INDEX
FSA000737.2

# Bale Pulpers

## FSA000737.2

INDEX
FSA000737.2

# APPENDIX 1 :
# COMMERCIAL PART

QUOTATION
FSA000737.2

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Foley Cellulose LLC
One Buckeye Drive
Perry, Florida 32348

We are pleased to submit our quotation for

## STOCK PREPARATION EQUIPMENT

| | PRICE | |
|---|---|---|
| VHi-6525G High Consistency Bale Pulper (L3 Repulper) | | |
| VMi-3518B Medium Consistency Bale Pulper (Layboy Repulper) | | |
| Installation advisory services, testing, startup and training | | |
| Engineering evaluation of "Air Seals" | | |
| | | |
| **Options:** | | |
| Spare parts VHi-6525G | | |
| Spare parts VMi-3518B | | |
| *Subject to change based on below options | | |
| **Potential Deductions**:** | | |
| No Shaft Seal on L3 Pulper | | |
| No Shaft Seal on Layboy Pulper | | |
| FCA at Seller Location (Option B) | | |
| ****Potential shaft seal deductions to be defined at kick-off or by date defined at kick-off.** | | |

TERMS OF DELIVERY The prices of the equipment are DAP Perry (as defined under Incoterms 2010) excluding any state, federal or local taxes and fees.

The Buyer is responsible for the customs clearance. The delays in customs clearance process not caused by Seller's actions shall extend the delivery time respectively and additional transportation demurrage or other extra costs caused by the delay, if any, shall be paid by the Purchaser.

Option B: FCA at Seller locations, with Buyer responsible for freight costs. Buyer may utilize a third-party logistics provider of Buyer's choosing at no additional expense. In such occurrence, no freight will be charged by Seller. Seller will be responsible for loading and securing all loads prior to departure from their facilities.

PRICE CONDITION The above prices are firm for the indicated time of delivery.

The Prices are calculated at exchange rate 1 EUR = 1.14 USD and Valmet reserves the right to adjust the USD prices, if the exchange rate fluctuation exceeds 1%.

TIME OF DELIVERY The delivery time is 30 weeks from the receipt of the order.

'TERMS OF PAYMENT The prices of this quotation are based on the following terms of cash payment:

| | |
|---|---|
| 10 % | Invoiced upon order |
| 20 % | Invoiced upon receipt of certified General Arrangement and Foundation Drawings |
| 20 % | Invoiced upon delivery os Certified Arrangement and Foundation Drawings |
| 40 % | Invoiced upon delivery. |
| 10 % | Invoiced upon receipt of Letter of Credit in the amount of 7% of equipment to expire upon start up and acceptance by Buyer of performance as defined in the performance guarantees, or twelve (12) months from final delivery, whichever occurs first. |

*Start up date is defined to have happened when the equipment is first used for commercial operation.

Payments are due 30 days after invoiced. There will be an

interest of 12% for overdue payments.

The payment milestones will be allocated for the equipment pricing.

The payment for services shall be paid upon completion of the services.

If there are delays caused by Valmet on the services then Valmet shall be responsible for the additional days.

GENERAL TERMS

According to the Master Contract Agreement previously negotiated between Valmet Inc and Georgia Pacific.

VALIDITY OF THE QUOTATION

The quotation is valid for a period of 30 days.

We trust that our quotation would be of interest to you and we look forward to further discussions at your convenience.

Sincerely,

**VALMET, INC.**
Craig Fauler
Technology Manager - Stock Preparation
2425 Commerce Avenue, Suite 100
Duluth, GA 30096
770-558-0174 cell
craig.fauler@valmet.com

INDEX
FSA000737.2

# APPENDIX 2 :
# TECHNICAL PART

SPECIFICATION
FSA000737.2

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## APPENDIX 2 .1.1: Technical specification for High consistency pulper - VHi-6525G

DESIGN DATA

| Dimensioning data | Value |
|---|---|
| Furnish | Southern Softwood |
| Production | 160 bdstpd<br>145 bdmtpd |
| Pulping consistency | 15 % |
| Pulping sequence | |
| Filling time | 10 min |
| Slushing time | 10 min |
| Discharge time | 10 min |
| Discharge consistency | 4 % |
| Energy consumption | 44 kWh/t |

TECHNICAL DATA

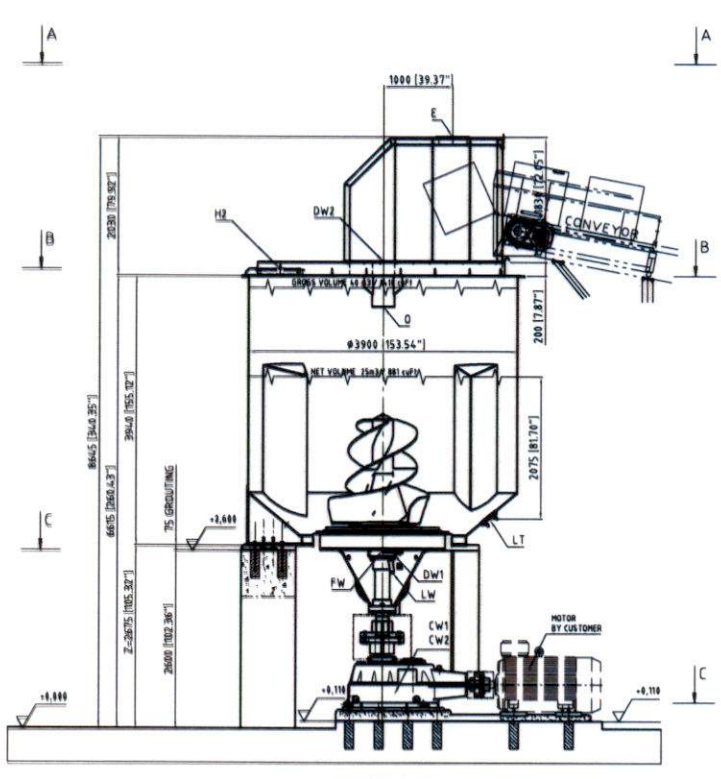
| Technical data | Data |
|---|---|
| **High consistency pulper** | |
| Trade name | OptiSlush Vertical |
| Model | VHi-6525G |
| Position | Bale |
| Operational mode | Batch |
| Rotor diameter | Ø 1650 mm |
| Screen plate perforation | Ø 12 mm |
| Vat volume, net/gross | 25 / 40 $m^3$ |
| Main motor | 600 HP / 1200 rpm |

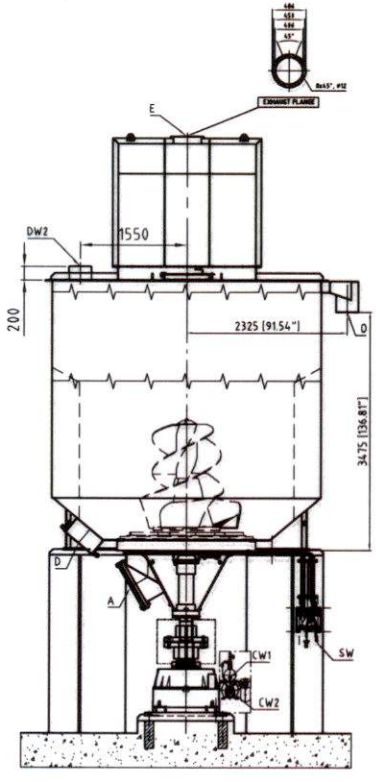
| Materials | |
|---|---|
| Rotor unit, stock contacted parts | EN1.4404 (AISI 316L) |
| Rotor | EN1.4462 |
| Screen plate | EN1.4462 |
| Vat, stock contacted parts | EN1.4404 (AISI 316L) |
| Cover and hood | EN1.4404 (AISI 316L) |
| Rotor unit stiffeners and support parts | Mild steel |
| Vat stiffeners and support parts | EN1.4404 (AISI 316L) |
| Cover and hood stiffeners and support parts | EN1.4404 (AISI 316L) |

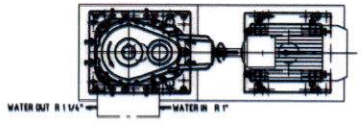
## EQUIPMENT SCOPE

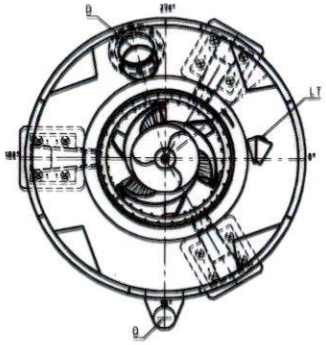
**S = Supplier / Purch = Purchaser**

| Vertical pulper | Technical data | Incl. [total] | Note |
|---|---|---|---|
| **High consistency pulper** | | 1 | |
| | | | |
| **Rotor unit** | | S | |
| | Rotor screw with toothed edges. Lower part rotor with wear protected vanes(leading edge) | | |
| | Extraction box with discharge and dilution connections | | |
| | Screen plate | | |
| | Gear drive with couplings, guards and Pressure lubrication unit including: oil pump & motor, filter with visual contamination indicator,oil pressure relief valve, oil pressure transmitter, oil manometer and thermometer and thermostatic valve. | | |
| | Burgman 2-way mechanical seal or no seal | TBD | LP-D-VMi-65/180 -DE |
| | Seal water flow monitoring unit | | |
| **Vat assembly** | | S | |
| | Vat with flow dividers | | |
| | Cover and hood with inspection and service doors and splash curtain | | |
| | Additional inspection hatch | | |
| | Drain, dilution and overflow connections | | |
| | Flange for level control instrument | | |
| | Delivered in 2 sections | | |
| **Bale splitting beam** | | S | |
| **Foundation bolts** | | S | |
| **Frequency converter** | | Purch | |
| **Main motor** | | Purch | |

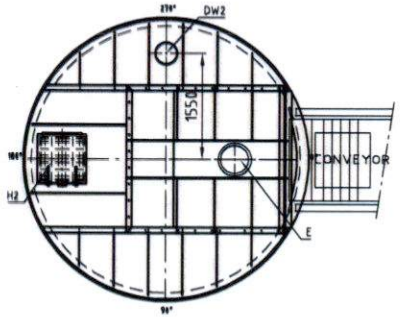


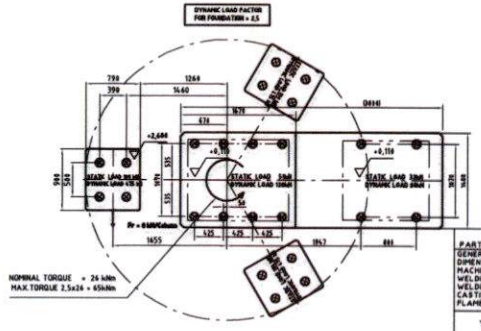




B - B




A - A




C - C

| CONNECTION | |
|---|---|
| A = ACCEPT (BLIND FLANGE) | DN600 / ANSI 24" |
| CW1 = COOLING WATER IN | R 1" |
| CW2 = COOLING WATER OUT | R 1 1/4" |
| D = DRAIN | DN500 / ANSI 20" |
| DW1 = DILUTION WATER | DN150 / ANSI 6" |
| DW2 = DILUTION WATER | DN300 / ANSI 12" |
| E = EXHAUST | ø400 / ø16" |
| FW = FLUSHING WATER | R 1" |
| H2 = INSPECTION HATCH | 600x600 /24"x24" |
| LT = FLANGE FOR LEVEL INSTRUMENT | DN80 |
| LW = LEAKING WATER | HOSE ø 2" |
| O = OVERFLOW | ø300 / ø12" |
| SW = SEALING WATER | HOSE ø 10 - R 1/4" |

FLANGE CONNECTIONS ACCORDING TO
PN10 ISO DIN2642 / ANSI B16.5 CLASS 150 lb

| | |
|---|---|
| EMPTY WEIGHT | 16000 kg / 35260 lbs |
| TOTAL WITH WATER | 57000 kg /125600 lbs |
| VAT NET VOLUME | 25 m3 / 881 cuft |
| VAT GROSS VOLUME | 40 m3 /1410 cuft |
| SHIPPING VOLUME TOTAL | 97,0 m3 / 3429 cuft |
| - ROTOR UNIT | 13,2 m3 / 470 cuft |
| - GEAR DRIVE | 4,6 m3 / 162 cuft |
| - PULPER VAT | 69,0 m3 /2430 cuft |
| - PULPER HOOD | 10,2 m3 / 358 cuft |

| WEIGHTS: | |
|---|---|
| ROTOR UNIT | 4500 kg/ 9920 lbs |
| GEAR DRIVE | 5100 kg/11240 lbs |
| PULPER VAT | 5100 kg/11240 lbs |
| PULPER COVER+HOOD | 1250 kg/ 2750 lbs |

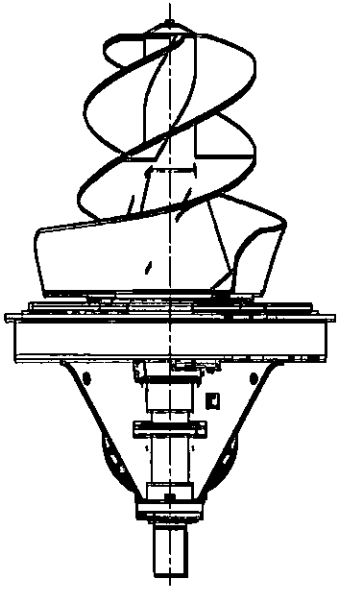
| PART | DESCRIPTION | DIMENSIONS | MATERIAL | DRAWING/IDENTIFICATION NO | QTY |
|---|---|---|---|---|---|
| GENERAL TOLERANCES. DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS: MACHINING: ISO 2768-mK (SFS-EN 22768-1, SFS-EN 22768-2) WELDING: ISO 13920-BE (SFS-EN ISO 13920) WELDING QUALITY LEVEL C (SFS-EN ISO 5817) CASTING: ISO 8062-DCTG 11 (SFS-EN ISO 8062-3) FLAME CUTTING: ISO 9013-331 (SFS-EN ISO 9013) | | | | | |

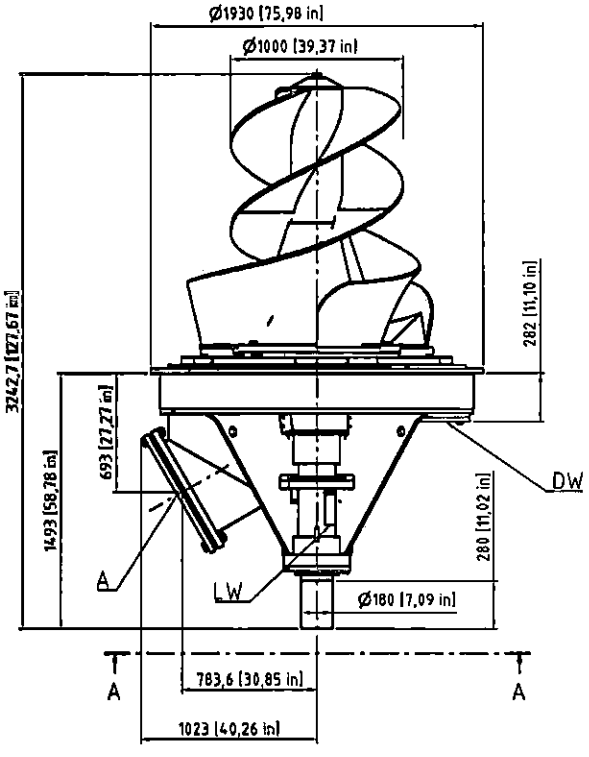
| | | | |
|---|---|---|---|
| Valmet | PROJECTION | SCALE 1:50 | WEIGHT kg 16000 |
| PRODUCT OptiSlush Vertical | | VHi-6525G | |
| DIMENSIONAL DRAWING | | | |
| REF. STOD142587 | SUPERS. | A2 | |
| WORK | FILE STOD142590 | AutoCAD | |

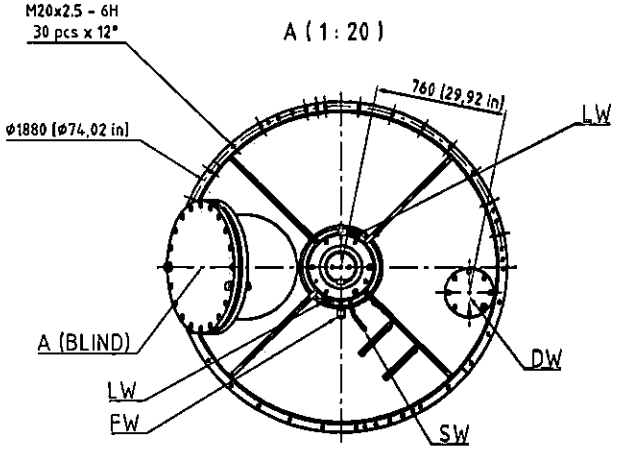
| | | |
|---|---|---|
| DESD VLKHELO | DATE 20.12.2012 | |
| CHKD VLKHELO | DATE 20.12.2012 | |
| APPD VLKHELO | DATE 20.12.2012 | |
| DRAWING ID STOD142590 . 00 | | SHEET 1/1 |

VHi-6525G

| DATE | BASE | CHKD | REVISION | CHKD/BY |
|---|---|---|---|---|

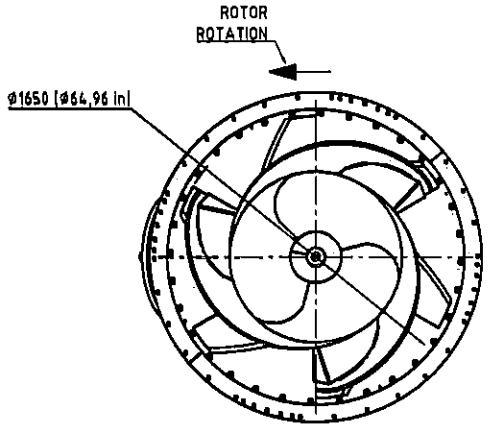


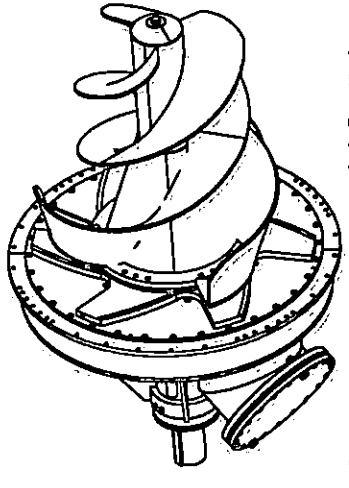



| | | |
|---|---|---|
| A = ACCEPT | BLIND (DN600) | |
| DW = DILUTION WATER | DN150 | (DIA6" ANSI B16.5 CLASS150) |
| FW = FLUSHING WATER | R 1" | |
| LW = LEAKING WATER | HOSE Ø 2" | |
| SW = SEALING WATER | HOSE Ø10 - R1/4" | |
| WATER TO SEAL | 0.08dm³/s , 2bar | (1,3 GPM, 28 PSI) |
| TOTAL WEIGHT | 4500 kg | (9 920 lbs) |
| SHIPPING VOLUME | 17,0 m³ | (607 cuft) |

COLORING:
-Frame and bearing unit: RAL 7011
-Covers: RAL 1021



| | | | | |
|---|---|---|---|---|
| PART | DESCRIPTION | DIMENSIONS | MATERIAL | DRAWING/IDENTIFICATION NO. |
| GENERAL TOLERANCES: DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS: MACHINING: ISO 2768-mK (BFS-EN 22768-1, BFS-EN 22768-2) WELDING: ISO 13920-BF (BFS-EN ISO 13920) WELDING QUALITY LEVEL C (BFS-EN ISO 5817) CASTING: ISO 8062-CT10 (BFS-EN ISO 8062-3) FLAME CUTTING: ISO 9013-331 (BFS-EN ISO 9013) | | | | |
| Valmet | PROJECTION | SCALE 1:20 | WEIGHT kg 4500 | EN / |
| PRODUCT OptiSlush Vertical | | VH-65 | DRAWN VLKHAHE | DATE 121203 |
| DIMENSIONAL DRAWING ROTOR UNIT | | | CHKD VLKHELO | DATE 121203 |
| REF. STON004853 | SUPERS. | A2 | APPD VLKHELO | DATE 121203 |
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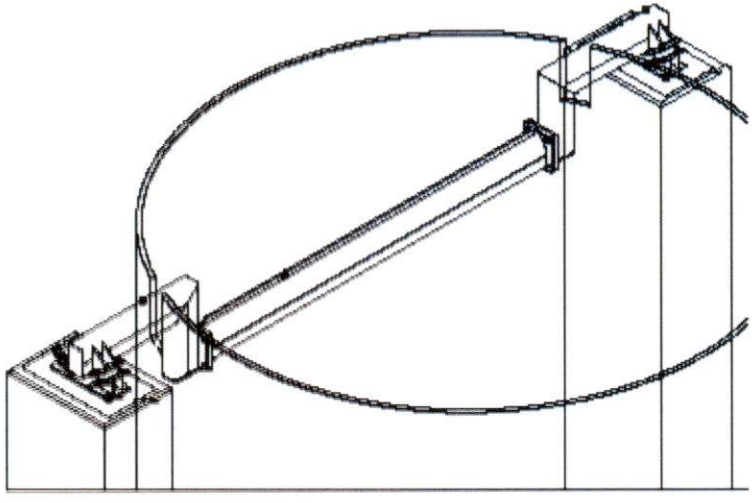
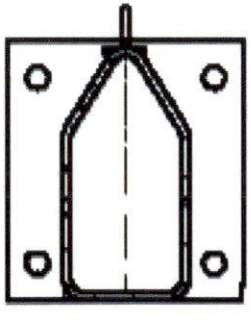
# Bale Breaker Beam





Section of the beam

- To avoid bearing failures, a bale breaker beam is used with bales.
- The beam extends the useful life of the bearing unit.

Valmet

Valmet

SPECIFICATION
FSA000737.2

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## APPENDIX 2 .1.2: Technical specification for Bale pulper - VMi-3518G

DESIGN DATA

| Dimensioning data | Value |
|---|---|
| Furnish | Southern Softwood |
| Production | 84 bdstpd<br>76 bdmtpd |
| Pulping consistency | 6 % |
| Slushing time | 15 min |
| Energy consumption | 40 kWh/t |

TECHNICAL DATA

| Technical data | Data |
|---|---|
| **Bale pulper** | |
| Trade name | OptiSlush Bale |
| Model | VMi-3518B |
| Position | Softwood stock pulping |
| Operational mode | Continuous |
| Rotor diameter | Ø 900 mm |
| Screen plate perforation | Ø 20 mm |
| Vat volume, net/gross | 18 / 23 $m^3$ |
| Main motor | 200 hp / 1200 rpm |

| Materials | |
|---|---|
| Rotor unit, stock contacted parts | EN1.4404 (AISI 316L) |
| Rotor | CF-8M, SA-351 or CA-15, ASTM A 743 (castings) |
| Screen plate | EN1.4404 (AISI 316L) |
| Vat, stock contacted parts | EN1.4404 (AISI 316L) |
| Cover and hood | EN1.4404 (AISI 316L) |
| Rotor unit stiffeners and support parts | Mild steel |
| Vat stiffeners and support parts | Mild steel |
| Cover and hood stiffeners and support parts | EN1.4301 (AISI 304) |

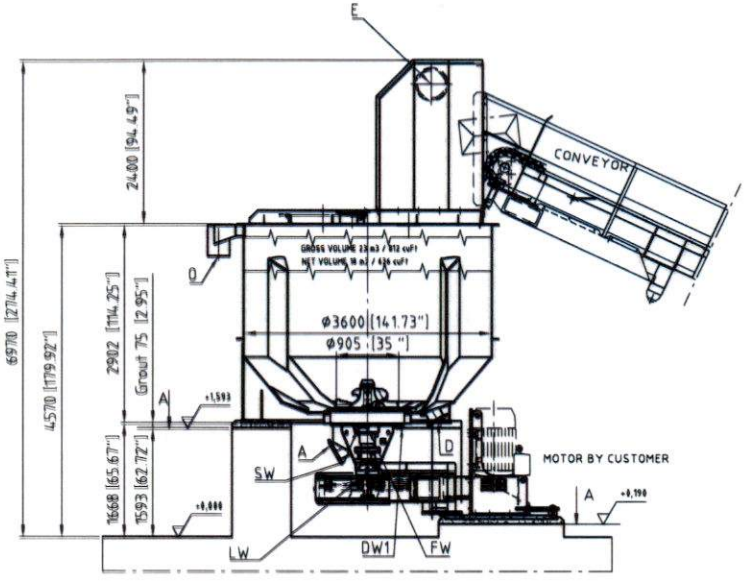
## EQUIPMENT SCOPE

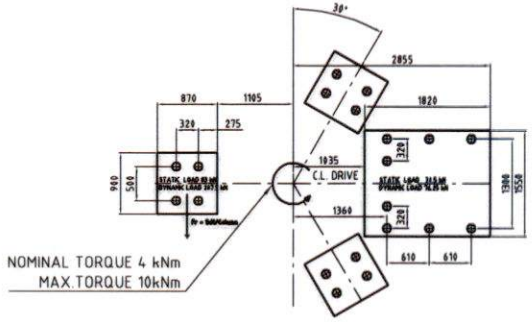
**S = Supplier / Purch = Purchaser**

| Pos. E1201<br>Vertical pulper | Technical data | Incl.<br>[total] | Note |
|---|---|---|---|
| **Bale pulper** | | 1 | |
| | | | |
| **Rotor unit with** | | S | |
| | Rotor | | |
| | Extraction box with discharge and dilution connections | | |
| | Screen plate | | |
| | V-belt drive with guard and additional pulley at loose side of belts | | **For Belt Drive Option** |
| | Mechanical / Cord Packing / No Seal | TBD | See spares options |
| | Seal water flow monitoring unit | | |
| **Vat assembly** | | S | |
| | Vat with flow dividers | | |
| | Cover and hood with inspection and service doors and splash curtain | | |
| | Additional inspection hatch | | |
| | Drain, dilution and overflow connections | | |
| | Flange for level control instrument | | |
| | Delivered in 4 sections | | |
| **Bale splitting beam** | | S | |
| **Foundation bolts** | | S | |
| **Main motor** | | Purch | |

## SECTION A - A

| DYNAMIC LOAD |
|---|
| FACTOR 2,5 |



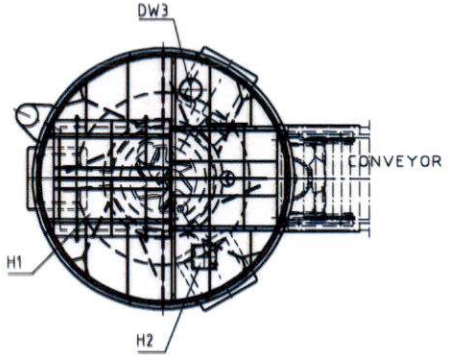

| CONNECTIONS | | |
|---|---|---|
| A | = ACCEPT | DN250 / ANSI 10" |
| D | = DRAIN | DN200 / ANSI 8" |
| DW1 | = DILUTION WATER | DN80 / ANSI 3" |
| DW3 | = DILUTION WATER | DN300 / ANSI 12" |
| E | = EXHAUST | ø400 / ø16" |
| FW | = FLUSHING WATER | R 3/4 " |
| H1 | = SERVICE HATCH | 1500x1500 / 59"x59" |
| H2 | = INSPECTION HATCH | 300x300 /12"x12" |
| O | = OVERFLOW | ø300 / ø12" |
| LW | = LEAKING WATER | 2xHOSE ø 2 " |
| SW | = SEALING WATER | HOSE 10 - R 1/4" |

FLANGE CONNECTIONS ACCORDING TO
PN10 ISO DIN2501 / ANSI B16.5 CLASS 150 lb

| | |
|---|---|
| EMPTY WEIGHT | 9550 kg / 21054 lbs |
| TOTAL WITH WATER | 27550 kg / 60737 lbs |

| | |
|---|---|
| VAT NET VOLUME | 18 m3 / 636 ft3 |
| VAT GROSS VOLUME | 23 m3 / 812 ft3 |

| | |
|---|---|
| SHIPPING VOLUME TOTAL | 57.1 m3 / 2016 ft3 |
| - ROTOR UNIT | 4.2 m3/ 149 ft3 |
| - BELT DRIVE | 8.3 m3/ 293 ft3 |
| - PULPER VAT | 39.0 m3/ 1377 ft3 |
| - PULPER HOOD | 5.6 m3/ 198 ft3 |

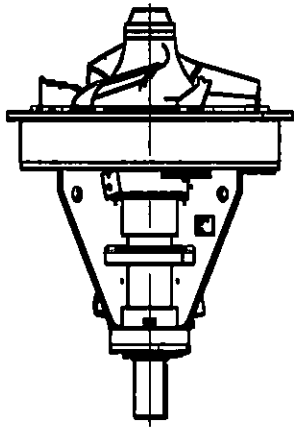


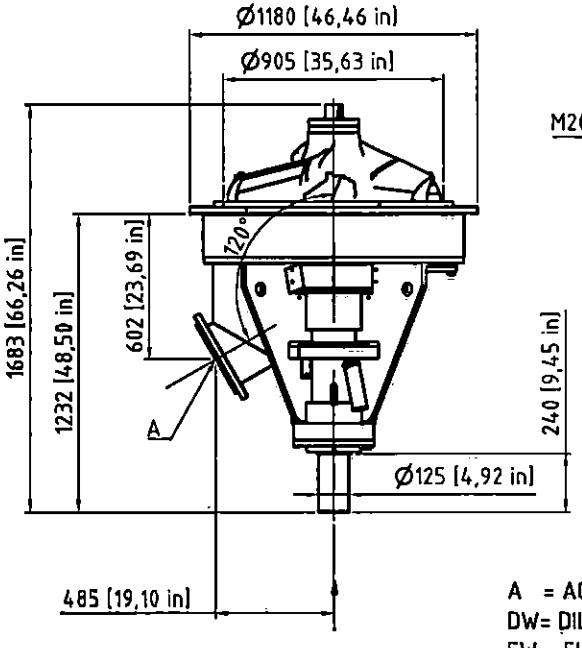

| WEIGHTS: |
|---|
| ROTOR UNIT 1800 kg/3968 lbs |
| BELT DRIVE 3050 kg/6724 lbs |
| PULPER VAT 2950 kg/6504 lbs |
| PULPER COVER+HOOD 920 kg/2028 lbs |

| PART | DESCRIPTION | DIMENSIONS | MATERIAL | DRAWING/IDENTIFICATION NO | QTY |
|---|---|---|---|---|---|
| GENERAL TOLERANCES<br>DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS:<br>MACHINING: ISO 2768-mK (SFS-EN 22768-1, SFS-EN 22768-2)<br>WELDING: ISO 13920-BF (SFS-EN ISO 13920)<br>WELDING QUALITY LEVEL C (SFS-EN ISO 5817)<br>CASTING: ISO 8062-DCTG 11 (SFS-EN ISO 8062-3)<br>FLAME CUTTING: ISO 9013-331 (SFS-EN ISO 9013) | | | | | |

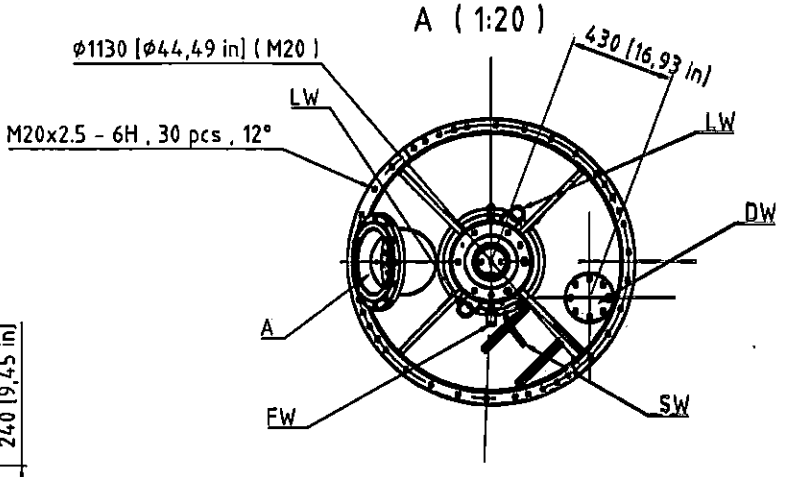
| | | | | |
|---|---|---|---|---|
| Valmet | PROJECTION | SCALE 1:50 | WEIGHT kg | EN / |
| PRODUCT OptiSlush Bale | | | VMI-35188 | DES VLKSBHE 031031 |
| DIMENSIONAL DRAWING | | | | CHKD VLKSBHE 040617 |
| | | | | APPD VLKHELO 040617 |
| REF. 1-9850189 | SUPERS. | | A2 | DRAWING ID STOD019617 . 01 SHEET 1/1 |
| WORK | FILE STOD019617 | | AutoCAD | |

| DATE | ZONE | CHD | REVISION | CHK/APP |
|---|---|---|---|---|
| 2019-08-22 | VLKMAHE | VLKTAMA | UPDATED | 01 |

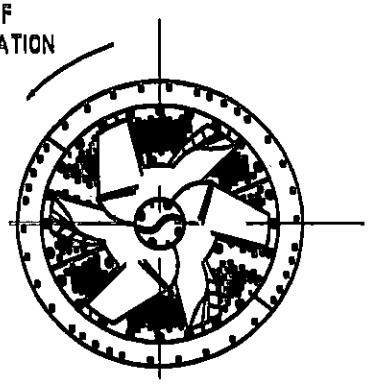





A




DIRECTION OF
ROTOR ROTATION



| | |
|---|---|
| A = ACCEPT | DN250 DIN2642 NP10 (DIA10" ANSI B16.5 CLASS150) |
| DW= DILUTION WATER | DN80 (DIA3" ANSI B16.5 CLASS150) |
| FW = FLUSHING WATER | R 3/4" |
| LW = LEAKING WATER | HOSE Ø 2" |
| SW = SEALING WATER | HOSE Ø 10 - R1/4" |
| WATER TO SEAL | 0,08dm³/s , 2bar (1,3 GPM , 28 PSI) |
| TOTAL WEIGHT | 1760 kg (4390 lbs) |
| SHIPPING VOLUME | 4,0 m³ (141 cuft) |

COLORING:
-Frame and bearing unit: Valmet dark grey -RAL 7011
-Covers : Valmet yellow -RAL 1021

| PART | DESCRIPTION | DIMENSIONS | MATERIAL | DRAWING/IDENTIFICATION NO | QTY |
|---|---|---|---|---|---|

GENERAL TOLERANCES.
DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS:
MACHINING: ISO 2768-mK (SFS-EN 22768-1, SFS-EN 22768-2)
WELDING: ISO 13920-BF (SFS-EN ISO 13920)
WELDING QUALITY LEVEL C (SFS-EN ISO 5817)
CASTING: ISO 8062-DCTG 11 (SFS-EN ISO 8062-3)
FLAME CUTTING: ISO 9013-331 (SFS-EN ISO 9013)

EN / FI

Valmet | PROJECTION | SCALE 1:20 | WEIGHT kg 1760

PRODUCT OptiSlush Bale VMI-35xxB/G | DRAWN VLKMAHE | DATE 070302

DIMENSIONAL DRAWING MITTAPIIRUSTUS | CHKD | DATE

ROTOR UNIT | APPD | DATE

REF. STON000005 | SUPERS. | A3 | DRAWING NO STON000034 . 00 | SHEET 1/1

WORK | FILE | Inventor

| DATE | MARK | BY | REVISION | CHANGE |
|---|---|---|---|---|



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## APPENDIX 2 .2: Spare parts OPTION

### Spare parts for Bale pulper VHi-6525G (OPTION)

| Item | Quantity | Unit |
|---|---|---|
| **BALE PULPER VHi-6525G** | | |
| MECHANICAL SEAL | 1 | PCE |
| SET OF O-RINGS | 1 | SET |
| FLEXIBLE ELEMENT KIT | 1 | PCE |

### ~~Spare parts for Bale pulper VMi-3518G~~

| ~~Item~~ | ~~Quantity~~ | ~~Unit~~ |
|---|---|---|
| ~~**BALE PULPER VMi-3518G**~~ | | |
| ~~MECHANICAL SEAL~~ | ~~1~~ | ~~PCE~~ |
| ~~SET OF O-RINGS~~ | ~~1~~ | ~~SET~~ |
| ~~FLEXIBLE ELEMENT KIT~~ | ~~1~~ | ~~PCE~~ |

### Spare parts for Bale pulper VMi-3518B (OPTION)

| Item | Quantity | Unit |
|---|---|---|
| **BALE PULPER VMi-3518B** | | |
| SHAFT SLEEVE | 1 | PCE |
| BRAIDED PACKING | 1 | SET |
| SET OF O-RINGS | 1 | SET |
| SET OF V-BELTS | 1 | SET |

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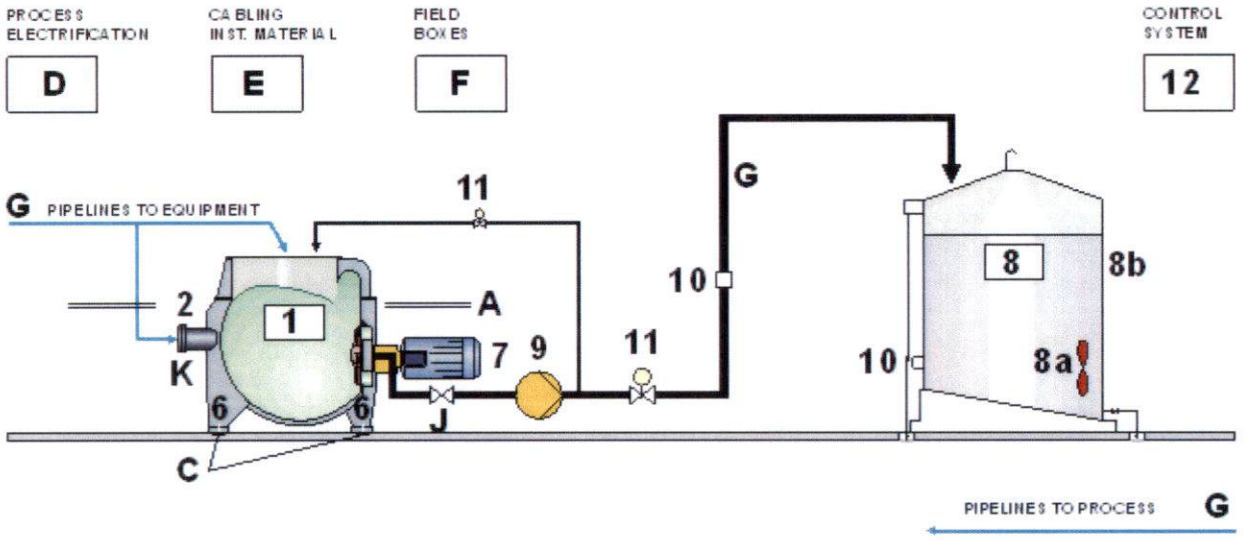
## APPENDIX 2 .3: Delivery limits

**Application: This document is valid for stock preparation.**




**Note! Picture only for reference**

**ENG / Basic = Basic engineering, prepares initial data for detail engineering**
**ENG / Detail = Detail engineering, prepares workshop documents for purchasing/manufacturing/installation**
**MAT = Material, S=Supplier**
**INST = Installation**
**! = Valmet internal marking for revised scope**

| Item | Symbol | ENG / Basic | ENG / Detail | MAT | INST | Note |
|---|---|---|---|---|---|---|
| **Equipment** | | | | | | |
| Main process equipment | 1 | S | S | S | Purchaser | *) |
| Equipment side flange connection at the delivery limit | 2 | S | S | S | Purchaser | *) |
| Machine integrated motors (special motors) | 3 | S | - | S | Purchaser | *) |
| Machine integrated instruments, boxes and internal wiring | 4 | S | - | S | Purchaser | *) |
| Gear or belt drive for main equipment | 5 | S | S | S | Purchaser | *) |
| Foundation bolts for main equipment | 6 | S | S | S | Purchaser | *) |
| Standard motors | 7 | S | Purchaser | Purchaser | Purchaser | *) |
| Tanks and towers | 8 | S | Purchaser | Purchaser | Purchaser | |
| Tank and tower agitators | 8a | Purchaser | Purchaser | Purchaser | Purchaser | |
| Insulation | 8b | Purchaser | Purchaser | Purchaser | Purchaser | |
| Process pumps | 9 | Purchaser | Purchaser | Purchaser | Purchaser | |
| Field instruments | 10 | S | Purchaser | Purchaser | Purchaser | |
| On-Off valves and control valves | 11 | S | Purchaser | Purchaser | Purchaser | |
| Control system | 12 | S | Purchaser | Purchaser | Purchaser | |

| Item | Symbol | ENG / Basic | ENG / Detail | MAT | INST | Note |
|---|---|---|---|---|---|---|
| **Other equipment and items** | | | | | | |
| Walkways, ladders, stairs, support structures | A | Purchaser | Purchaser | Purchaser | Purchaser | |
| Lifting rails, cranes, hoist equipment | B | Purchaser | Purchaser | Purchaser | Purchaser | |
| Foundation and embedded steel | C | Purchaser | Purchaser | Purchaser | Purchaser | |
| Hatches, openings, doors | - | Purchaser | Purchaser | Purchaser | Purchaser | |
| Process electrification | D | Purchaser | Purchaser | Purchaser | Purchaser | |
| Cabling, installation material | E | Purchaser | Purchaser | Purchaser | Purchaser | |
| Field boxes | F | Purchaser | Purchaser | Purchaser | Purchaser | |
| **Piping** | | | | | | |
| Process piping | G | Purchaser | Purchaser | Purchaser | Purchaser | |
| Clamps (primary) | H | Purchaser | Purchaser | Purchaser | Purchaser | |
| Brackets (secondary) | I | Purchaser | Purchaser | Purchaser | Purchaser | |
| Hand valves | J | Purchaser | Purchaser | Purchaser | Purchaser | |
| Counter flange at the delivery limit | K | Purchaser | Purchaser | Purchaser | Purchaser | |

***) As per Valmet scope of supply**

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FSA000737.2

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**APPENDIX 2 .4: Basic engineering for machine units**

1. GENERAL ENGINEERING LIMITS

The engineering covers the stock preparation equipment, which are included in Valmet's delivery.

2. DESIGN AREAS AND OBJECTS

The areas and objects of the engineering are according to scope list of delivery.

3. DELIVERY OF DOCUMENTATION

Valmet standard numbering system and drafting methods will be used in engineering documentation
- Equipment manuals, three (3) sets paper copies, delivered in binders and CD-disc.
- Basic engineering documentation language: English
- Machine manuals: English
- Preliminary and Certified documents delivered by e-mail (electronic PDF-files)

The following engineering documents (x) included in engineering supplied by Valmet.
The delivery of document packages is given in full weeks from the effective date of the contract. The drawings and documents must be dispatched by the Supplier on the Friday of the designated delivery week at the latest.

The delivery weeks shown are indicative. The actual schedule must be discussed and agreed in first project meeting.

Customer shall give the comments for preliminary documents within two weeks from delivery of each of document package

Document schedule
P = Preliminary document
C = Certified document

| Mechanical engineering | Technical data | Incl. [total] | P | C | Note |
|---|---|---|---|---|---|
| **Main process equipment** | | S | W4 | W12 | 1) |
| | customer assembly / dimensional drawings (including foundation requirements, service space, pipe connections, drive information) | | | | |
| | pulper lay-out drawings | | | | |

1) main motor dimension drawings and data sheet are needed three (3) weeks before certified drawing.

| Process engineering | Technical data | Incl. [total] | P | C | Note |
|---|---|---|---|---|---|
| Basic process engineering | | S | W4 | W8 | |
| | standard P&I diagram including process data, utility consumption data | | | | |
| | standard process description | | | | |
| | | | | | |

| Automation engineering | Technical data | Incl. [total] | P | C | Note |
|---|---|---|---|---|---|
| Automation basic engineering for process equipment | | S | - | W12 | |
| | instrument location on machine unit | | - | | |
| | control and junction lay-out drawings | | - | | |
| | internal wiring diagrams | | - | | |
| | loop list | | - | | |
| | motor list | | W4 | | |
| | instrumentation device list | | - | | |
| | function diagrams (for DCS) | | - | | |
| | sequence diagrams (for DCS) | | - | | |
| | device manuals | | - | | |

| Other documentation | Technical data | Incl. [total] | P | C | Note |
|---|---|---|---|---|---|
| Main equipment | | S | - | W24 | Exworks week |
| | operating and maintenance manuals | | | | |

| Engineering programs | Technical data | | Note |
|---|---|---|---|
| | Microsoft Word | | |
| | Microsoft Excel | | |
| | Microsoft Project | | |
| | AutoCAD | | |
| | Inventor | | |
| | Adobe Acrobat | | |

## APPENDIX 2 .5: Site services

| 2 | Valmet's resources | h/d d/w | Total days |
|---|---|---|---|
| 2.1 | Installation supervision resources | 1 x 8 h/d 5 d/w | 8 days |
| 2.2 | Commissioning, training and start-up resources | 1 x 8 h/d 5 d/w | 7 days |

The amount of supervision is based on the length of the site stage. If the execution of the site stage changes significantly, Valmet has the right to charge for additional costs caused by the change. If the amount of supervision is less than estimated, the Purchaser has the right to use the extra days for separately agreed expert services during the warranty period.

The Purchaser accepts Valmet's working hour reports weekly. The use of services will be followed up mutually according to the hour reports.

Training will be hands on training during the start-up. Suppliers operation and maintenance manuals will be used as a training material.

If the total amount of days / weeks is exceeded, additional services will be charged separately as specified in the contract.

Overtime reduces available service days by two hours for each overtime hour. Overtime work is always based on the Purchaser's specific order. The statutory working hours of Valmet personnel are based on Finnish labour law. The Purchaser shall provide Valmet with information concerning local laws and regulations. If overtime is needed, the maximum daily working time is capped at 13 hours per person. Consecutive days of work cannot exceed 12 days in any two-week period, which is followed by two days of rest.

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FSA000737.2

## APPENDIX 2 .6: Standards and requirements

### 1. STANDARDS

| STANDARDS | |
|---|---|
| Flange standard | ANSI |
| The paintwork is performed according to the following standards | |
| Determination of film thickness | EN ISO 2808 |
| Types of surface and surface preparation | EN ISO 12944-4 |
| Execution and supervision of paint work | EN ISO 12944-7 |
| Development of specifications for new work and maintenance | EN ISO 12944-8 |
| Protective paint systems | EN ISO 12944-5 |
| Mechanical pre-treatment methods and quality levels | SFS 8145 |
| Corrosion protection of metal constructions by means of protective paint system. | SFS 5873 |
| Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Measurement of, and acceptance criteria for, the thickness of dry film on rough surfaces | EN ISO 19840 |

## 2. STANDARD PAINTING SYSTEM

Valmet uses only paint combinations and methods tested in real life environment. The painting practice for stock preparation specifies the painting systems and methods that fulfill the warranty given for the delivery project.

### 2.1 COLORS

Valmet's painting system and the standard color combination are presented in tables below. All changes to the Valmet's painting system are affecting to the delivery price and will be discussed and priced separately.

#### 2.1.1 Main color

| Color | Code |
|---|---|
| Valmet white | RAL 9003 |

#### 2.1.2 Standard colors for components and parts

| Color | | Code |
|---|---|---|
| Valmet dark grey | Gears | RAL7015 |
| Valmet dark grey | Bearing units | RAL7015 |
| Valmet dark grey | Walkways with railings and supports | RAL7015 |
| Valmet dark grey | Pulper rotor units | RAL7015 |
| Valmet dark grey | HC-cleaner supports | RAL7015 |
| Safety color | Covers and guards | RAL1021 |
| Safety color | Tools and lifting devises | RAL1021 |
| Valmet white | Refiner top-cover plate | RAL9003 |

Purchased serially manufactured components (electric motors, gears, valves, bearing housings, cabinets and boxes, etc.) are always painted with manufacturers standard colors.

## 2.2 PAINT COMBINATIONS

In the stock preparation the main paint combination is EPPUR 240/3. The polyurethane top coat ensures color and gloss stability and helps to keep machine clean. In lightly stressed areas such as control cabinets a lighter paint system is sufficient.

Equipment made of galvanized steel sheet, Aluzink steel sheet, aluminum, copper, stainless/acid-proof steel sheet and heat-resisting steel sheet is principally delivered unpainted.

| SURFACE PREPARATION | |
|---|---|
| Surface preparation is done according | EN ISO 12944-4 Sa 2 ½ (blast-cleaning method) |

| PAINT SYSTEM | |
|---|---|
| Protective paint system is done according | EN ISO 12944-5/A4.15 (EPPUR 240/3) |
| Primer: Two-component epoxy primer, dry film thickness: | 100 µm |
| Middle coat: Two-component low-solvent and modified epoxy paint, dry film thickness: | 80 µm |
| Top coat: Two-component semi-gloss acrylic polyurethane paint, dry film thickness: | 60 µm |
| Total dry film thickness (NDFT): | 240 µm |

Purchased serially manufactured components (electric motors, gears, valves, bearing housings, cabinets and boxes etc.) are always painted with manufacturers standard paint system.

## 3. SEALING WATER AND COOLING WATER REQUIREMENTS

| SEALING WATER REQUIREMENTS | |
|---|---|
| Water temperature | < 30°C |
| Outlet water temperature | < 60°C ( 140°F) |
| Pressure | 8 - 10 bar (116 - 145 PSI) (minimum of 1 - 2 bar above process pressure) |
| Iron | < 0.2 mg/l |
| Largest particle size (filtration grade) | 50 µm |
| Total hardness (CaCO3) | < 180 mg/l |
| Solids content | < 10 mg/l, must not contain ash or similar fine material |
| Silicate | < 10 mg/l |
| Permanganate number max | 30 mg/l |

| COOLING WATER REQUIREMENTS | |
|---|---|
| Temperature | +10°C...+25°C (+50°F...+77°F) |
| Pressure | 4 - 10 bar (60 - 145 PSI) |
| pH | 6.5...7.5 |
| Chloride content | < 40 mg/l |
| Largest particle size | 150 µm |