS FOR IRRIGATION

Several fittings are available to facilitate the assembly of the irrigation system. The most common are listed below. They are not all shown.

PRODUCT	PICTURES	# ITEM
Valve end of line self cleaning low-speed 3 / 4" FHT		150-08100045 with 150-01030005 or 150-01030015
Valve line-end broadband self cleaning 3 / 4" FHT		150-08100055 avec 150-01030005 ou 150-01030015
Valve line-end broadband self cleaning 3 / 4" FPT		150-08100050 Besoin d'un adaptateur 3/4" MPT
Perma-Loc Valve 1 / 2 "with quick connect		150-08010060
Valve Perma-Loc 3 / 4 "quick coupler		150-08010130
Perma Loc Valve 1 / 2"to bracket x 1 / 2"MPT		150-08010065
Perma-Loc Fitting 1 / 2"to quick connect		150-03000325
Tee Perma-Loc 1 / 2"to quick connect		150-03000365
Perma-Loc Elbow 1 / 2"to quick connect		150-02020055
Perma-Loc Adapters 1 / 2"to brachet x 1 / 2"MPT		150-01030002
Perma-Loc Adapters 1 / 2"to brachet x 3 / 4"MPT		150-01030004
Perma-Loc Adapters 1 / 2 "with quick hitch x 3 / 4" MHT (600 series)		150-01030005
Adapter Perma-Loc 3 / 4 "quick coupler x 3 / 4" MHT (800 series)		150-01030015
Perma-Loc Adapters 1 / 2 "with quick hitch x 3 / 4" FHT swivel (600 series)		150-01300005
Adapter Perma-Loc 3 / 4 "quick coupler x 3 / 4" FHT swivel. (800 series)		150-01300000

PIPE FITTING (FOR CARLONI AND PVC)

A full range of fittings and Carlon PVC pipes are available. We maintain in inventory in sizes 1 / 2 "to 1", other sizes are available upon request. Many connections are that not available in hardware stores, are in stock at competitive prices.

New* *** We NOW HAVE IN STOCK GRAY FITTINGS**

In the greenhouse, the use of gray connectors avoids the creation of algae in the pipes.

See the description of the types of connections used: "INSERT", "MPT", "FPT", "MHT", "FHT" and "SLP"

TYPE OF CONNECTION	DESCRIPTION
«INSERT» or «INS»	Insert adaptor
«MPT» and «FPT»	Male and Female pipe thread
«MHT» and «FHT»	Means that the threads of the fitting for the hose, female or male...
«SLP» or «SL»	Means that the connector is glued** (Used in PVC pipe only)

In all connections (or for Carlon PVC) you must specify diameter required and the type of connection.

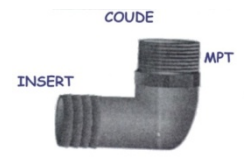
However when ordering fittings be very careful to give the diameter and type of connection.

Examples :

Tee 1" X 1" x 1/2" insert












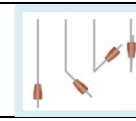


Elbow 1" insert X 1" MPT



CLAMP QUICK ATTACH AND TRADITIONAL

DESCRIPTION	DIMENSION	# ITEM
Collet standard stainless steel.	3/8" to 25/32"	190-07020030
Collet standard stainless steel.	5/8" to 1 1/2"	190-07020040
Collet standard stainless steel.	1/2" to 1"	190-07020050
Collet standard stainless steel.	9/16" to 1 1/16"	190-07020055
Collet standard stainless steel.	9/16" to 1 1/4"	190-07020058
Collet standard stainless steel.	1 1/16" x 1 1/4"	190-07020060
Collet standard stainless steel.	1 1/16" to 2"	190-07020070
Collet standard stainless steel.	1 9/16" to 2 1/2"	190-07020080
Collet standard stainless steel.	1 13/16" to 2 3/4"	190-07020090
Collier quick hitch.	1/2"	190-07030020
Collier quick hitch.	3/4"	190-07030030
Collier quick hitch.	1"	190-07030040
Collier quick hitch.	1 1/4"	190-07030050
Collier quick hitch.	1 1/2"	190-07030060
Collier quick hitch.	2"	190-07030065
Clamp collar for quick attachment.		190-07040050

SPIKES FOR TUBE AND SPAGHETTI MICROTUBULURE

PRODUCTS	PICTURES	DESCRIPTION	MICROTUBULURE	# ITEM
<u>PICS TO JET SPRINKLERS</u>				
Sprinkler purple		<p><i>New</i></p> <ul style="list-style-type: none"> • Nursery pots; • Different rates available; • Positions open and closed. 	Tube 125-187	150-02030035 150-02020075 150-02030033
Spike (Pot)		<ul style="list-style-type: none"> • Watering pot; • Watering in half-moon; • Durable and easy installation; • Positions open and closed. 	Spaghetti tubing (0,05-0,06-0,076)	150-02030020
N-Spike (for nursery)			Tube 125-187	150-02030025
Dripper		<ul style="list-style-type: none"> • Easy installation; • Positions open and closed. 	Spaghetti tubing (0,05-0,06-0,076)	150-02030070
<u>PICS DROP-TO-DROP</u>				
Peak angle beard		<ul style="list-style-type: none"> • Irrigation pot drip-drip; • Installs with a dripper countervailing pressure. 	Tube 125-187 Tube 160-220	150-02030030
Pic buffer 2L/h short (3''3/4)		<ul style="list-style-type: none"> • Irrigation pot drip-drip; • Installs with a dripper countervailing pressure when there is a multiport adapter. 	Tube 125-187	150-02020215
Pic buffer 2L/h long (6''3/8)				150-02020220
Model V for spaghetti		<ul style="list-style-type: none"> • Irrigation pot drip-drip; • The tube is screwed on top of the peak. 	Spaghetti tubing (0,05-0,06-0,076)	150-02030010
Piquet gray 5''		<ul style="list-style-type: none"> • Irrigation pot drip-drip; • Simple and economical. 	Tube 160-220	150-02030040
<u>DROP WEIGHT-TO-DROP FOR HANGING BASKETS</u>				
Weight white ultra thin integrated clasp		<p><i>New</i></p> <ul style="list-style-type: none"> • New form « <i>SimLine EZ close weight</i> » to an early closure of the water; 	Tube 125-187	150-08020520
Weight of orange plastic (on/off)		<ul style="list-style-type: none"> • Weight plastic closure to the water once the basket removed 	Tube 125-187	150-08020560
Weight of lead (zinc et aluminum)		<ul style="list-style-type: none"> • Weight sustainable and resilient; • Do not have closure system. 	Tube 125-187	150-10000370
Weight of metal on/off for spaghetti		<ul style="list-style-type: none"> • A standard weight, durable and resistant; • Includes 30" of coiled tubing; • Has a system of closure. 	Tube spaghetti (0,06)	150-01020130

*** Several models pics are available as needed by each culture and the system already in place. Our representatives will advise you accordingly.



DRIPPER PRESSURE COMPENSATED



IRRIGATION



Pressure compensating drippers are used to maintain a constant uniformity along the line of irrigation. Your representative can help you choose the right dripper.

MODEL	PICTURES	COLOR	# ITEM
Netafim Woodpecker Dripper 2L/h		Orange and/or Black	150-02010080
2L/h Dripper		Blue	150-02020065
4L/h Dripper		Green	150-02020085
8L/h Dripper		Red	150-02020095

ADAPTERS FOR MULTI-DIRECTION DRIPPERS



MODEL	# ITEM
2 Direction	150-06010020
4 Direction	150-02020040
8 Direction	150-02020050

PUNCH



PRODUCT	DESCRIPTION	# ITEM
Muff Punch	Need a punch PSI	150-09000355
Hallmark psi 2,5mm	For Woodpecker dripper	150-09000360
Hallmark psi 3,0mm	For dripper PSI	150-09000370
Hallmark psi 3,6mm	For 0.250 barb	150-09000373
Sleeve and punch for spaghetti	For coiled tubing	150-09000315




Polyethylene micro tubes .



MODEL	INTERIOR DIAMETER	EXTERIOR DIAMETER	FEET /ROLL	# ITEM
Tube 125-187	0,125" (3,18mm)	0,187" (4,75mm)	1000'	150-01020005
			2500'	150-01020010
Tube 160-220	0,160" (4,06mm)	0,220" (5,59mm)	1500'	150-01020015
Tube 4/7	0,158" (4,00mm)	0,276" (7,00mm)	1000' (sold by the foot)	150-01020060
Spaghetti E50	0,050"(1,27mm)	0,128" (3,25mm)	2500' / rl	150-01010010
Spaghetti E76	0,076"(1,93mm)	0,128" (3,25mm)	2500' / rl	150-01010030

Also available as an optional pre-assembly with pressure regulator and tubing in several lengths.

MICRO-TUBE CONNECT

PRODUCT	PICTURES	# ITEM
Tube 125-187 connector barb. x barb.		150-05000050
Tube 125-187 adapter 125 - T x barb.		150-05000010
Double Cap 3 / 7 mm for repair		150-05000040






PUMPS

*** Several models are available. Ask your representative for more information ***

FILTERS



We have a range of filters that can meet all needs. Strainers have the advantage of being less expensive while disk filters collect more dirt (larger filtration area) and are more durable.

PIPE DIAMETER	TYPE	PICTURES	FLOW (GPM)*	FINESSE THE FILTER	# ITEM
¾" MPT	Strainer		0-18	120 mesh (red)	150-06010030
				155 mesh (yellow)	150-06010060
				200 mesh (black)	150-06010070
1" MPT	Strainer		0-26	120 mesh (red)	150-06010100
				155 mesh (yellow)	150-06010120
				200 mesh (black)	150-06010140
¾" MPT	Disk		0-18	120 mesh (red)	150-06020015
1" MPT	Disk		0-26	120 mesh (red)	150-06020020
				140 mesh (black)	150-06020030
1.5" MPT	Disk		30-53	120 mesh (red)	150-06020040
				140 mesh (black)	150-06010170
2" MPT	Disk		40-120	120 mesh (red)	150-06020060
				140 mesh (black)	150-06020070

* For more details on the sale of each filter, please consult the product data sheets.

Notes: On special order 40, 80 and 200 mesh are available.

Cartridges are also available separately:



BALL VALVES

We have a complete range of PVC valves available from ½ "to 4".



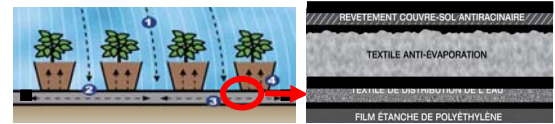
DIMENSION	# ITEM
1/2" FPT	150-08010030
3/4" FPT	150-08010100
1" FPT	150-08010150
1½" FPT	150-08010210
2" FPT	150-08010250
1" FPT True Union	150-08010170

DIMENSION	# ITEM
1/2" SL	150-08010040
3/4" SL	150-08010090
1½" SL	150-08010220
1" SL True Union	150-08010175

AQUAMAT™ **AQUAMAT**
LE SYSTÈME DE CONSERVATION DE L'EAU

This new generation of capillary mat is actually a revolutionary irrigation system which allows optimal watering of plants while saving on cost of labour, water, fertilizer, electricity and production time . Your plants will benefit from more consistent irrigation conditions. Custom sizes in widths of 3, 4, 5, 6, 7 and 11 feet.

This product is composed of four distinct layers: ground cover anti-root polypropylene, textile anti-evaporative light and low-density textile for distribution of the water layer (reservoir), waterproof polyethylene film 6 mm thick.



Capillary mat (Aquamat)..... [170-01000140](tel:170-01000140)

AQUATHERMAT™ **AQUATHERMAT**
ATM: MATÉLAS CAPILLAIRE CHAUFFANT HAUTE PERFORMANCE

Similar to Aquamat, this has heating tubes for hot water flow. This mat is used to stimulate root growth and reduce heating costs.

Capillary mat Aquathermat [170-01000155](tel:170-01000155)

IRRIGATION SPRINKLER WITH WOBBLER



The Wobbler
(Standard angle) :

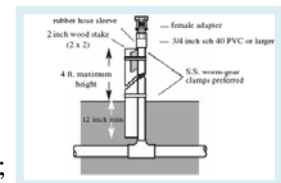


Mini-Wobbler :



Characteristics:

- Uniform circular coverage, large scale irrigation;
 - Tip: ½ "NPT (3/4NPT allows for Wobble);
 - Mini-Wobbler offers a smaller spray diameter but is more uniform;
 - To install a Tee, a hillock of 1.5 or 3 'and a ring are necessary;
 - The stem should be planted near the nipple to support, moved to 1.5 or 3 'tall.
- Wobbler • Flow: 0.78 to 5.25 gpm, pressure used with Wobbler: 10 - 35 psi;
 • Flow Mini-Wobbler: 0.42 to 2.61 gpm; pressure used with the Mini-Wobbler: 15 - 35 psi;



Specifications :

PRESSURE IN PSI	10	15	20	25	30	35
Wobbler #7 jet « lime » (7/64") 150-03000410 :						
Flow gpm :	1,06	1,30	1,50	1,68	1,84	1,99
Diameter à 1,5' de height (feet) :	36,5	41,5	43,5	45,0	44,5	46,5
Wobbler #13 jet « white » (13/64") 150-03000415 :						
Flow gpm :	3,80	4,65	5,38	6,01	6,59	7,12
Diameter à 1,5' de height (feet) :	44,5	49,5	50,5	510	51,5	52,0
Mini-Wobbler #5 jet « beige » (5/64") 150-03000290 :						
Flow gpm :	-	0,64	0,75	0,84	0,91	0,99
Diameter à 1,5' de height (feet) :	-	31,0	33,5	35,0	35,5	36,0
Diameter à 3' de height (feet) :	-	36,5	39,5	39,5	39,5	39,5
Mini-Wobbler #7 jet « lime » (7/64") 150-03000320 :						
Flow gpm :	-	1,30	1,51	1,69	1,86	2,01
Diameter à 1,5' de height (feet) :	-	35,0	37,5	38,5	39,0	39,0
Diameter à 3' de height (feet) :	-	41,0	43,0	43,0	43,0	43,0
Mini-Wobbler #8 jet « lavander » (1/8") 150-03000280 :						
Flow gpm :	-	1,67	1,95	2,18	2,39	2,61
Diameter à 1,5' de height (feet) :	-	35,5	38,5	39,0	39,5	40,0
Diameter à 3' de height (feet) :	-	41,5	43,0	43,5	43,5	43,5

*** Your representative will give you an irrigation plan that meets your needs using a software specially designed for this purpose.**

SPRINKLER AND IRRIGATION MIST










It is now possible to obtain a droplet as fine as 90 microns with 60 PSI! Dan products offer an array of jets to suit all irrigation needs. Please consult our representatives for a list of nozzles to meet your specific needs watering, wetting or misting.



PRODUCT	PICTURE	# ITEM
DAN SPRINKLER IRRIGATION		
Dan bridge		150-10000170
Dan Antimist		Blue(0.060") : 150-10000020 Yellow(0.055") : 150-10000030 Orange(0.047") : 150-10000040 Green(0.035) : 150-10000050
Dan spinner		Black (wing) : 150-10000300 Black (round) : 150-10000310 Orange (oblong) : 150-10000320 Green (kiwi) : 150-10000330
Dan spreader		Yellow (Flat) : 150-10000340 Violet (mist) : 150-10000350
Dan nozzle		Blue(0.075") : 150-10000230 Yellow(0.067") : 150-10000260 Orange(0.060") : 150-10000270 Green(0.055") : 150-10000280 Gray (0.044") : 150-10000250 Violet(0.032") : 150-10000290
MIST		
Dan 2 way connector (humidification/cooling)		150-10000075
Dan 4 way (spread)		150-10000090
Dan fogger 45 degree angle		150-10000190
Dan fogger		Blue(1.8gph) : 150-10000200 Orange(3.6gph) : 150-10000210 Red(5.4gph) : 150-10000220
ASSOCIATED ITEMS		
Dan x barb connector tube 4 / 7		150-10000070
Dan mentioned x and butterfly saddle		Saddle : 150-09000450
Dan referred x barb and saddle		Saddle : 150-09000450
Dan basic male 1 / 2 "		150-10000160
Dan butterfly x barb		150-10000180
Dan anti-leak		Sprinkling : 150-10000130 Mist : 150-10000140
Cap dan sprinkler / fogger		150-10000060
Punch handle Punch 3.6 mm (0.025 barb)		Handle : 150-09000355 Punch : 150-09000373
Tube 4/7	-	150-01020060
Weight suspension 5 1/2 "		150-08020500
32mm hose Aluminum		150-01050030
Carlton	-	See page 65
Irrigation clamp		3/4" : 150-09000200 1" : 150-09000210 1/2" : 150-09000220
Steel cable 3 / 32 galvanized		170-02010160
Oval attached to steel cable	-	170-02020020
Stretcher for Canvas / pin	-	170-02020100

DRAMMIRRIGATION PRODUCTS HAND DRAMM

PRODUCTS	PICTURES	DESCRIPTION	# ITEM
Spray nozzle red plastic 1000PL		Manufactured to irrigate the small pots, trays and seedlings. It has 1000 micro holes that create an extra-gentle stream that does not affect fresh soil or fragile plants. Made of ABS plastic and stainless steel. 7 to 40 PSI.	<u>150-03000330</u>
Spray nozzle yellow plastic 750PL		Conceived by producer demand, this is the new yellow nozzle manufactured to provide a precise and gentle spray. It has 750 micro holes that are the same size as the 1000PL.	<u>150-03000333</u>
Spray nozzle aluminum 400 ALC		This model of apple provides fast watering without damage to plants and soil. It has 400 holes that are slightly larger than the 1000PL and 750PL. The apple is made of aluminum and a copper component. This model has existed since 1945.	<u>150-03000335</u>
Watering Wand		Ergonomically Designed for increase comfort while spraying. They are available in 16, 24, 30, 36 and 48 inches long. They are made of extruded aluminum, with a comfortable grip.	<u>150-03000336</u>
Basket wand		These hoses offer a 90 degree bend to irrigate hanging baskets. Available in 36 and 48 inches long. They are made of extruded aluminum, with a comfortable handle.	On request
Wand Ball Valve/ 4" M / F		Attaches directly to any wand.	Hose Yarn : <u>150-08010115</u> Hose Yarn : <u>150-08010110</u>
Quick release valve		Attaches directly to any wand.	<u>160-16000135</u>

ARTIFICIAL LIGHTLAMP FOR ARTIFICIAL LIGHTING

GHL offers lighting systems LIGHT PL to extend the lighting phyto-synthetic and maximize productivity in greenhouse culture. The facilities are tailored according to the needs of each production.

Thus, according to the surfaces and the types of crops, it will be possible to offer a lighting plan with the layout and types of lamps.

Each of the lamps has the following characteristics:

- Choice of voltage: 120, 208, 240, 277, 347 and 480 volts;
- Choice of light intensity: 150, 250, 400, 430, 600 and 1000 Watts;
- Ballast interchangeable between type HPS and Metal Halide (400 Watts and 1000 Watts) The body of the aircraft aluminum extruded to facilitate ventilation and prevent overheating;
- Compact size to avoid the shading effect;
- The lamps are resistant to highly humid environments;
- Reflectors Aluminum matte finish for maximum consistency;
- Easily removable for cleaning help.










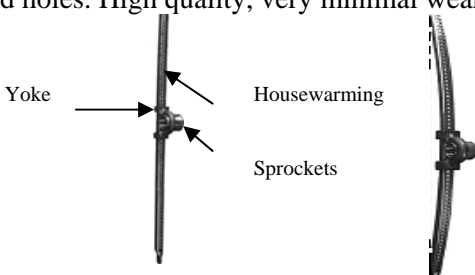
Advantages of artificial lighting :

- Produce during seasons when sales prices are higher;
- Less abortion of flower buds;
- Reduced risk of fungal disease (thus reducing the use of pesticides);
- Allows for better planning of production without necessarily depend on the climate.



Contact your representative to learn more about the products available and beneficial for advice to determine which products suit your needs.

EQUIPMENT FOR ROOF AND SIDE FOR OPENING AND SHADE

PRODUCTS	PICTURES	DESCRIPTION	NUMBER OF REDUCTION	# ITEM
<u>GEAR MOTO</u>				
Geared ZRE80		<ul style="list-style-type: none"> • For ventilation and shading • Torque Wheel and self-locking screw. • Direct drive 	12 laps (max)	160-10010480
Geared Sunroof		<ul style="list-style-type: none"> • To roll (side opening) 	36 laps (max)	160-10010400
<u>REDUCER MANUAL (for venting and shading)</u>				
Manual Gearboxes RC12/RC24		<ul style="list-style-type: none"> • To open or shading on small and medium-sized structures. 	1 / 12	160-10010260
			1 / 24	160-10010240
Manual Gearboxes RC7/RC15		<ul style="list-style-type: none"> • Tube ventilation winding. (Max. 100 'length) 	1 / 7.5	160-10010100
			1 / 15	160-10010120
Manual Gearboxes TM15		<ul style="list-style-type: none"> • For small and medium-sized structures • Waterproof Camera. 	1 / 15	160-10010220
Manual Gearboxes ZAE00		<ul style="list-style-type: none"> • To roll-up side ventilation on large structures. 	1 / 7	160-10010180
<u>ACCESSORIES</u>				
Crank hook 0,50m				160-10040100
Crank hook 1,10m				160-10040110
Crank hook 1,50m				160-10040120
Crank sets Als 14				160-10040170
Crank troubleshooting				160-10040160
Channel switching galvanized the m/l				160-10040040
<u>RACK ZOC90</u>				
Housewarming (1,35 m)	 <p>Yoke → → → Housewarming</p> <p>Sprockets</p>	Canadian-built rack with round holes. High quality, very minimal wear. <ul style="list-style-type: none"> • Channel bar • Length available : On request to maximum Of 1,35 m • Curve : On request 	160-10020100	
Curve			160-10020010	
Yoke			160-10020300	
Sprockets			160-10020370	

VENTILATION AND HEATING

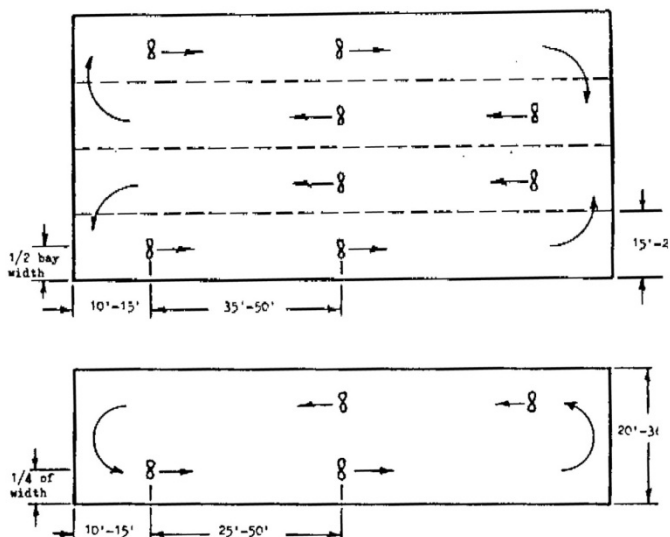
VAN OF MOVEMENT (HAF) PERFORMA GLOBALYS

The fan HAF is increasingly popular. Research shows that circulation systems may be superior to other types of air movement. It improves:

- The uniformity of temperature;
- Reduces heat loss;
- Disperses moisture;
- Improves the distribution of CO₂ in the immediate environment of the plant;
- In short, it makes the environment more uniform

Available in 20 "diameter, with motor (1 / 10 hp) operating at 115 volts (0.5 / 1 amp). A power cord, a suspension arm and a cage are included with each unit . Easy installation with energy saving operation.

Volume discounts available.



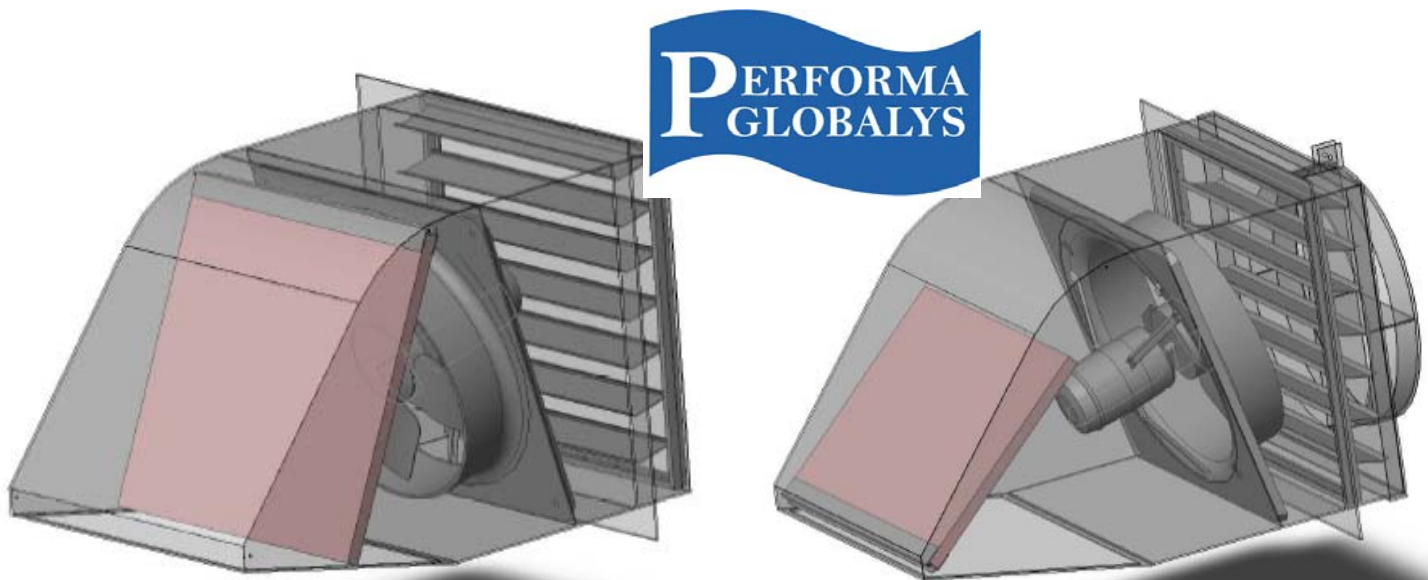
Ask your representative to guide you in choosing the most appropriate facility for your needs.

HAF 20" Performa Globalys [160-05010215](tel:160-05010215)

POSITIVE AND NEGATIVE PRESSURE FANS PERFORMA GLOBALYS

Air changes by positive and negative ventilation reduce greenhouse temperature and humidity by an injection of fresh dry air from outside. The changes allow more air to maintain normal levels of CO₂ and oxygen in the greenhouses.


- 16" and 18" sizes available
- Variable speed (drive not included).
- 220 V, single phase, 0.9-1.4 Amp.
- Rotor blades and cast aluminum one piece for strength.
- Blades profiled for better efficiency and silent operation.
- CSA Approved
- Compact and reversible for easy installation (see diagram below).
- PVC insulated hood white included to prevent the direct entry of cold air.
- Adapter for polyethylene tube and ventilator clips included.
- Includes insulated hood, motor, the connection box, the capacitor and protective grill.



Negative pressure

Positive pressure

VENTILATION AND HEATING TUBES

PRODUCTS	PICTURES	DESCRIPTION	INFLATED DIAMETER OF TUBE	DIAMETER FLAT	# ITEM
Polyethylene ventilation tube		Polyethylene pipe for ventilation heating. Treated U.V. 12 months. Non-perforated	6"	9"	140-03000010
			10"	16"	140-03000020
			12"	19"	140-03000030
			14"	22"	140-03000040
			16"	25"	140-03000050
			18"	29"	140-03000060
			24"	38"	140-03000070
			30"	47"	140-03000080

*VOLUME DISCOUNT AVAILABLE

PERFORATION OF THE TUBE OF POLYETHYLENE

Possibility of puncturing the tubes according to your needs, additional charges apply.

PROCEDURE FOR ORDERING

Step 1 : Contact your representative with the following information.

- Use (Venting or heating)
- Diameter tubes
- Quantity of tubes
- Length tubes
- Diameter holes desired
- Delivery-date desired.

If necessary, your representative can help you define the dimensions that you need.

Step 2 : Your representative will send you a quote and a plan for drilling by fax or email.

Step 3 : Check, **sign** and return the drilling plan by fax to your representative to confirm the order.

Step 4 : Your representative will advise the expected delivery time.

CHARTER AND EQUIVALENTS

Loss of pressure (psi) through the valves and fittings

(Equivalent length in feet of steel pipe)

Minimum size	Valve	Valve angle	« Sprinkler » Valve angle	Gate Valve	Output side of the « T »	Exit right « T »	Std Elbow	45° Elbow
½	17	9	2	0.4	4	1	2	1
¾	22	12	3	0.5	5	2	3	1
1	27	15	4	0.6	6	2	3	2
1 ¼	38	18	5	0.8	8	3	4	2
1 ½	45	22	6	1.0	10	3	5	2
2	58	28	7	1.2	12	4	6	3
2 ½	70	35	9	1.4	14	5	7	3
3	90	45	11	1.8	18	6	8	4
4	120	60	15	2.3	23	7	11	5
6	170	85	20	3.3	33	12	17	8

Loss of pressure (psi) through the joints of copper and bronze

Minimum size	Equivalency length of tubing										
	Copper					Bronze					
	Elbow 90°	Elbow 45°	T	Output side of T	Elbow 90° Wide angle	Elbow 180° Wide angle	Elbow 90°	Elbow 45°	T	Output side of the «T»	Comp stop
3/8	½	½	½	1	½	½	1	½	½	2	9
½	½	½	½	1	½	1	1	1	½	2	13
5/8	½	½	½	2	1	1	2	1	½	3	17
¾	1	½	½	2	1	2	2	1	½	3	21
1	1	1	½	3	2	2	4	2	½	5	30
1 ¼	2	1	½	4	2	3	5	2	1	7	-
1 ½	2	2	1	5	2	4	8	3	1	9	-
2	2	2	1	7	3	8	11	5	2	12	-
2 ½	2	3	2	9	4	16	14	8	2	16	-
3	3	4	-	-	5	20	18	11	2	20	-
3 ½	4	-	-	-	7	24	24	14	2	31	-
4	-	-	-	-	8	28	28	17	2	37	-
5	-	-	-	-	10	37	41	22	2	48	-
6	-	-	-	-	13	47	52	28	2	61	-

Loss of pressure through check valve

(Pressure drop in psi depending on speed)

Flow G.P.M	Valve size						Flow G.P.M.	Valve size					
	1/2	3/4	1	1 1/4	1 1/2	2		1 1/4	1 1/2	2	2 1/2	3	4
2	0,2						46	2,1	1,1	0,4			
3	0,5						48	2,2	1,2	0,5			
6	1,0	0,3					50	2,4	1,3	0,5			
8	1,7	0,5					55	2,9	1,5	0,6			
10	2,6	0,8	0,3				60	3,4	1,8	0,7			
12	3,6	1,1	0,5				65	3,9	2,0	0,8			
14	4,8	1,5	0,6				70	4,5	2,4	0,9	0,4		
16		2,0	0,9				75		2,7	1,0	0,5		
18		2,4	1,0				80		3,0	1,2	0,6		
20		3,0	1,2	0,4			90		3,7	1,5	0,7		
22		3,5	1,4	0,5			100		4,6	1,8	0,9	0,4	
24		4,1	1,7	0,6			120			2,5	1,2	0,5	
26		4,8	2,0	0,7	0,4		140			3,3	1,6	0,7	
28			2,2	0,8	0,5		160			4,3	2,1	0,9	0,3
30			2,5	0,9	0,5		180			5,3	2,6	1,1	0,4
32			2,9	1,1	0,6		200			6,5	3,1	1,4	0,5
34			3,2	1,2	0,6		250				4,7	2,1	0,7
36			3,6	1,3	0,7		300				6,6	2,9	1,0
38			3,9	1,5	0,8		350					3,8	1,3
40			4,3	1,6	0,8	0,3	400					4,9	1,7
42			4,7	1,7	0,9	0,3	450						2,1
44				1,9	1,0	0,4	500						2,6

PVC PIPE SCHEDULE 40 (drop per 100') 1 to 70 GPM

SIZE	½"		¾"		1"		1 ¼"		1 ½"		2"		2 ½"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280		WALL
THK																					THK
Flow G.P.M.	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Flow G.P.M.
1	1.05	0.43	0.60	0.11	0.37	0.03	0.21	0.01	0.15	0.00											1
2	2.11	1.55	1.20	0.39	0.74	0.12	0.42	0.03	0.31	0.02	0.19	0.00									2
3	3.16	3.28	1.80	0.84	1.11	0.26	0.64	0.07	0.47	0.03	0.28	0.01	0.20	0.00							3
4	4.22	5.60	2.40	1.42	1.48	0.44	0.85	0.12	0.62	0.05	0.38	0.02	0.26	0.01							4
5	5.27	8.46	3.00	2.15	1.85	0.66	1.07	0.18	0.78	0.08	0.47	0.02	0.33	0.01	0.21	0.00					5
6	6.33	11.86	3.60	3.02	2.22	0.93	1.28	0.25	0.94	0.12	0.57	0.03	0.40	0.01	0.26	0.01					6
7	7.38	15.77	4.20	4.01	2.59	1.24	1.49	0.33	1.10	0.15	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.44	20.20	4.80	5.14	2.96	1.59	1.71	0.42	1.25	0.20	0.76	0.06	0.53	0.02	0.34	0.01					8
9	9.49	25.12	5.40	6.39	3.33	1.97	1.92	0.52	1.41	0.25	0.85	0.07	0.60	0.03	0.39	0.01					9
10	10.55	30.54	6.00	7.77	3.70	2.40	2.14	0.63	1.57	0.30	0.95	0.09	0.66	0.04	0.43	0.01					10
11	11.60	36.43	6.60	9.27	4.07	2.86	2.35	0.75	1.73	0.36	1.05	0.11	0.73	0.04	0.47	0.02					11
12	12.65	42.80	7.21	10.89	4.44	3.36	2.57	0.89	1.88	0.42	1.14	0.12	0.80	0.05	0.52	0.02	0.30	0.00			12
14	14.76	56.94	8.41	14.48	5.19	4.47	2.99	1.18	2.20	0.56	1.33	0.17	0.93	0.07	0.60	0.02	0.35	0.01			14
16	16.87	72.92	9.61	18.55	5.93	5.73	3.42	1.51	2.51	0.71	1.52	0.21	1.07	0.09	0.69	0.03	0.40	0.01			16
18	18.98	90.69	10.81	23.07	6.67	7.13	3.85	1.88	2.83	0.89	1.71	0.26	1.20	0.11	0.78	0.04	0.45	0.01			18
20	21.09	110.23	12.01	28.04	7.41	8.66	4.28	2.28	3.14	1.08	1.90	0.32	1.33	0.13	0.86	0.05	0.50	0.01			20
22			13.21	33.45	8.15	10.33	4.71	2.72	3.46	1.29	2.10	0.38	1.47	0.16	0.95	0.06	0.55	0.01			22
24			14.42	39.30	8.89	12.14	5.14	3.20	3.77	1.51	2.29	0.45	1.60	0.19	1.04	0.07	0.60	0.02			24
26			15.62	45.58	9.64	14.08	5.57	3.17	4.09	1.75	2.48	0.52	1.74	0.22	1.12	0.08	0.65	0.02			26
28			16.82	52.28	10.38	16.15	5.99	4.25	4.40	2.01	2.67	0.60	1.87	0.25	1.21	0.09	0.70	0.02			28
30			18.02	59.41	11.12	18.35	6.42	4.83	4.72	2.28	2.86	0.68	2.00	0.29	1.30	0.10	0.75	0.03			30
35					12.97	24.42	7.49	6.43	5.50	3.04	3.34	0.90	2.34	0.38	1.51	0.13	0.88	0.04	0.38	0.00	35
40					14.83	31.27	8.56	8.23	6.29	3.89	3.81	1.15	2.67	0.49	1.73	0.17	1.00	0.04	0.44	0.01	40
45					16.68	38.89	9.64	10.24	7.08	4.84	4.29	1.43	3.01	0.60	1.95	0.21	1.13	0.06	0.49	0.01	45
50					18.53	47.27	10.71	12.45	7.87	5.88	4.77	1.74	3.34	0.73	2.16	0.26	1.25	0.07	0.55	0.01	50
55							11.78	14.85	8.65	7.01	5.25	2.08	3.68	0.88	2.38	0.30	1.38	0.08	0.61	0.01	55
60							12.85	17.45	9.44	8.24	5.72	2.44	4.01	1.03	2.60	0.36	1.51	0.10	0.66	0.01	60
65							13.92	20.23	10.23	9.56	6.20	2.83	4.35	1.19	2.81	0.41	1.63	0.11	0.72	0.02	65
70							14.99	23.21	11.01	10.96	6.68	3.25	4.68	1.37	3.03	0.48	1.76	0.13	0.77	0.02	70

PVC PIPE SCHEDULE 40 (drop per 100') 75 to 600 GPM

SIZE	½"		¾"		1"		1 ¼"		1 ½"		2"		2 ½"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280		WALL
THK																					THK
FLOW GPM	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	Veloc. F.P.S.	P.S.I. LOSS	FLOW GPM
75							16.06	26.37	11.80	12.46	7.16	3.69	5.01	1.56	3.25	0.54	1.88	0.14	0.83	0.02	75
80							17.13	29.72	12.59	14.04	7.63	4.16	5.35	1.75	3.46	0.61	2.01	0.16	0.88	0.02	80
85							18.21	33.26	13.37	15.71	8.11	4.66	5.68	1.96	3.68	0.68	2.13	0.18	0.94	0.02	85
90							19.28	36.97	14.16	17.46	8.59	5.18	6.02	2.18	3.90	0.76	2.26	0.20	0.99	0.03	90
95									14.95	19.30	9.07	5.72	6.35	2.41	4.11	0.84	2.39	0.22	1.05	0.03	95
100									15.74	21.22	9.54	6.29	6.69	2.65	4.33	0.92	2.51	0.25	1.10	0.03	100
110									17.31	25.32	10.50	7.51	7.36	3.16	4.76	1.10	2.76	0.29	1.22	0.04	110
120									18.88	29.75	11.45	8.82	8.03	3.72	5.20	1.29	3.02	0.34	1.33	0.05	120
130											12.41	10.23	8.70	4.31	5.63	1.50	3.27	0.40	1.44	0.05	130
140											13.36	11.74	9.37	4.94	6.06	1.72	3.52	0.46	1.55	0.06	140
150											14.32	13.33	10.03	5.62	6.50	1.95	3.77	0.52	1.66	0.07	150
160											15.27	15.03	10.70	6.33	6.93	2.20	4.02	0.59	1.77	0.08	160
170											16.23	16.81	11.37	7.08	7.36	2.46	4.27	0.66	1.88	0.09	170
180											17.18	18.69	12.04	7.87	7.80	2.74	4.53	0.73	1.99	0.10	180
190											18.14	20.66	12.71	8.70	8.23	3.02	4.78	0.81	2.10	0.11	190
200											19.09	22.72	13.38	9.57	8.66	3.33	5.03	0.89	2.21	0.12	200
225													15.05	11.90	9.75	4.14	5.66	1.10	2.49	0.15	225
250													16.73	14.47	10.83	5.03	6.29	1.34	2.77	0.18	250
275													18.40	17.26	11.92	6.00	6.92	1.60	3.05	0.22	275
300															13.00	7.05	7.55	1.88	3.32	0.26	300
325															14.08	8.17	8.18	2.18	3.60	0.30	325
350															15.17	9.38	8.81	2.50	3.88	0.34	350
375															16.25	10.65	9.43	2.84	4.15	0.39	375
400															17.33	12.01	10.06	3.20	4.43	0.44	400
425															18.42	13.43	10.69	3.58	4.71	0.49	425
450															19.50	14.93	11.32	3.98	4.99	0.54	450
475																	11.95	4.40	5.26	0.60	475
500																	12.58	4.84	5.54	0.66	500
550																	13.84	5.77	6.10	0.79	550
600																	15.10	6.78	6.65	0.92	600

PVC PIPE SCHEDULE 80 (drop per 100') 1 to 70 GPM

SIZE	½"		¾"		1"		1 ¼ "		1 ½"		2"		2 ½ "		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.546		0.742		0.957		1.278		1.500		1.939		2.323		2.900		3.826		5.761		ID
WALL THK	0.147		0.154		0.179		0.191		0.200		0.218		0.276		0.300		0.337		0.432		WALL THK
Flow G.P.M	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	a. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Flow G.P.M.
1	1.36	0.81	0.74	0.18	0.44	0.05	0.24	0.01	0.18	0.01	0.10	0.00									1
2	2.73	2.92	1.48	0.66	0.89	0.19	0.49	0.05	0.36	0.02	0.21	0.01	0.15	0.00							2
3	4.10	6.19	2.22	1.39	1.33	0.40	0.74	0.10	0.54	0.05	0.32	0.01	0.22	0.01							3
4	5.47	10.54	2.96	2.37	1.78	0.69	0.99	0.17	0.72	0.08	0.43	0.02	0.30	0.01							4
5	6.84	15.93	3.70	3.58	2.22	1.04	1.24	0.25	0.90	0.12	0.54	0.03	0.37	0.01	0.24	0.00					5
6	8.21	22.33	4.44	5.02	2.67	1.46	1.49	0.36	1.08	0.16	0.65	0.05	0.45	0.02	0.29	0.01					6
7	9.58	29.71	5.18	6.68	3.11	1.94	1.74	0.47	1.26	0.22	0.75	0.06	0.52	0.03	0.33	0.01					7
8	10.94	38.05	5.92	8.56	3.56	2.48	1.99	0.61	1.45	0.28	0.86	0.08	0.60	0.03	0.38	0.01					8
9	12.31	47.33	6.66	10.64	4.00	3.09	2.24	0.76	1.63	0.35	0.97	0.10	0.68	0.04	0.43	0.01					9
10	13.68	57.52	7.41	12.93	4.45	3.75	2.49	0.92	1.81	0.42	1.08	0.12	0.75	0.05	0.48	0.02	0.27	0.00			10
11	15.05	68.63	8.15	15.43	4.90	4.47	2.74	1.10	1.99	0.50	1.19	0.14	0.83	0.06	0.53	0.02	0.30	0.01			11
12	16.42	80.63	8.89	18.13	5.34	5.26	2.99	1.29	2.17	0.59	1.30	0.17	0.90	0.07	0.58	0.02	0.33	0.01			12
14			10.37	24.12	6.23	6.99	3.49	1.71	2.53	0.79	1.51	0.23	1.05	0.09	0.67	0.03	0.39	0.01			14
16			11.85	30.88	7.12	8.95	3.99	2.19	2.90	0.01	1.73	0.29	1.20	0.12	0.77	0.04	0.44	0.01			16
18			13.33	38.41	8.01	11.14	4.49	2.73	3.26	1.26	1.95	0.36	1.36	0.15	0.87	0.05	0.50	0.01			18
20			14.82	46.69	8.90	13.54	4.99	3.31	3.62	1.52	2.17	0.44	1.51	0.18	0.97	0.06	0.55	0.02			20
22			16.30	55.70	9.80	16.15	5.49	3.95	3.98	1.81	2.38	0.52	1.66	0.22	1.06	0.07	0.61	0.02			22
24			17.78	65.44	10.69	18.97	5.99	4.64	4.35	2.13	2.60	0.61	1.81	0.25	1.16	0.09	0.66	0.02			24
26			19.26	75.90	11.58	22.01	6.49	5.39	4.71	2.47	2.82	0.71	1.96	0.29	1.26	0.10	0.72	0.03			26
28					12.47	25.24	6.99	6.18	5.07	2.83	3.03	0.81	2.11	0.34	1.35	0.11	0.78	0.03			28
30					13.36	28.69	7.49	7.02	5.43	3.22	3.25	0.92	2.26	0.38	1.45	0.13	0.83	0.03	0.36	0.00	30
35					15.59	38.16	8.74	9.34	6.34	4.29	3.79	1.23	2.64	0.51	1.69	0.17	0.97	0.05	0.43	0.01	35
40					17.81	48.87	9.99	11.96	7.25	5.49	4.34	1.57	3.02	0.65	1.94	0.22	1.11	0.06	0.49	0.01	40
45							11.24	14.88	8.16	6.83	4.88	1.96	3.40	0.81	2.18	0.28	1.25	0.07	0.55	0.01	45
50							12.49	18.09	9.06	8.30	5.42	2.38	3.78	0.99	2.42	0.34	1.39	0.09	0.61	0.01	50
55							13.73	21.58	9.97	9.90	5.96	2.84	4.15	1.18	2.66	0.40	1.53	0.10	0.67	0.01	55
60							14.98	25.35	10.87	11.63	6.51	3.33	4.53	1.38	2.91	0.47	1.67	0.12	0.73	0.02	60
65							16.23	29.40	11.78	13.49	7.05	3.87	4.91	1.61	3.15	0.55	1.81	0.14	0.79	0.02	65
70							17.48	33.72	12.69	15.47	7.59	4.44	5.29	1.84	3.39	0.63	1.95	0.16	0.86	0.02	70

PVC PIPE SCHEDULE 80 (drop per 100') 75 to 600 GPM

SIZE	½"		¾"		1"		1 ¼"		1 ½"		2"		2 ½"		3"		4"		6"		SIZE		
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD		
ID	0.546		0.742		0.957		1.278		1.500		1.939		2.323		2.900		3.826		5.761		ID		
WALL	0.147		0.154		0.179		0.191		0.200		0.218		0.276		0.300		0.337		0.432		WALL		
THK																					THK		
Flow G.P.M	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Flow G.P.M.		
75							18.73	38.32	13.59	17.58	8.13	5.04	5.67	2.09	3.63	0.71	2.09	0.18	0.92	0.03	75		
80							19.98	43.19	14.50	19.81	8.68	5.68	6.04	2.36	3.88	0.80	2.22	0.21	0.98	0.03	80		
85									15.41	22.16	9.22	6.36	6.42	2.63	4.12	0.90	2.36	0.23	1.04	0.03	85		
90									16.32	24.64	9.76	7.07	6.80	2.93	4.36	1.00	2.50	0.26	1.10	0.04	90		
95									17.22	27.23	10.30	7.81	7.18	3.24	4.60	1.10	2.64	0.29	1.16	0.04	95		
100									18.13	29.95	10.85	8.59	7.56	3.57	4.85	1.21	2.78	0.31	1.22	0.04	100		
110									19.94	35.73	11.93	10.25	8.31	4.25	5.33	1.45	3.06	0.38	1.35	0.05	110		
120													13.02	12.04	9.07	5.00	5.82	1.70	3.34	0.44	1.47	0.06	120
130													14.10	13.96	9.82	5.60	6.30	1.97	3.62	0.51	1.59	0.07	130
140													15.19	16.02	10.58	6.65	6.79	2.27	3.90	0.59	1.72	0.08	140
150													16.27	18.20	11.34	7.56	7.27	2.57	4.18	0.67	1.84	0.09	150
160													17.36	20.51	12.09	8.51	7.76	2.89	4.45	0.75	1.96	0.10	160
170													18.44	22.95	12.85	9.53	8.24	3.24	4.73	0.84	2.08	0.11	170
180													19.53	25.51	13.60	10.59	8.73	3.60	5.01	0.93	2.21	0.13	180
190															14.36	11.71	9.21	3.98	5.29	1.03	2.33	0.14	190
200															15.12	12.87	9.70	4.37	5.57	1.14	2.45	0.16	200
225															17.01	16.01	10.91	5.44	6.27	1.41	2.76	0.19	225
250															18.90	19.46	12.12	6.61	6.96	1.72	3.07	0.23	250
275																	13.34	7.89	7.66	2.05	3.38	0.28	275
300																	14.55	9.27	8.36	2.41	3.68	0.33	300
325																	15.76	10.75	9.05	2.79	3.99	0.38	325
350																	16.97	12.33	9.75	3.20	4.30	0.44	350
375																	18.19	14.01	10.45	3.64	4.60	0.50	375
400																	19.40	15.79	11.14	4.10	4.91	0.56	400
425																			11.84	4.59	5.22	0.63	425
450																			12.54	5.10	5.53	0.70	450
475																			13.23	5.64	5.83	0.77	475
500																			13.93	6.20	6.14	0.85	500
550																			15.32	7.40	6.76	1.01	550
600																			16.72	8.69	7.37	1.19	600

SCHEDULE FOR POLYETHYLENE (drop per 100') 1 to 70 GPM

SIZE	½"		¾"		1"		1 ¼"		1 ½"		2"		2 ½"		3"		4"		6"		SIZE
OD																					OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL																					WALL
THK																					THK
Flow G.P.M.	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Veloc. F.P.S.	P.S.I. Perte	Flow G.P.M.
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.15	0.00	0.09	0.00									1
2	2.10	1.76	1.20	0.45	0.74	0.14	0.42	0.04	0.31	0.02	0.19	0.01									2
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.28	0.01	0.20	0.00							3
4	4.21	6.35	2.40	1.62	1.48	0.50	0.85	0.13	0.62	0.06	0.37	0.02	0.26	0.01							4
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.78	0.09	0.47	0.03	0.33	0.01	0.21	0.00					5
6	6.32	13.46	3.60	3.43	2.22	1.06	1.28	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01					6
7	7.38	17.91	4.20	4.56	2.59	1.41	1.49	0.37	1.10	0.18	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.43	22.93	4.80	5.84	2.96	1.80	1.71	0.47	1.25	0.22	0.76	0.07	0.53	0.03	0.34	0.01					8
9	9.49	28.52	5.40	7.26	3.33	2.24	1.92	0.59	1.41	0.28	0.85	0.08	0.60	0.03	0.39	0.01					9
10	10.54	34.67	6.00	8.82	3.70	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.66	0.04	0.43	0.01					10
11	11.60	41.36	6.00	10.53	4.07	3.25	2.35	0.86	1.73	0.40	1.05	0.12	0.73	0.05	0.47	0.02	0.27	0.00			11
12	12.65	48.60	7.21	12.37	4.44	3.82	2.57	1.01	1.88	0.48	1.14	0.14	0.80	0.06	0.52	0.02	0.30	0.01			12
14	14.76	64.65	8.41	16.46	5.19	5.08	2.99	1.34	2.20	0.63	1.33	0.19	0.93	0.08	0.60	0.03	0.35	0.01			14
16	16.87	82.79	9.61	21.07	5.93	6.51	3.42	1.71	2.51	0.81	1.52	0.24	1.07	0.10	0.69	0.04	0.40	0.01			16
18	18.98	102.97	10.81	26.21	6.67	8.10	3.85	2.13	2.83	1.01	1.71	0.30	1.20	0.13	0.78	0.04	0.45	0.01			18
20			12.01	31.86	7.41	9.84	4.28	2.59	3.14	1.22	1.90	0.36	1.33	0.15	0.86	0.05	0.50	0.01			20
22			13.21	38.01	8.15	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02			22
24			14.42	44.65	8.89	13.79	5.14	3.63	3.77	1.72	2.29	0.51	1.60	0.21	1.04	0.07	0.60	0.02			24
26			15.62	41.79	9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.12	0.09	0.65	0.02			26
28			16.82	59.41	10.38	18.35	5.99	4.83	4.40	2.28	2.67	0.68	1.87	0.29	1.21	0.10	0.70	0.03			28
30			18.02	67.50	11.12	20.85	6.42	5.49	4.72	2.59	2.86	0.77	2.00	0.32	1.30	0.11	0.75	0.03	0.33	0.00	30
35					12.97	27.74	7.49	7.31	5.50	3.45	3.34	1.02	2.34	0.43	1.51	0.15	0.88	0.04	0.38	0.01	35
40					14.83	35.53	8.56	9.36	6.29	4.42	3.81	1.31	2.67	0.55	1.73	0.19	1.00	0.05	0.44	0.01	40
45					16.68	44.19	9.64	11.64	7.08	5.50	4.29	1.63	3.01	0.69	1.95	0.24	1.13	0.06	0.49	0.01	45
50					18.53	53.71	10.71	14.14	7.87	6.68	4.77	1.98	3.34	0.83	2.16	0.29	1.25	0.08	0.55	0.01	50
55							11.78	16.87	8.65	7.97	5.25	2.36	3.68	1.00	2.38	0.35	1.38	0.09	0.61	0.01	55
60							12.85	19.82	9.44	9.36	5.72	2.78	4.01	1.17	2.60	0.41	1.51	0.11	0.66	0.01	60
65							13.92	22.99	10.23	10.86	6.20	3.22	4.35	1.36	2.81	0.47	1.63	0.13	0.72	0.02	65
70							14.99	26.37	11.01	12.46	6.68	3.69	4.68	1.56	3.03	0.54	1.76	0.14	0.77	0.02	70

SCHEDULE FOR POYETHYLENE (drop per 100') 75 to 600 GPM

SIZE	½"		¾"		1"		1 ¼ "		1 ½"		2"		2 ½ "		3"		4"		6"		SIZE
OD																					OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL																					WALL
THK																					THK
Flow G.P.M	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Veloc. F.P.S.	P.S.I. Loss	Flow G.P.M.
75							16.06	29.97	11.80	14.16	7.16	4.20	5.01	1.77	3.25	0.61	1.88	0.16	0.83	0.02	75
80							17.13	33.77	12.59	15.95	7.63	4.73	5.35	1.99	3.46	0.69	2.01	0.18	0.88	0.03	80
85							18.21	37.79	13.37	17.85	8.11	5.29	5.68	2.23	3.68	0.77	2.13	0.21	0.94	0.03	85
90							19.28	42.01	14.16	19.84	8.59	5.88	6.02	2.48	3.90	0.86	2.26	0.23	0.99	0.03	90
95									14.95	21.93	9.07	6.50	6.35	2.74	4.11	0.95	2.39	0.25	1.05	0.03	95
100									15.74	24.12	9.54	7.15	6.69	3.01	4.33	1.05	2.51	0.28	1.10	0.04	100
110									17.31	28.77	10.50	8.53	7.36	3.59	4.76	1.25	2.76	0.33	1.22	0.05	110
120									18.88	33.80	11.45	10.02	8.03	4.22	5.20	1.47	3.02	0.39	1.33	0.05	120
130											12.41	11.62	8.70	4.90	5.63	1.70	3.27	0.45	1.44	0.06	130
140											13.36	13.33	9.37	5.62	6.06	1.95	3.52	0.52	1.55	0.07	140
150											14.32	15.15	10.03	6.38	6.50	2.22	3.77	0.59	1.66	0.08	150
160											15.27	17.08	10.70	7.19	6.93	2.50	4.02	0.67	1.77	0.09	160
170											16.23	19.11	11.37	8.05	7.36	2.80	4.27	0.75	1.88	0.10	170
180											17.18	21.24	12.04	8.95	8.08	3.11	4.53	0.83	1.99	0.11	180
190											18.14	23.48	12.71	9.89	8.23	3.44	4.78	0.92	2.10	0.12	190
200											19.09	25.81	13.38	10.87	8.66	3.78	5.03	1.01	2.21	0.14	200
225													15.05	13.52	9.75	4.70	5.66	1.25	2.49	0.17	225
250													16.73	16.44	10.83	5.71	6.29	1.52	2.77	0.21	250
275													18.40	19.61	11.92	6.82	6.92	1.82	3.05	0.25	275
300															13.00	8.01	7.55	2.13	3.32	0.29	300
325															14.08	9.29	8.18	2.48	3.60	0.34	325
350															15.17	10.65	8.81	2.84	3.88	0.39	350
375															16.25	12.10	9.43	3.23	4.15	0.44	375
400															17.33	13.64	10.06	3.64	4.43	0.50	400
425															18.42	15.26	10.69	4.07	4.71	0.55	425
450															19.50	16.97	11.32	4.52	4.99	0.62	450
475																	11.95	5.00	5.26	0.68	475
500																	12.58	5.50	5.54	0.75	500
550																	13.84	6.56	6.10	0.89	550
600																	15.10	7.70	6.65	1.05	600

Conversion factors commonly used

Units of length			
1 meter	= 3,281 feet	1 foot	= 0,3043 meter
1 centimeter	= 0,394 inches	1 inches	= 2,54 centimeter
Conversion factors surface			
1 m ²	= 10,7643 ft ²	1 ft ²	= 0,093 m ²
1 acre (10000m ²)	= 107 643 ft ² = 2,471 acres	1 acre	= 43 560 ft ² = 0,405 hectares
Conversion factors of weight			
1 kg (1000g)	= 2,2 pounds	1 pound	= 0,45 kg
1g	= 0,0353 ounces	16 ounces (pound)	= 453,6g
Conversion factors for volume			
1 litre	= 0,264 gallon US liq.	1 gallon US liq	= 3,785 L
1 gallon imp.	= 1,2 gallon US	1gallon US	= 0,83 gallon imp
1m ³	= 35,31 ft ³	1 pi ³	= 28,3 liters or 0,028m ³
1m ³ of water	= 1000 L of water	1 L of water	= 0,001 m ³
Flow units			
1L/h	= 0,0044 gallon/min	1 gallon/min	= 227,12 L/h
PPM (parts per million)			
1 PPM	= 1g / 1000 liters	1g/ L	= 1000 ppm

PERIODIC TABLE OF THE ELEMENTS

<http://www.periodni.com/en/>

PERIOD	GROUP 1 IA		GROUP NUMBERS IUPAC RECOMMENDATION (1985)										GROUP NUMBERS CHEMICAL ABSTRACT SERVICE (1986)						GROUP 18 VIIIA	
	1	2	3	4	5	6	7	8	9	10	11	12	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA		
1	1.0079 H HYDROGEN																	4.0026 He HELIUM		
2	3 6.941 Li LITHIUM	4 9.0122 Be BERYLLIUM											5 10.811 B BORON	6 12.011 C CARBON	7 14.007 N NITROGEN	8 15.999 O OXYGEN	9 18.998 F FLUORINE	10 20.180 Ne NEON		
3	11 22.990 Na SODIUM	12 24.305 Mg MAGNESIUM											13 26.982 Al ALUMINUM	14 28.086 Si SILICON	15 30.974 P PHOSPHORUS	16 32.065 S SULPHUR	17 35.453 Cl CHLORINE	18 39.948 Ar ARGON		
4	19 39.098 K POTASSIUM	20 40.078 Ca CALCIUM	21 44.956 Sc SCANDIUM	22 47.867 Ti TITANIUM	23 50.942 V VANADIUM	24 51.996 Cr CHROMIUM	25 54.938 Mn MANGANESE	26 55.845 Fe IRON	27 58.933 Co COBALT	28 58.693 Ni NICKEL	29 63.546 Cu COPPER	30 65.409 Zn ZINC	31 69.723 Ga GALLIUM	32 72.64 Ge GERMANIUM	33 74.922 As ARSENIC	34 78.96 Se SELENIUM	35 79.904 Br BROMINE	36 83.798 Kr KRYPTON		
5	37 85.468 Rb RUBIDIUM	38 87.62 Sr STRONTIUM	39 88.906 Y YTRIUM	40 91.224 Zr ZIRCONIUM	41 92.906 Nb NIOSIUM	42 95.94 Mo MOLYBDENUM	43 (98) Tc TECHNETIUM	44 101.07 Ru RUTHENIUM	45 102.91 Rh RHODIUM	46 106.42 Pd PALLADIUM	47 107.87 Ag SILVER	48 112.41 Cd CADMIUM	49 114.82 In INDIUM	50 118.71 Sn TIN	51 121.76 Sb ANTIMONY	52 127.60 Te TELLURIUM	53 126.90 I IODINE	54 131.29 Xe XENON		
6	55 132.91 Cs CAESIUM	56 137.33 Ba BARIUM	57-71 La-Lu Lanthanide	72 178.49 Hf HAFNIUM	73 180.95 Ta TANTALUM	74 183.84 W TUNGSTEN	75 186.21 Re RHENIUM	76 190.23 Os OSMIUM	77 192.22 Ir IRIDIUM	78 196.08 Pt PLATINUM	79 196.97 Au GOLD	80 200.59 Hg MERCURY	81 204.38 Tl THALLIUM	82 207.2 Pb LEAD	83 208.98 Bi BISMUTH	84 (209) Po POLONIUM	85 (210) At ASTATINE	86 (222) Rn RADON		
7	87 (223) Fr FRANCIUM	88 (226) Ra RADIUM	89-103 Ac-Lr Actinide	104 (267) Rf RUTHERFORDIUM	105 (268) Db DUBNIUM	106 (271) Sg SEABORGIUM	107 (272) Bh BOHRLIUM	108 (277) Hs HASSIUM	109 (276) Mt MEITNERIUM	110 (281) Ds DARMSTADTIUM	111 (286) Rg ROENTGENIUM									

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LANTHANIDE														
57 138.91 La LANTHANUM	58 140.12 Ce CERIUM	59 140.91 Pr PRASEODYMIUM	60 144.24 Nd NEODYMIUM	61 (145) Pm PROMETHIUM	62 150.36 Sm SAMARIUM	63 151.96 Eu EUROPIUM	64 157.25 Gd GADOLINIUM	65 158.93 Tb TERBIUM	66 162.50 Dy DYSPROSIUM	67 164.93 Ho HOLMIUM	68 167.26 Er ERBIUM	69 168.93 Tm THULIUM	70 173.04 Yb YTTERIUM	71 174.97 Lu LUTETIUM

ACTINIDE														
89 (227) Ac ACTINIUM	90 232.04 Th THORIUM	91 231.04 Pa PROTACTINIUM	92 238.03 U URANIUM	93 (237) Np NEPTUNIUM	94 (244) Pu PLUTONIUM	95 (243) Am AMERICIUM	96 (247) Cm CURIUM	97 (247) Bk BERKELIUM	98 (251) Cf CALIFORNIUM	99 (252) Es EINSTEINIUM	100 (257) Fm FERMIUM	101 (258) Md MENDELEVIUM	102 (259) No NOBELIUM	103 (262) Lr LAWRENCIUM

(1) Pure Appl. Chem., 78, No. 11, 2051-2066 (2006)
Relative atomic mass is shown with five significant figures. For elements having no stable nuclides, the value enclosed in brackets indicates the mass number of the longest-lived isotope of the element. However, for these elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.