HAYES SPRAYING P/L

SHIELDED SPRAYER

OPERATION MANUAL

October 2005

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WARRANTY POLICY

HAYES SPRAYING P/L, WARRANTS TO THE ORIGINAL PURCHASOR, THAT, EACH NEW HAYES SPRAYING SPRAYER, PART OR ACCESSORY WILL BE FREE FROM DEFECT IN MATERIAL OR WORKMANSHIP FOR TWELVE (12) MONTHS AFTER THE DATE OF DELIVERY.
DURING THE WARRANTY PERIOD, THE DEALER , OR HAYES SPRAYING P/L, SHALL REPAIR OR REPLACE , AT HAYES SPRAYING P/L OPTION, WITHOUT CHARGE FOR PARTS AND LABOUR ANY PART OF THE HAYES SPRAYING P/L PRODUCT WHICH FAILS BECAUSE OF DEFECTS IN PARTS OR WORKMANSHIP.
PUMPS, ENGINES, CONTROLLERS AND HOSES, ARE ALL WARRANTED DIRECTLY BY THE ORIGINAL MANUFACTURER, PENDING THAT MANUFACTURERS WARRANTY APPROVAL.

THIS WARRANTY DOES NOT COVER DAMAGE RESULTING FROM MISUSE, NEGLECT, ALTERATIONS, OR NORMAL WEAR AND TEAR.

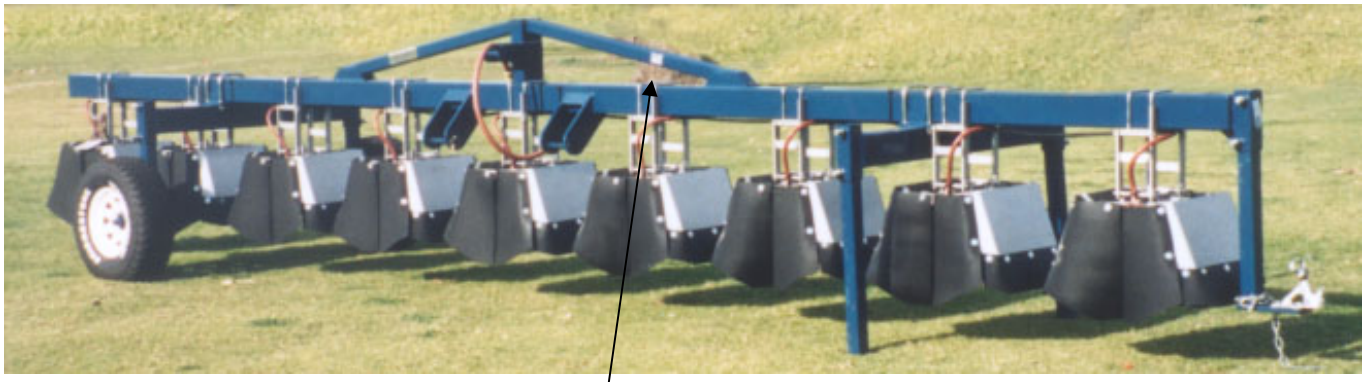
IN NO EVENT SHALL THE AUTHORISED DEALER OR HAYES SPRAYING P/L BE LIABLE FOR DOWNTIME EXPENSES, LOSS OF CHEMICAL, LOSS OF MACHINE USE OR OTHER INCIDENTAL DAMAGES.

EXCLUSIONS

AT THE DISCRETION OF HAYES SPRAYING P/L, THE DEFECTIVE PART MUST BE RETURNED TO HAYES SPRAYING P/L AT THE OWNERS COST.
TIME FOR WASHDOWN, TRANSPORTATION COSTS, OR INSURANCE COSTS FOR SPRAYERS ARE NOT WARRANTED.
TRAVEL AND COMMUNICATION ARE NOT COVERED BY WARRANTY.

2. Product information

Shipping information for delivery.
For 8 row, without optional tank.
Height on legs 2.45 m
Width 1.8 m approx
Length 9m approx
Weight empty 835 kg approx. Different models will vary



Serial number located on the front support

Specifications

Chassis

Fully welded 150 x 150 box steel construction, painted with chemical resistant two pack paint, end tow, fitted with depth wheels.

Models.
8 row solid bar
12 row solid bar
12 row flexing and folding bar.

Options:
Single or double skip kits
Dropper kits for over the row application
Frame mounted tanks and pumps

3. Safety instructions

Operators responsibilities

- Read and understand the operators manual before using the equipment. All other operators of the sprayer must also read and understand the operator manual.
- Read and follow the chemical labels
- Local laws may require operators to be licensed
- Pressure test the sprayer with water before use
- Wear protective clothing
- Rinse , wash and depressurise equipment after use and before servicing or storage
- Never repair or service the equipment while it is operating.
- Disconnect power before servicing and or welding
- Do not eat drink or smoke while spraying or working with spraying equipment.
- Wash and change clothes after spraying
- Wash tools if they have been contaminated
- If poisoned seek medical advice immediately. Identify the chemicals being used
- Keep children away from spray equipment at all times
- Do not enter the spray tank
- Do not go under any equipment unless properly secured
- Be aware of power lines at all times
- Operators must not be under the influence of drugs or alcohol while operating spraying equipment

Safe chemical use

The hazard

All agricultural chemicals and pesticides, are biologically active. They can be dangerous to all living organisms including humans fish birds bees and domestic animals and plants.

Method of pesticide entry

- Oral – by drinking and splashing into the mouth or by smoking or eating with contaminated hands. Cleaning nozzles by blowing through them with your mouth.
- Inhalation - by nose or mouth of spray drift and mist
- Dermal – absorption through the skin particularly with raw chemical or through cuts and abrasions or while perspiring.

Decontamination

- Change out of protective clothing after spraying and wash separately
- Wash thoroughly before eating or drinking
- keep fresh water tank on sprayer full with clean water
- Replace respirator filters regularly
- Clean sprayer regularly
- Fix leaks
- Ensure cab filters are adequate for the job
- Always use the recommended type of protection clothing and equipment.

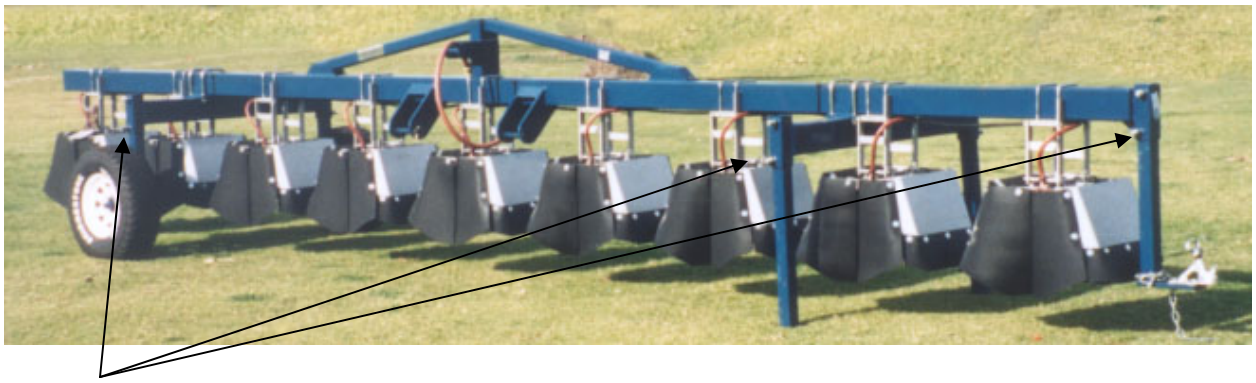
Safe boomspray operation

- Always read your sprayer manual before operating
- Make sure all other operators have read the sprayers manuals and are suitably trained in the use of the equipment and chemicals being used
- Always wear protective clothing
- Inspect sprayer for faults, leaks, and cracks to avoid contamination
- Personnel only associated with the spraying operation who are suitably trained, should be in the immediate area of operation
- Bystanders must be a safe distance away from the sprayer while operating and in the upwind direction
- Contamination is the responsibility of the operator
- While spraying be aware of the width of the machine particularly while turning or moving around obstacles
- Spray at speeds suitable to the ground conditions for safe operation and extended sprayer life
- Avoid sudden turns or constant direction changes at high speed

4 SHIELDED SPRAYER OPERATION

Hooking up

The standard shielded sprayer is a 3 point linkage implement with a 1 inch spray hose with camlock plumbed to the rear of the tractor. This system requires the tractor to have a front tank and pump.
After attaching the shielded sprayer, the depth wheels must be set at the correct height.
If the sprayer is in the end tow configuration, lift the machine slightly taking the weight of the sprayer, onto the linkage , undo the locking nuts that secure the wheels, front stands, and tow hitch. Lift the shielded sprayer, so that the wheels and support legs slide out of their holders.
Replace the depth wheels in the holders at the rear of the sprayer with the wheel on the outside, and lock off at an approximate height. Replace the support legs in the front holders and lock off at the fully raised position. Store the tow hitch.



locknuts

Setting the depth.

* Lower the shielded sprayer slowly until the shield rubbers are 15mm above the ground. Lock off the depth wheels at this height, taking note of the height at either end of the machine.
* The clearance under the shields should be even over the length of the machine, and from the front to the back.

In the working position, the sprayer should be level from front to back, left to right, and supported equally by the linkage and depth wheels, **putting no extra pressure on the three point linkage top link.**
* Shield clearance is important to minimize dust and to not excessively wear the rubber skirts.
* Once the depth is correctly set, mark the depth wheel post with a paint pen so that setting up next time is quicker.

8 row shielded sprayer set up for double skip.

15 mm clearance wheels to the outside even depth across the bar

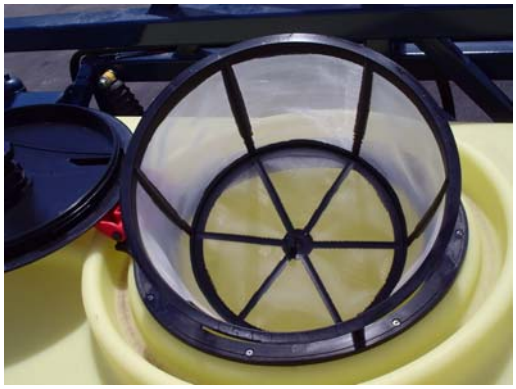
Going spraying.

- Always consult your agronomist prior to shield spraying, concerning crop stage, weather conditions, nozzle type, water and chemical rates.
- **Do not use automatic spray controllers in auto**. Spray at a set speed and pressure only.
- Typical ground speeds are 8 kmph to 12 kmph.
- Nozzles most used are the DG 11002VG, DG9502EVS, AI110015VS or AI95015EVS.
- Spraying pressures from 130kpa to 200kpa are suitable for the DG11002VG and DG9502EVS, with pressure ranging from 250kpa to 300kpa for the AI 110015VS and AI95015EVS nozzles. A good guide is, the pattern should lightly spray on the bottom of the rubber shield.
- Note that the pressure may vary with different pump, plumbing and solenoid valves used. More pressure is usually required for a solenoid valve in comparison to a ball valve.
- Check nozzles regularly while spraying for any blockages. Spray a small amount on bare ground while stationary, and observe the pattern on the ground for blockages.

Filter maintenance

Filter maintenance is a critical part of your sprayers operation.
The number and type of filters may vary from sprayer to sprayer. They will include;

Tank filter basket located in the top of the tank
18 mesh



Pressure filters located between the pump and spray lines
80 mesh

Filters located in the nozzle bodies
50 mesh

Filters require regular cleaning.
Regularity will depend on the quality of water being used and type of chemical being used

As a guide:

- Pressure filters should be cleaned once a day
- Nozzle filters should be cleaned once a week

The cleaning process

- Completely stop all sprayer functions
- Release all pressure from the spray lines
- Unscrew (anticlockwise) bottom filter bowl and remove
- Use a toothbrush to clean filter under running water
- Reseat filter into filter bowl and screw back onto filter body
- Take care not to damage or cross thread the o ring while re- assembling

5. General maintenance

At the end of spraying

- Always flush the booms with water at the end of every day. Note when spraying liquid fertilizers, check for phosphoric acid content. If left in the pump, it can corrode the pump body and galvanized fittings in as little time as a week. Roundup can corrode a pump body in less than two years.

Daily

- Connect fill hose
- Close tank suction hose and agitation / bypass
- Pump water through spray lines
- Spray lines can be cleaned with chemical mix still in the tank

End of spraying session

- Drain any remaining spray mixture from the tank at the appropriate place
- Fill spray tank with 200l of water
- Open agitation line fully
- Set the controller to manual
- Note that if the water flow is low the regulator valve may be closed. Open the valve manually by holding the + key down on the controller
- Spray 50l of water out of the nozzles.

Long term storage

- flush as described previously
- Drain all water from the system
- Drain water from the pump.
- Fill pump with a 50 % mix of water and anti freeze. Take particular care not to have any air in the pump. Note that in frost prone areas- frost can freeze water in the pump and crack the housing
- Clean the outside of the sprayer with appropriate tank cleaner

6. Spraying technique

Mixing chemical

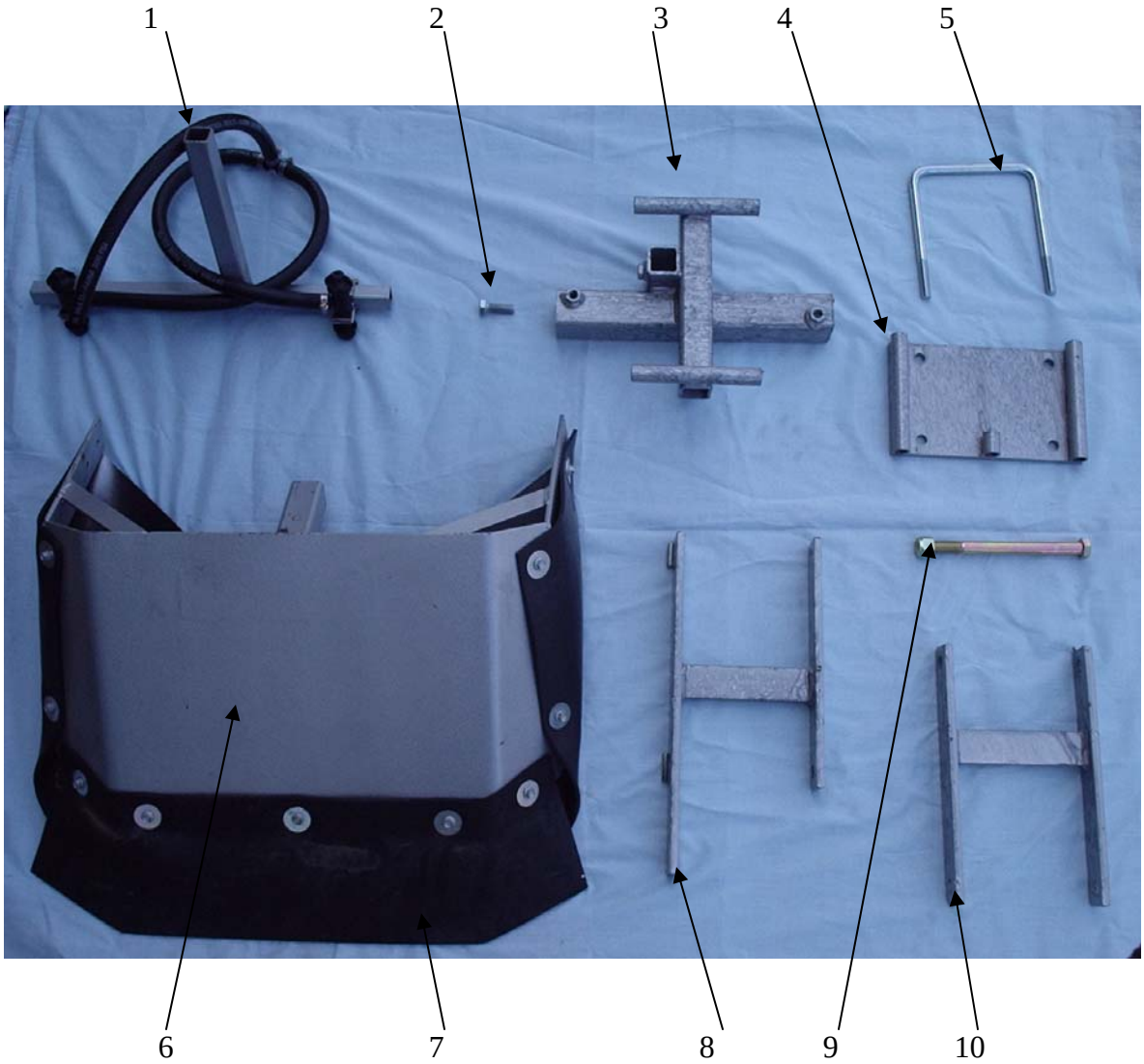
When mixing chemicals, always check and follow the label and agronomists recommendations.
If unsure, mix a small amount of concentrate in a jug to observe any reaction between the chemical mix.
For example, when mixing glysophate and 24d concentrates together, a chemical reaction can occur causing the chemicals to go hard.
When mixing chemical fill the tank half full with water before adding chemical.
Add the chemical separately, rinsing the measuring jug and / or vat each time before adding the next chemical.

Decontamination

When changing from one chemical group to another, or from spraying one type of crop to another it may be necessary to decontaminate the tank, boom, and lines.
For example, when changing from spraying fallow ground to spraying over a crop, or from spraying a narrow leaf crop to a broad leaf crop.

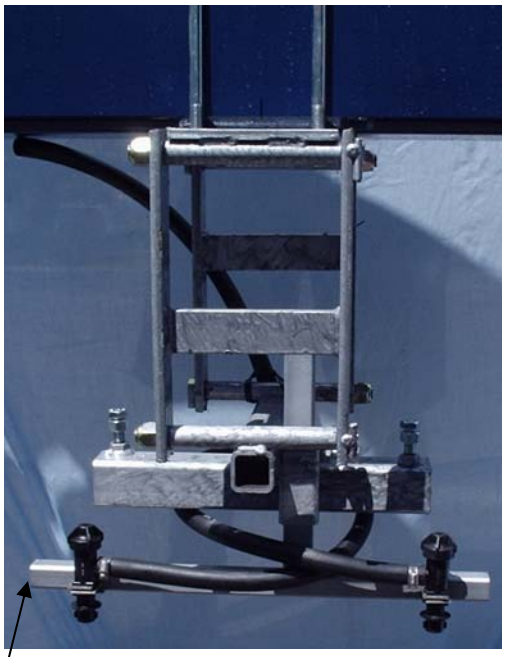
- Flush all spray lines, agitation lines, delivery hoses, tank, jugs, and vat with clean water.
- Flush again with the recommended cleaner. Different chemicals require different cleaning agents to neutralise the active chemical. Check the chemical label or agronomist to use the correct cleaning agent.
- Flush out the cleaning agent with clean water.
- Be sure to carry out all rinsing and cleaning, on jugs vats, delivery pumps and hoses.

7 Shielded sprayer parts



1	SH-001	jet rail standard without hose and nozzle bodies
2		½” x 1 ½” unc lock bolt with lock nut

3	SH-002	shield mount
4	SH-003	top plate
5		150mm x 150mm x ½” U bolt
6	SH-SHIELD	shield – left and right
7	SHC-RUBSIDE	rubber skirts – kits for irrigation and dryland
	SH-004	H bar – with stop
		8 x 5/8 unc bolt and nylock nut
)	SH-005	H bar



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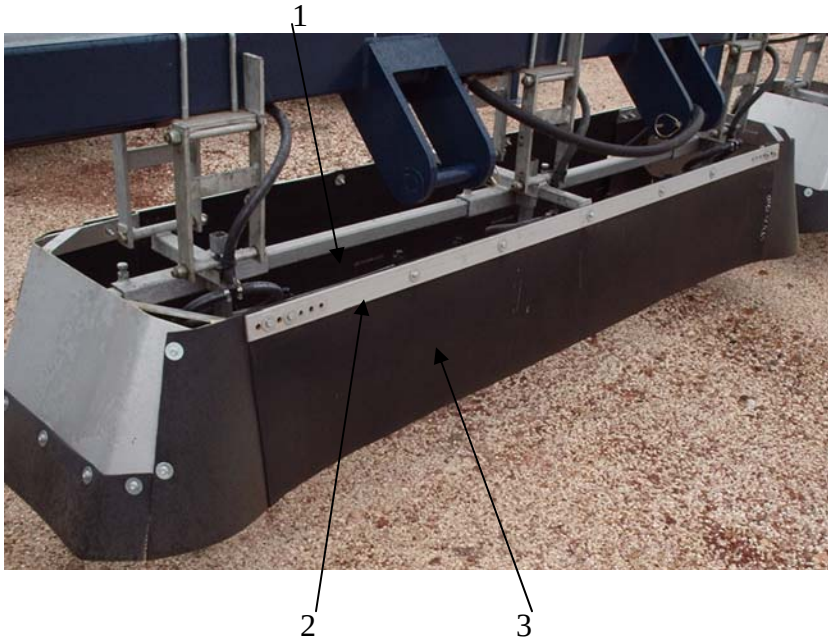
parallelogram assembly complete without shields. Jet rail (1) will be a different length for single or double skip.

parallelogram assembly complete with irrigation rubber skirts.

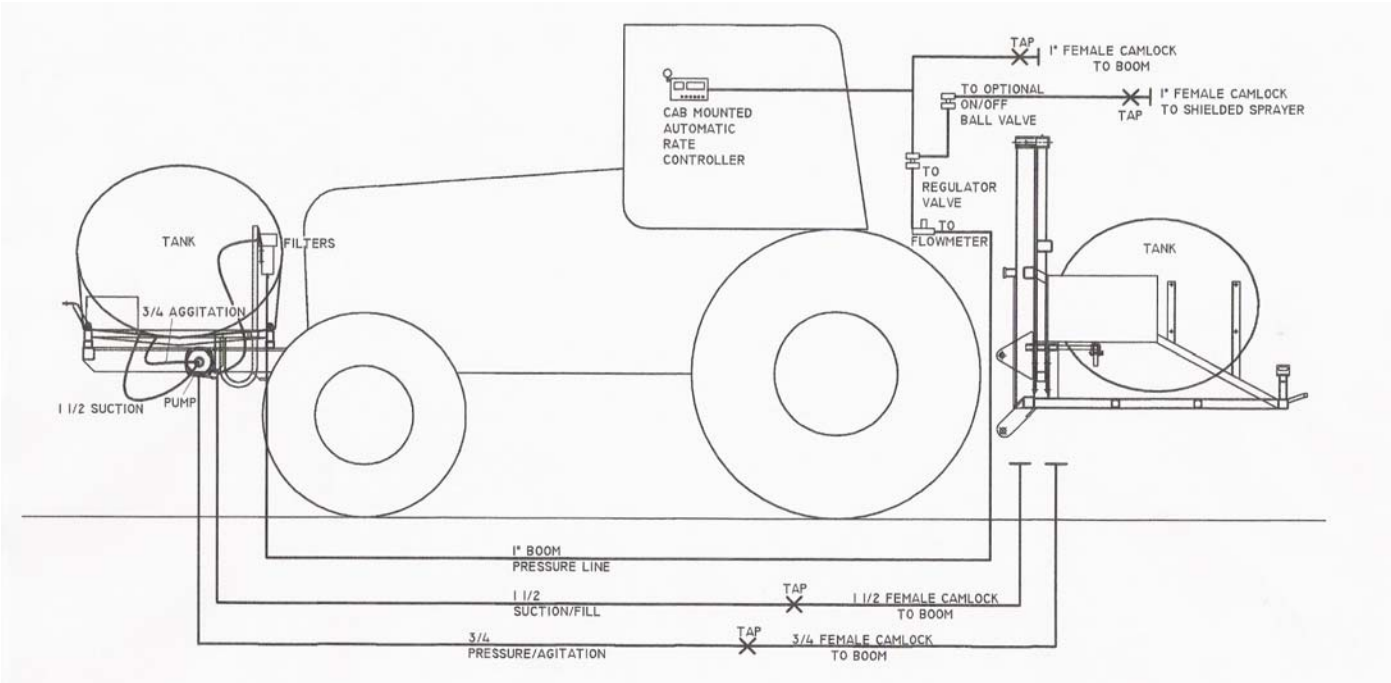
Rubber kits

1	SHC-RUB	irrigation rubber
2	SH-0011	dryland rubber
3	SHC-RUBSIDE	side skirt rubber (irrigation and dryland)

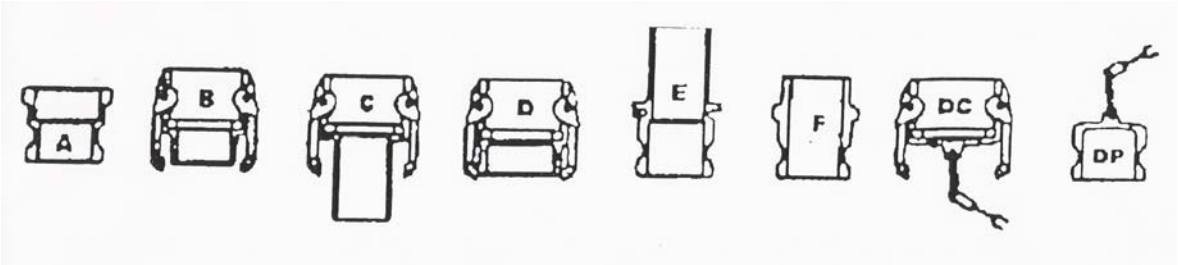
Double skip kit



1	SH-008	joiner bar
2	SH-006	double skip plate 2150
3	SCH-RUBDS	2150 X 400MM double skip rubber
4	SH-009	jet rail – long (not visible)
5	SH-0010	single skip plate (not shown)



Plumbing Diagram



Camlock fitting codes.

8 Nozzle Selection

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TeeJet® Broadcast Nozzle Selection Guide

	Herbicides				Fungicides		Insecticides	
	Soil Incorporated	Pre-Emerge	Post-Emerge		Contact	Systemic	Contact	Systemic
			Contact	Systemic				
XR TeeJet® Reference page 4			Excellent	Good	Excellent	Good	Excellent	Good
XRC TeeJet® Reference page 4			Excellent	Good	Excellent	Good	Excellent	Good
XR TeeJet® at pressures below 30 psi (2.0 bar) Reference page 4	Good	Good	Good	Very Good	Good	Very Good	Good	Very Good
XRC TeeJet® at pressures below 30 psi (2.0 bar) Reference page 4	Good	Good	Good	Very Good	Good	Very Good	Good	Very Good
Turbo TeeJet® Reference page 4			Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Turbo TeeJet® at pressures below 30 psi (2.0 bar) Reference page 4	Good	Good	Good	Excellent	Good	Excellent	Good	Excellent
AI TeeJet® Reference page 4	Very Good	Very Good	Good	Excellent	Good	Excellent	Good	Excellent
AIC TeeJet® Reference page 4	Very Good	Very Good	Good	Excellent	Good	Excellent	Good	Excellent
TwinJet® Reference page 5			Excellent		Excellent		Excellent	
Turbo FloodJet® Reference page 5	Excellent	Excellent		Good		Good		Good
QCTF Turbo FloodJet® Reference page 8	Excellent	Excellent						
TurfJet® Reference page 5	Excellent	Excellent		Very Good		Very Good		Very Good

Characteristics of Common Spray Tip Materials

Ceramic
Superior wear life; highly resistant to abrasive and corrosive chemicals

Hardened Stainless Steel
Very good wear life; good durability and chemical resistance

Stainless Steel
Good wear life; excellent chemical resistance; durable orifice

Polymer
Good wear life; good chemical resistance; orifice susceptible to damage when cleaned improperly

Brass
Poor wear life; susceptible to corrosion, especially with fertilizers

TeeJet® Broadcast Nozzles

XR TeeJet® (XR)

Extended Range Flat Spray Tip

- Uniform coverage at lower pressures
- Smaller droplets at high pressures for thorough coverage
- Nozzle spacing – 20 inches (50cm)
- Spraying pressure – 15-60 PSI (1-4 bar)
- Automatic spray alignment with 25612-*-NYR Quick TeeJet® cap and gasket
- Automatic spray alignment for sizes 10 and 15 with 25610-*-NYR Quick TeeJet cap and gasket
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Examples:

XR8004VS – Stainless Steel with VisiFlo® color-coding
XR11004-VP – Polymer with VisiFlo color-coding
XR11004-VK – Ceramic with VisiFlo color-coding
XR8010SS – Stainless Steel
XR11004VB – Brass with VisiFlo color-coding

XRC TeeJet® (XRC)

Extended Range Flat Spray Tip

- XR TeeJet tip molded into Quick TeeJet cap provides automatic spray alignment
- Available in stainless steel, ceramic, and polymer in 110° spray angles...with VisiFlo color-coding, (80° stainless steel only)
- Includes tightly fitting washer that stays put and assures a good seal
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Examples:

XRC11004-VS – Stainless Steel with VisiFlo color-coding
XRC11004-VP – Polymer with VisiFlo color-coding
XRC11004-VK – Ceramic with VisiFlo color-coding
XRC8004-VS – Stainless Steel with VisiFlo color-coding

AI TeeJet® (AI)

Air Induction Spray Tip

- Depending on chemical, produces large, air-filled drops
- Larger droplets for less drift
- Uniform coverage in broadcast spraying
- Nozzle spacing – 20 inches (50cm)
- Spraying pressure – 30-115 PSI (2-8 bar)
- Polymer insert holder and pre-orifice with VisiFlo color-coding
- Automatic spray alignment with 25598-*-NYR Quick TeeJet cap and gasket
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Example:

AI11004-VS – Stainless Steel with VisiFlo color-coding

AIC TeeJet® (AIC)

Air Induction Spray Tip

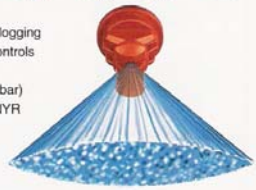
- AI TeeJet nozzle molded into Quick TeeJet cap provides automatic spray alignment
- Available in stainless steel, ceramic, and polymer in 110° spray angles...with VisiFlo color-coding
- Includes tightly fitting washer that stays put and assures a good seal
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Examples:

AIC11004-VS – Stainless Steel with VisiFlo color-coding
AIC11003-VP – Polymer with VisiFlo color-coding
AIC11003-VK – Ceramic with VisiFlo color-coding

Turbo TeeJet® (TT)

Wide Angle Flat Spray Tip



- Large, round free passages to minimize clogging
- Excellent to use with automatic sprayer controls
- Excellent spray pattern quality
- Superior drift control from 15-90 PSI (1-6 bar)
- Automatic spray alignment with 25612-*-NYR Quick TeeJet cap and gasket
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Example:

TT11001-VP – Polymer with VisiFlo color-coding

DG TeeJet® (DG)

Drift Guard Flat Spray Tip

- Large droplets to reduce drift
- Removable pre-orifice
- Nozzle spacing – 20 inches (50cm)
- Spraying pressure – 30-60 PSI (2-4 bar)
- Automatic spray alignment with 25612-*-NYR Quick TeeJet cap and gasket
- For application rates, see pages 6 and 7

How to order:
Specify tip number. Examples:

DG8002VS – Stainless Steel with VisiFlo color-coding
DG11002-VP – Polymer with VisiFlo color-coding

TeeJet® Broadcast Nozzles

TwinJet® (TJ60)

Twin Flat Spray Tip

- Penetrates crop residue or dense foliage
- Smaller droplets for thorough spray coverage
- Nozzle spacing – 20 inches (50cm)
- Spraying pressure – 30-60 PSI (2-4 bar)
- Automatic spray alignment with 25598-*-NYR Quick TeeJet® cap and gasket
- For application rates, see pages 6 and 7

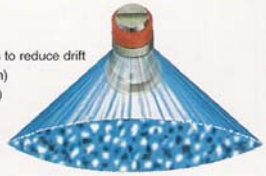
How to order:

Specify tip number. Examples:

TJ60-8002VS – Stainless Steel with VisiFlo® color-coding
TJ60-8002 – Brass

Turbo FloodJet® (TF)

Wide Angle Flat Spray Tip



- Uniform coverage along boom
- Pre-orifice design produces large droplets to reduce drift
- Nozzle spacing – 20-40 inches (50-100cm)
- Spraying pressure – 10-40 PSI (0.7-3 bar)
- Can be used with No. 25600-* -NYR Quick TeeJet cap for automatic alignment
- For application rates, see pages 7 and 8

How to order:

Specify tip number. Examples:

TF-VS4 – Stainless Steel with VisiFlo color-coding
TF-VP4 – Polymer with VisiFlo color-coding

Turbo FloodJet® (TKT)

Wide Angle Flat Spray Tip

- Excellent spray distribution
- Wide spray angle at low pressure
- Ideal tip for residential and estate sprayers
- Recommended operating pressure range: 10-40 PSI (0.7-3 bar)
- VisiFlo color-coding for easy size identification
- All polymer construction
- Excellent resistance to corrosive solutions
- Can be used with No. 25600-* -NYR Quick TeeJet cap for automatic alignment
- For application rates, see page 8

How to order:

Specify tip number. Examples:

TKT-VP3 – Polymer with VisiFlo color-coding
TKT-VP5 – Polymer with VisiFlo color-coding

TeeJet® (TP)

Standard Flat Spray Tip

- Good spray penetration
- Uniform coverage along boom
- Nozzle spacing – 20 inches (50cm)
- Spraying pressure – 30-60 PSI (2-4 bar)
- Automatic spray alignment with 25612-*-NYR Quick TeeJet cap and gasket
- Automatic spray alignment for sizes 10 thru 20 with 25610-*-NYR Quick TeeJet cap and gasket
- For application rates, see pages 6 and 7

How to order:

Specify tip number. Examples:

TP8002VS – Stainless Steel with VisiFlo color-coding
TP11002VP – Polymer with VisiFlo color-coding
TP11002-HSS – Hardened Stainless Steel
TP8002-SS – Stainless Steel
TP8002 – Brass

TurfJet® (TTJ)

Wide Angle Flat Fan Spray Nozzle

- Very large droplets
- Direct replacement for plastic hollow-cone, low-drift nozzles
- More precise flow and distribution pattern
- Large orifice reduces clogging
- Nozzle spacing – 20-40 inches (50-100cm)
- Spraying pressure – 25-75 PSI (1.5-5 bar)
- Use Quick TeeJet cap QJ4676-*-NYR
- For application rates, see pages 7 and 8

How to order:

Specify tip number. Examples:

1/4TTJ04-VS – Stainless Steel with VisiFlo color-coding
1/4TTJ04-VP – Polymer with VisiFlo color-coding

Optimum Spray Heights

	50cm	75cm	100cm
65°	90cm	135cm	—
80°	75cm	110cm	—
110°	50cm	75cm	—
FullJets	75cm*	100cm*	125cm*
FloodJets TK, TF	60cm**	75cm**	100cm**

*Nozzle height based on 30 to 45 degree angle of orientation.

**Wide angle spray tip height is influenced by nozzle orientation. The critical factor is to achieve a double spray pattern overlap.

TeeJet® Broadcast and Turf Applications

Recommended Spraying Pressure Range:
(Consult your chemical label for specific application)

TT, Turbo TeeJet (1-6 bar)
AI, AI TeeJet (2-8 bar)
AIC, AIC TeeJet (2-8 bar)
XR, XR TeeJet (1-4 bar)
XRC, XRC TeeJet (1-4 bar)
TP, TeeJet Standard (2-4 bar)
DG, DG TeeJet (2-4 bar)
TJ, TwinJet (2-4 bar)
TF, Turbo FloodJet (0.7-3 bar)
TTJ, TurfJet (1.5-5 bar)
TQ, 150° Double Outlet (1.5-4 bar)
UB, Underleaf/End of Boom (1.5-4 bar)
AIUB, Underleaf/End of Boom (2-8 bar)
OC, Off Center (2-4 bar)

	bar	l/min	l/ha 50cm													
			4 km/h	5 km/h	6 km/h	7 km/h	8 km/h	9 km/h	10 km/h	12 km/h	16 km/h	18 km/h	20 km/h	25 km/h	30 km/h	35 km/h
TP800050 TP1100050 (100)	2.0	0.16	48.0	38.4	32.0	27.4	24.0	21.3	19.2	16.0	12.0	10.7	9.6	7.7	6.4	5.5
	3.0	0.20	60.0	48.0	40.0	34.3	30.0	26.7	24.0	20.0	15.0	13.3	12.0	9.6	8.0	6.9
	4.0	0.23	69.0	55.2	46.0	39.4	34.5	30.7	27.6	23.0	17.3	15.3	13.8	11.0	9.2	7.9
TP800067 TP1100067 (100)	2.0	0.21	63.0	50.4	42.0	36.0	31.5	28.0	25.2	21.0	15.8	14.0	12.6	10.1	8.4	7.2
	3.0	0.26	78.0	62.4	52.0	44.6	39.0	34.7	31.2	26.0	19.5	17.3	15.6	12.5	10.4	8.9
	4.0	0.30	90.0	72.0	60.0	51.4	45.0	40.0	36.0	30.0	22.5	20.0	18.0	14.4	12.0	10.3
D25143-UB-8501 TQ150-01	1.0	0.23	69.0	55.2	46.0	39.4	34.5	30.7	27.6	23.0	17.3	15.3	13.8	11.0	9.2	7.9
	2.0	0.32	96.0	76.8	64.0	54.9	48.0	42.7	38.4	32.0	24.0	21.3	19.2	15.4	12.8	11.0
(TJ60, TP, XR) 8001 (TP, TT, XR) 11001 (100)	3.0	0.39	117	93.6	78.0	66.9	58.5	52.0	46.8	39.0	29.3	26.0	23.4	18.7	15.6	13.4
	4.0	0.45	135	108	90.0	77.1	67.5	60.0	54.0	45.0	33.8	30.0	27.0	21.6	18.0	15.4
	5.0	0.50	150	120	100	85.7	75.0	66.7	60.0	50.0	37.5	33.3	30.0	24.0	20.0	17.1
	6.0	0.55	165	132	110	94.3	82.5	73.3	66.0	55.0	41.3	36.7	33.0	26.4	22.0	18.9
D25143-UB-85015 TQ150-015	1.0	0.34	102	81.6	68.0	58.3	51.0	45.3	40.8	34.0	25.5	22.7	20.4	16.3	13.6	11.7
	2.0	0.48	144	115	96.0	82.3	72.0	64.0	57.6	48.0	36.0	32.0	28.8	23.0	19.2	16.5
(DG, TP, XR, XRC) 80015 (AI, DG, TP, TT, XR) 110015 (100)	3.0	0.59	177	142	118	101	88.5	78.7	70.8	59.0	44.3	39.3	35.4	28.3	23.6	20.2
	4.0	0.68	204	163	136	117	102	90.7	81.6	68.0	51.0	45.3	40.8	32.6	27.2	23.3
	5.0	0.76	228	182	152	130	114	101	91.2	76.0	57.0	50.7	45.6	36.5	30.4	26.1
	6.0	0.83	249	199	166	142	125	111	99.6	83.0	62.3	55.3	49.8	39.8	33.2	28.5
	7.0	0.90	270	216	180	154	135	120	108	90.0	67.5	60.0	54.0	43.2	36.0	30.9
	8.0	0.96	288	230	192	165	144	128	115	96.0	72.0	64.0	57.6	46.1	38.4	32.9
D25143-UB-8502 TQ150-02, OC-02	1.0	0.46	138	110	92.0	78.9	69.0	61.3	55.2	46.0	34.5	30.7	27.6	22.1	18.4	15.8
	2.0	0.65	195	156	130	111	97.5	86.7	78.0	65.0	48.8	43.3	39.0	31.2	26.0	22.3
(DG, TJ60, TP, XR, XRC) 8002 (AI, DG, TJ60, TP, TT, XR) 11002 1/4TTJ02 (50) (TJ60 100)	3.0	0.79	237	190	158	135	119	105	94.8	79.0	59.3	52.7	47.4	37.9	31.6	27.1
	4.0	0.91	273	218	182	156	137	121	109	91.0	68.3	60.7	54.6	43.7	36.4	31.2
	5.0	1.02	306	245	204	175	153	136	122	102	76.5	68.0	61.2	49.0	40.8	35.0
	6.0	1.12	336	269	224	192	168	149	134	112	84.0	74.7	67.2	53.8	44.8	38.4
	7.0	1.21	363	290	242	207	182	161	145	121	90.8	80.7	72.6	58.1	48.4	41.5
	8.0	1.29	387	310	258	221	194	172	155	129	96.8	86.0	77.4	61.9	51.6	44.2
AIUB85025 (AI, AIC, XR, XRC) 110025 (50)	1.0	0.57	171	137	114	97.7	85.5	76.0	68.4	57.0	42.8	38.0	34.2	27.4	22.8	19.5
	2.0	0.81	243	194	162	139	122	108	97.2	81.0	60.8	54.0	48.6	38.9	32.4	27.8
	3.0	0.99	297	238	198	170	149	132	119	99.0	74.3	66.0	59.4	47.5	39.6	33.9
	4.0	1.14	342	274	228	195	171	152	137	114	85.5	76.0	68.4	54.7	45.6	39.1
	5.0	1.28	384	307	256	219	192	171	154	128	96.0	85.3	76.8	61.4	51.2	43.9
	6.0	1.40	420	336	280	240	210	187	168	140	105	93.3	84.0	67.2	56.0	48.0
	7.0	1.51	453	362	302	259	227	201	181	151	113	101	90.6	72.5	60.4	51.8
	8.0	1.62	486	389	324	278	243	216	194	162	122	108	97.2	77.8	64.8	55.5
D25143-UB-8503 TQ150-03, OC-03	1.0	0.68	204	163	136	117	102	90.7	81.6	68.0	51.0	45.3	40.8	32.6	27.2	23.3
	2.0	0.96	288	230	192	165	144	128	115	96.0	72.0	64.0	57.6	46.1	38.4	32.9
(DG, TJ60, TP, XR, XRC) 8003 (AI, AIC, DG, TJ60, TP, TT, XR, XRC) 11003 AIUB8503 (50) (TJ60 100)	3.0	1.18	354	283	236	202	177	157	142	118	88.5	78.7	70.8	56.6	47.2	40.5
	4.0	1.36	408	326	272	233	204	181	163	136	102	90.7	81.6	65.3	54.4	46.6
	5.0	1.52	456	365	304	261	228	203	182	152	114	101	91.2	73.0	60.8	52.1
	6.0	1.67	501	401	334	286	251	223	200	167	125	111	100	80.2	66.8	57.3
	7.0	1.80	540	432	360	309	270	240	216	180	135	120	108	86.4	72.0	61.7
	8.0	1.93	579	463	386	331	290	257	232	193	145	129	116	92.6	77.2	66.2

Note: *Always double check your application rates.*

TeeJet® Broadcast and Turf Applications

Recommended Spraying Pressure Range:
(Consult your chemical label for specific application)

TT, Turbo TeeJet (1-6 bar)
AI, AI TeeJet (2-8 bar)
AIC, AIC TeeJet (2-8 bar)
XR, XR TeeJet (1-4 bar)
XRC, XRC TeeJet (1-4 bar)
TP, TeeJet Standard (2-4 bar)
DG, DG TeeJet (2-4 bar)
TJ60, TwinJet (2-4 bar)
TF, Turbo FloodJet (0.7-3 bar)
TTJ, TurfJet (1.5-5 bar)
TQ, 150° Double Outlet (1.5-4 bar)
UB, Underleaf/End of Boom (1.5-4 bar)
AIUB, Underleaf/End of Boom (2-8 bar)
OC, Off Center (2-4 bar)

	bar	l/min	l/ha 50cm 4 km/h	5 km/h	6 km/h	7 km/h	8 km/h	9 km/h	10 km/h	12 km/h	16 km/h	18 km/h	20 km/h	25 km/h	30 km/h	35 km/h
D25143-UB-8504 TQ150-04, OC-04	1.0	0.91	273	218	182	156	137	121	109	91.0	68.3	60.7	54.6	43.7	36.4	31.2
	2.0	1.29	387	310	258	221	194	172	155	129	96.8	86.0	77.4	61.9	51.6	44.2
(DG, TJ60, TP, XR, XRC) 8004	3.0	1.58	474	379	316	271	237	211	190	158	119	105	94.8	75.8	63.2	54.2
	4.0	1.82	546	437	364	312	273	243	218	182	137	121	109	87.4	72.8	62.4
(AI, AIC, DG, TJ60, TP, TT, XR, XRC) 11004 AIUB8504 1/4TTJ04 TF-2 (50)	5.0	2.04	612	490	408	350	306	272	245	204	153	136	122	97.9	81.6	69.9
	6.0	2.23	669	535	446	382	335	297	268	223	167	149	134	107	89.2	76.5
	7.0	2.41	723	578	482	413	362	321	289	241	181	161	145	116	96.4	82.6
	8.0	2.58	774	619	516	442	387	344	310	258	194	172	155	124	103	88.5
TQ150-05	1.0	1.14	342	274	228	195	171	152	137	114	85.5	76.0	68.4	54.7	45.6	39.1
	2.0	1.61	483	386	322	276	242	215	193	161	121	107	96.6	77.3	64.4	55.2
(DG, TP, XR, XRC) 8005	3.0	1.97	591	473	394	338	296	263	236	197	148	131	118	94.6	78.8	67.5
	4.0	2.27	681	545	454	389	341	303	272	227	170	151	136	109	90.8	77.8
(AI, AIC, DG, TP, TT, XR, XRC) 11005 1/4TTJ05 TF-2.5 (50)	5.0	2.54	762	610	508	435	381	339	305	254	191	169	152	122	102	87.1
	6.0	2.79	837	670	558	478	419	372	335	279	209	186	167	134	112	95.7
	7.0	3.01	903	722	602	516	452	401	361	301	226	201	181	145	120	103
	8.0	3.22	966	773	644	552	483	429	386	322	242	215	193	155	129	110
TQ150-06 OC-06	1.0	1.37	411	329	274	235	206	183	164	137	103	91.3	82.2	65.8	54.8	47.0
	2.0	1.94	582	466	388	333	291	259	233	194	146	129	116	93.1	77.6	66.5
(TJ60, TP, XR, XRC) 8006	3.0	2.37	711	569	474	406	356	316	284	237	178	158	142	114	94.8	81.3
	4.0	2.74	822	658	548	470	411	365	329	274	206	183	164	132	110	93.9
(AI, TJ60, TP, TT, XR) 11006 1/4TTJ06 TF-3 (50)	5.0	3.06	918	734	612	525	459	408	367	306	230	204	184	147	122	105
	6.0	3.35	1005	804	670	574	503	447	402	335	251	223	201	161	134	115
	7.0	3.62	1086	869	724	621	543	483	434	362	272	241	217	174	145	124
	8.0	3.87	1161	929	774	663	581	516	464	387	290	258	232	186	155	133
TQ150-08 OC-08	1.0	1.82	546	437	364	312	273	243	218	182	137	121	109	87.4	72.8	62.4
	2.0	2.58	774	619	516	442	387	344	310	258	194	172	155	124	103	88.5
(TJ60, TP, XR) 8008	3.0	3.16	948	758	632	542	474	421	379	316	237	211	190	152	126	108
	4.0	3.65	1095	876	730	626	548	487	438	365	274	243	219	175	146	125
(AI, TJ60, TP, TT, XR) 11008 1/4TTJ08 TF-4 (50)	5.0	4.08	1224	979	816	699	612	544	490	408	306	272	245	196	163	140
	6.0	4.47	1341	1073	894	766	671	596	536	447	335	298	268	215	179	153
	7.0	4.83	1449	1159	966	828	725	644	580	483	362	322	290	232	193	166
	8.0	5.16	1548	1238	1032	885	774	688	619	516	387	344	310	248	206	177
(TP, XR) 8010 (TP, XR) 11010	1.0	2.28	684	547	456	391	342	304	274	228	171	152	137	109	91.2	78.2
	2.0	3.23	969	775	646	554	485	431	388	323	242	215	194	155	129	111
TJ60-8010 TJ60-11010 1/4TTJ10 TF-5 (50)	3.0	3.95	1185	948	790	677	593	527	474	395	296	263	237	190	158	135
	4.0	4.56	1368	1094	912	782	684	608	547	456	342	304	274	219	182	156
	5.0	5.10	1530	1224	1020	874	765	680	612	510	383	340	306	245	204	175
	6.0	5.59	1677	1342	1118	958	839	745	671	559	419	373	335	268	224	192
	7.0	6.03	1809	1447	1206	1034	905	804	724	603	452	402	362	289	241	207
	8.0	6.45	1935	1548	1290	1106	968	860	774	645	484	430	387	310	258	221
(TP, XR) 8015 (TP, XR) 11015	1.0	3.42	1026	821	684	586	513	456	410	342	257	228	205	164	137	117
	2.0	4.83	1449	1159	966	828	725	644	580	483	362	322	290	232	193	166
1/4TTJ15 TF-7.5 (50)	3.0	5.92	1776	1421	1184	1015	888	789	710	592	444	395	355	284	237	203
	4.0	6.84	2052	1642	1368	1173	1026	912	821	684	513	456	410	328	274	235
	5.0	7.64	2292	1834	1528	1310	1146	1019	917	764	573	509	458	367	306	262
TP8020 TP11020	1.0	4.56	1368	1094	912	782	684	608	547	456	342	304	274	219	182	156
	2.0	6.44	1932	1546	1288	1104	966	859	773	644	483	429	386	309	258	221
TF-10 (50)	3.0	7.89	2367	1894	1578	1353	1184	1052	947	789	592	526	473	379	316	271
	4.0	9.11	2733	2186	1822	1562	1367	1215	1093	911	683	607	547	437	364	312

Note: *Always double check your application rates.*

TeeJet® Drop Size

Nozzle selection is often based upon droplet size. The droplet size from a nozzle becomes very important when the efficacy of a particular crop chemical is dependent on coverage, or the prevention of spray leaving the target area is a priority.

The majority of the nozzles used in agriculture can be classified as producing either fine, medium or coarse droplets. Nozzles which produce fine droplets are usually recommended for post-emergence applications which require excellent coverage on leaf surfaces. The most common nozzles used in agriculture are those which produce medium-sized droplets. Nozzles producing medium-sized droplets can be used for contact and systemic herbicides, pre-emergence surface-applied herbicides, insecticides and fungicides.

An important point to remember when choosing a spray nozzle which produces a droplet size in one of the six categories, is that one nozzle can produce different droplet size classifications at different pressures. A nozzle might produce medium droplets at low pressures, while producing fine droplets as pressure is increased.

Droplet size classes are shown in the following tables to assist in choosing an appropriate spray tip.

VF — Very Fine	F — Fine
M — Medium	C — Coarse
VC — Very Coarse	XC — Extremely Coarse

Droplet size classifications are based on BCPC specifications and in accordance with ASAE Standard S-572 at the date of printing. Classifications are subject to change.

TurfJet® (TTJ)

	bar				
	2	3	3.5	4	5.5
1/4TTJ02-VS	XC	XC	XC	XC	XC
1/4TTJ04-VS	XC	XC	XC	XC	XC
1/4TTJ05-VS	XC	XC	XC	XC	XC
1/4TTJ06-VS	XC	XC	XC	XC	XC
1/4TTJ08-VS	XC	XC	XC	XC	XC
1/4TTJ10-VS	XC	XC	XC	XC	XC
1/4TTJ15-VS	XC	XC	XC	XC	XC

DGE TeeJet® (DG EVEN)

	bar				
	2	2.5	3	3.5	4
DG95015E	M	M	F	F	F
DG9502E	M	M	M	M	M
DG9503E	C	M	M	M	M
DG9504E	C	C	M	M	M
DG9505E	C	C	C	M	M

Turbo TeeJet® (TT)

	bar										
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
TT11001	C	M	M	M	F	F	F	F	F	F	F
TT110015	C	C	M	M	M	M	M	F	F	F	F
TT11002	C	C	C	M	M	M	M	M	M	M	F
TT11003	VC	C	C	C	C	M	M	M	M	M	M
TT11004	XC	VC	C	C	C	C	C	C	M	M	M
TT11005	XC	VC	VC	VC	C	C	C	C	C	M	M
TT11006	XC	VC	VC	VC	C	C	C	C	C	C	M
TT11008	XC	XC	VC	VC	C	C	C	C	C	C	M

AI TeeJet® (AI) and AIC TeeJet® (AIC)

	bar											
	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
AI110015	VC	VC	VC	VC	C	C	C	C	C	C	C	C
AI11002	VC	VC	VC	VC	VC	C	C	C	C	C	C	C
AI110025	XC	VC	VC	VC	VC	VC	VC	C	C	C	C	C
AI11003	XC	XC	VC	VC	VC	VC	VC	VC	C	C	C	C
AI11004	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C	C
AI11005	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C	C
AI11006	XC	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C
AI11008	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C

XR TeeJet® (XR) and XRC TeeJet® (XRC)

	bar						
	1	1.5	2	2.5	3	3.5	4
XR8001	M	F	F	F	F	F	F
XR80015	M	M	F	F	F	F	F
XR8002	M	M	M	M	F	F	F
XR8003	M	M	M	M	M	M	M
XR8004	C	M	M	M	M	M	M
XR8005	C	C	C	M	M	M	M
XR8006	C	C	C	C	C	C	C
XR8008	VC	VC	C	C	C	C	C
XR11001	F	F	F	F	F	VF	VF
XR110015	F	F	F	F	F	F	F
XR11002	M	F	F	F	F	F	F
XR11003	M	M	F	F	F	F	F
XR11004	M	M	M	M	M	F	F
XR11005	C	M	M	M	M	M	F
XR11006	C	C	M	M	M	M	M
XR11008	C	C	C	C	M	M	M

TeeJet® (TP)

	bar				
	2	2.5	3	3.5	4
TP8001	F	F	F	F	F
TP80015	F	F	F	F	F
TP8002	M	M	F	F	F
TP8003	M	M	M	M	M
TP8004	M	M	M	M	M
TP8005	C	M	M	M	M
TP8006	C	C	C	C	C
TP8008	C	C	C	C	C
TP11001	F	F	F	VF	VF
TP110015	F	F	F	F	F
TP11002	F	F	F	F	F
TP11003	F	F	F	F	F
TP11004	M	M	M	F	F
TP11005	M	M	M	M	M
TP11006	M	M	M	M	M
TP11008	C	C	M	M	M

TwinJet® (TJ)

	bar				
	2	2.5	3	3.5	4
TJ60-6501	F	VF	VF	VF	VF
TJ60-650134	F	F	F	VF	VF
TJ60-6502	F	F	F	F	F
TJ60-6503	M	F	F	F	F
TJ60-6504	M	M	M	M	F
TJ60-6506	M	M	M	M	M
TJ60-6508	C	C	M	M	M
TJ60-8001	VF	VF	VF	VF	VF
TJ60-8002	F	F	F	F	F
TJ60-8003	F	F	F	F	F
TJ60-8004	M	M	F	F	F
TJ60-8006	M	M	M	M	M
TJ60-8008	C	M	M	M	M
TJ60-8010	C	C	C	M	M
TJ60-11002	F	VF	VF	VF	VF
TJ60-11003	F	F	F	F	F
TJ60-11004	F	F	F	F	F
TJ60-11006	M	M	M	F	F
TJ60-11008	M	M	M	M	M
TJ60-11010	M	M	M	M	M

Turbo FloodJet® (TF)

	bar				
	2	2.5	3	3.5	4
TF-2	XC	XC	XC	XC	XC
TF-2.5	XC	XC	XC	XC	XC
TF-3	XC	XC	XC	XC	XC
TF-4	XC	XC	XC	XC	XC
TF-5	XC	XC	XC	XC	XC
TF-7.5	XC	XC	XC	XC	XC
TF-10	XC	XC	XC	XC	XC

DG TeeJet® (DG)

	bar				
	2	2.5	3	3.5	4
DG80015	M	M	M	M	F
DG8002	C	M	M	M	M
DG8003	C	M	M	M	M
DG8004	C	C	M	M	M
DG8005	C	C	C	M	M
DG110015	M	F	F	F	F
DG11002	M	M	M	M	M
DG11003	C	M	M	M	M
DG11004	C	C	M	M	M
DG11005	C	C	C	M	M