



AGCO Parts Baler Twine **User guide**

Foreword

AGCO leads the market in the production and development of modern, Large Square balers.

To achieve the highest output and best baling results, AGCO have also developed, with Tama Plastic Industry, a range of twines specifically designed for use in AGCO balers, but also suitable for use in all other makes and models.

Tama has 40 years experience in the manufacture and marketing of baler twines.

Combining an agricultural orientation Tama has since extended twine manufacturing activities to Europe. Now, new higher-specification baler twines have been developed and launched that have raised the bar for quality and performance.



The choice of twine for your baler is wide and varied, it is important to know that your chosen product is suitable and of the quality required to achieve optimum baler performance, in the strength to produce high density bales and the true stated length for maximum output.

AGCO Parts baler twines have all been fully validated to guarantee performance and suitability for use, in all crops and conditions.

The following information is a guide to baler twine basic knowledge and useful information.

Care of Twine

- Do not drop or throw spools of twine.
- Spools can become damaged easily by dropping them or throwing them into a vehicle for transportation to a field or farm.
- Should a spool become domed at the top it can prevent the twine from feeding smoothly causing snagging and ultimately machine part damage.



- Do not remove or damage shrink packaging.
- Be careful not to remove or damage the packaging as this keeps the integrity of the spool profile right to the end. Should the packaging be split the spool may collapse before the end of the spool is reached.

Twine production

Twine should be manufactured to a high specification using good quality virgin raw materials. Use of low grade products will result in poor knot formation, poor strength and degradation of the twine.

The manufacturing process is called extrusion and the main ingredient is Polypropylene (PP). Extrusion is the production of plastic from its raw material state. Extruders provide efficient manufacturing. PP gives good strength vs cost when manufactured correctly.

Runnage is achieved by producing a thin, wide tape. Beware, that tapes can have the same runnage, but be very different, e.g. wide, thin tape or narrow, thick tape. The thickness and width is important to provide softness and offer the best knot formation.

Fibrillation is a process in extrusion, to split the tape longitudinal, to give better twisting and knotting properties to the twine.

Visibly the twine should show good conformity, a uniform twist and be smooth running. This will reduce any problems to the user in the field.

It is important that the baler is set up correctly. When changing to AGCO twines it is advised that checks should be made to the baler's twine guides, tensioners and brakes to take account of possible different twine thickness and twist from the previous type of twine.



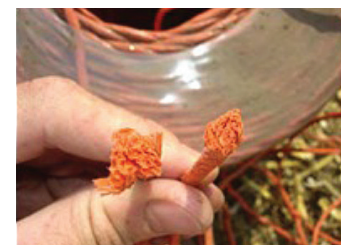
Premium grade raw material base to ensure length and strength is maximised



Fibrillation can be seen when the twine is untwisted. Good fibrillation gives good knotting properties.



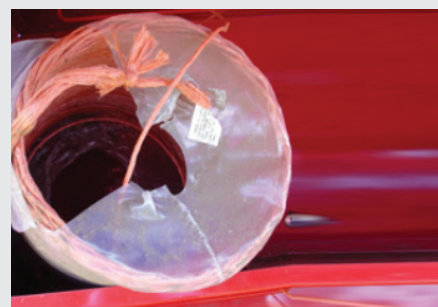
Excellent knot capability for the baler type requirement



Consistent uniformity throughout the spools to provide better feeding through the guides and knotters

Care of Twine

- Ensure spool size is fit for purpose.
- The spool should hold its integrity to the very end, enabling all the twine to be fully used. If the spool is damaged or crushed by the twine box or retaining device such as bungee cords the twine can pull out as a bunch, and become jammed in the guides / tensioners.



- The inner part should look round.
- A spool that has damage will not be round and can result in inconsistent running of twine. The twine should have a good centre from which the twine will feed.

Twines are produced for 3 different types of agricultural baling use;

- 1) Fine twine for the round baler.
- 2) Medium or Hay twine for the conventional square baler.
- 3) Big Baler twine for the large square baler.



The table below should be used as a guide to twine type and its use.

Twine type	Packaging type	Pack length	Pallet quantity	Baler type
Fine twine		22,300ft	150	Round baler
Medium Twine		12,000ft	80	Conventional Square baler
Hay Twine		10,000ft	80	Conventional Square baler
Tama Type 72		9,600ft	56	Big Square baler
AGCO Parts Dynamax		8,500ft	56	Big Square baler
Massey Ferguson XD		3,850ft	80	HD Big Square Baler

Technical - The Double Knotter

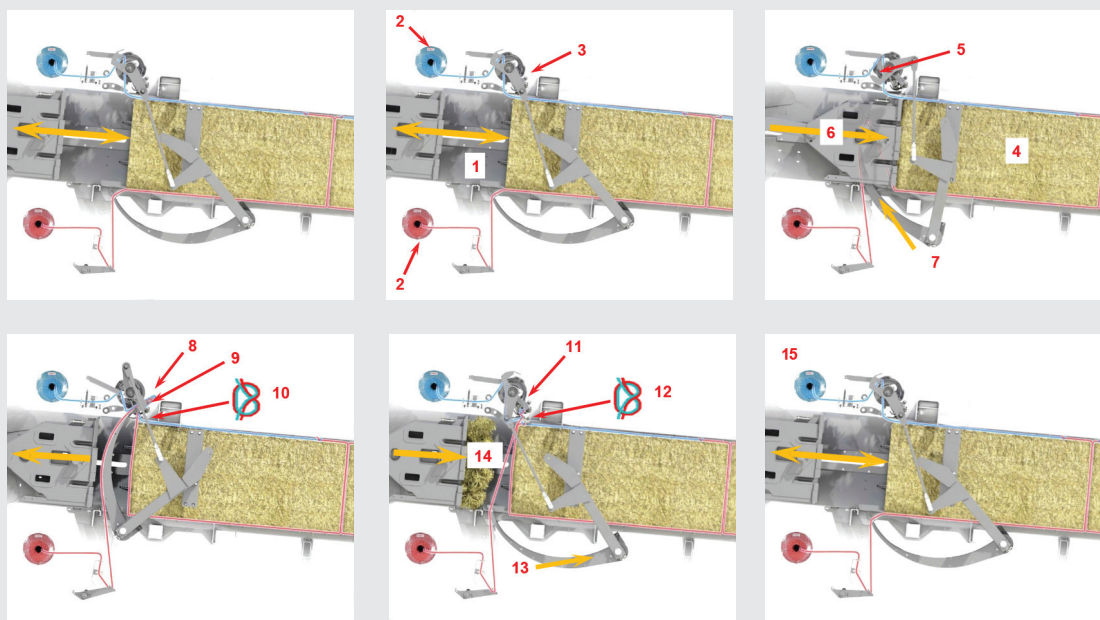
At Massey Ferguson a range of square balers are available to suit all users. Nowhere does the tying become more critical than in the Large Square baler with a need for a much higher crop density putting great emphasis on the knotter and twine. The AGCO range of Large Square balers feature the familiar 'double-knot' tying system, which reduces stress on the twine during bale formation and allows maximum density in the bale to be held securely until final tying off.

The knotter itself consists of the same components as a conventional single knotter, but designed for heavier twine tying twice per cycle. Wear is reduced with a double knot system because the knots are tied under much less tension than on conventional single knotters.

Each knotter is fed twine from two separate spools. One feeds the top string of the bale, and one for the front, lower and back of the bale. Twine is not put under full pressure until the bale leaves the chamber.

It is important the user makes adjustment to the tying system whenever the twine type is changed due to the twine thickness affecting the tension that may create poor performance of the knotter.

Below shows the tying process for a baler using a double knotter in the MF 2200 series baler.



1. Crop enters bale chamber and the plunger compresses it rearwards
2. Twine is fed top and bottom of bale
3. Twine is NOT held in twine retainer but runs free
4. Bale reaches desired length
5. Trip arm engages the knotter clutch
6. Plunger compresses crop in chamber
7. Needles bring lower twine up to knotter
8. Needle picks up the upper twine
9. Both twines are laid in knotter
10. Tied together and ends cut to finish bale in chamber.
11. Needle retracts, twines are laid in twine retainer and billhook
12. The second knot is tied
13. Needle fully retracts
14. Twine is ready to start next bale
15. Process starts again for next tying cycle

Twine usage tables for Large Square bales, Small Square bales and Round bales.



Tama Type 72 (9,600')

Baler model	Bale width x height	1.5m (5') length bale		2.4m (8') length bale		Knotter Type
		Packs for 1,000 bales	Packs for 5,000 bales	Packs for 1,000 bales	Packs for 5,000 bales	
Massey Ferguson 2240	.80 x .70	6	30	9	41	D
Massey Ferguson 2250	.80 x .90	7	32	9	43	D
Massey Ferguson 2260	1.20 x .70	9	44	13	61	D
Massey Ferguson 2270	1.20 x .90	10	48	13	65	D
Massey Ferguson 2290	1.20 x 1.30	11	55	15	72	D
New Holland BigBaler 870	.80 x .70	6	30	9	41	D
New Holland BigBaler 890	.80 x .90	7	32	9	43	D
New Holland BigBaler 1270	1.20 x .70	9	44	13	61	D
New Holland BigBaler 1290	1.20 x .90	10	48	13	65	D
New Holland BB 9090	1.20 x 1.30	11	55	15	72	D
Case IH LB 324/323	.80 x .70	6	30	9	41	D
Case IH LB 334/333	.80 x .90	7	32	9	43	D
Case IH LB 424/424	1.20 x .70	9	44	13	61	D
Case IH LB 434/433	1.20 x .90	10	48	13	65	D
Claas Quadrant 1150/4000	.80 x .50	6	26	8	38	S
Claas Quadrant 2100	.80 x .70	6	30	8	40	S
Claas Quadrant 2200/3200	1.20 x .70	9	45	12	60	S
Claas Quadrant 3300	1.20 x .90	12	48	15	66	S
Claas Quadrant 3400	1.20 x 1.00	12	21	15	66	S
Krone BigPack 890	.80 x .90	7	32	9	43	D
Krone BigPack 1270	1.20 x .70	9	44	13	61	S/D
Krone BigPack 1290	1.20 x .90	10	48	13	65	D
Kuhn LSB 870	.80 x .70	6	30	8	40	S
Kuhn LSB 890	.80 x .90	8	32	10	44	S
Kuhn LSB 1270	1.20 x .70	9	45	12	60	S
Kuhn LSB 1290	1.20 x .90	12	48	15	66	S
Welger 4006/4060	.80 x .70	6	30	8	40	S
Welger 6006/6060	1.20 x .70	9	45	12	60	S

The information above, is offered as a guide to twine usage in various makes and models of balers. The values are approximate and should be used as a guide only.

(S = Single knotter system baler D = Double knotter system baler)



Massey Ferguson XD Twine

Baler model	Bale width x height	1.5m (5') length bale		2.4m (8') length bale		Knotter Type
		Spools for 1,000 bales	Spools for 5,000 bales	Packs for 1,000 bales	Packs for 5,000 bales	
Massey Ferguson 2270 XD	1.20 x .90	24	118	32	160	D
Krone BigPack 1290 HDP	1.20 x .90	24	118	32	160	D



AGCO Parts Dynamax (8,500')

Baler model	Bale width x height	1.5m (5') length bale		2.4m (8') length bale		Knotter Type
		Packs for 1,000 bales	Packs for 5,000 bales	Packs for 1,000 bales	Packs for 5,000 bales	
Massey Ferguson 2240	.80 x .70	6	30	9	41	D
Massey Ferguson 2250	.80 x .90	8	36	10	49	D
Massey Ferguson 2260	1.20 x .70	10	50	14	69	D
Massey Ferguson 2270	1.20 x .90	11	54	15	73	D
Massey Ferguson 2290	1.20 x 1.30	13	62	17	81	D
New Holland BigBaler 870	.80 x .70	7	32	10	46	D
New Holland BigBaler 890	.80 x .90	8	36	10	49	D
New Holland BigBaler 1270	1.20 x .70	10	50	14	69	D
New Holland BigBaler 1290	1.20 x .90	11	54	15	73	D
New Holland BB 9090	1.20 x 1.30	13	62	17	81	D
Case IH LB 324/323	.80 x .70	7	32	10	46	D
Case IH LB 334/333	.80 x .90	8	36	10	49	D
Case IH LB 424/424	1.20 x .70	10	50	14	69	D
Case IH LB 434/433	1.20 x .90	11	56	15	73	D
Claas Quadrant 1150/4000	.80 x .50	6	30	10	42	S
Claas Quadrant 2100	.80 x .70	8	32	10	46	S
Claas Quadrant 2200/3200	1.20 x .70	12	48	15	69	S
Claas Quadrant 3300	1.20 x .90	12	54	15	72	S
Claas Quadrant 3400	1.20 x 1.00	12	57	18	78	S
Krone BigPack 890	.80 x .90	8	36	10	49	D
Krone BigPack 1270	1.20 x .70	10	50	14	69	S/D
Krone BigPack 1290	1.20 x .90	11	54	15	73	D
Kuhn LSB 870	.80 x .70	8	32	10	46	S
Kuhn LSB 890	.80 x .90	8	36	10	48	S
Kuhn LSB 1270	1.20 x .70	12	48	15	69	S
Kuhn LSB 1290	1.20 x .90	12	54	15	72	S
Welger 4006/4060	.80 x .70	8	32	10	46	S
Welger 6006/6060	1.20 x .70	12	48	15	69	S

Conventional Bale Twine

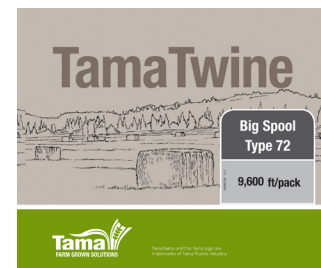
Type	1.2m (4') length bale		1.5m (5') length bale	
	Packs required for 1,000 bales	Packs required for 5,000 bales	Packs required for 1,000 bales	Packs required for 5,000 bales
Medium Twine 12,000'	2	10	2	12
Hay Twine 10,000'	2	12	2	15

Round Bale Twine

Type	1.2m (4') diameter bale		1.5m (5') diameter bale	
	Packs required for 1,000 bales 20 turns	Packs required for 5,000 bales 25 turns	Packs required for 1,000 bales 20 turns	Packs required for 5,000 bales 25 turns
Fine twine 22,300'	11	70	14	86

Tama Twine Type 72

General use for all crops and suitable for all types of large square balers, where normal 7,200 performance is required.



AGCO Parts Dynamax

Suitable for use with all types of crop and in all types of large square balers, where a higher performance is required.



Massey Ferguson XD

- Developed specifically for 2170XD baler
- Able to handle super high density bales > 405 load
- 11kg spool – single spool package
- Big Spool size (295mm diameter x 350mm height)
- Suitable for use on other makes of Extra High Density balers (with suitable twine box size)



Technical support

Further information can be obtained from Tama UAT to support your business.

- Sales
- Product support
- Advice
- Guidance
- Other products available include Netwrap and Stretchfilm

Contact your local area Tama manager for more information at sales@tama-uat.co.uk