TECHNICAL GUIDEBOOK

PREMIUM Connections

TMK UP Series

GREENWELL®

Premium Connections
TMK UP Series
Technical Guidebook

Moscow,
2024

INTRODUCTION

TMK UP Premium connections have been developed by TMK specialists. These connections are used in pressure-tight casing and tubing string assemblies intended for various purposes. TMK UP Premium connections can be used in vertical, controlled directional and horizontal wells of oil, gas and gas condensate fields in complex operation conditions (aggressive media containing H_2S and CO_2, low and high temperatures). These are high-tech threaded connections resistant to high tensile, compressive and bending loads, and excessive torque.

TMK UP threaded connections are manufactured at Taganrog Metallurgical Plant (TAGMET, Taganrog), Sinarsky Pipe Plant (SinTZ, Kamensk-Uralsky), Volzhsky Pipe Plant (VTZ, Volzhsky), Seversky Pipe Plant (STZ, Polevskoy), as well as at other production sites under licenses.

These threaded connections have stringent manufacturing tolerances. They are machined on specialized high-precision equipment and undergo a thorough control procedure at the manufacturer's premises.

Improper make-up and operation can reduce the specified characteristics of threaded connections, result in their damage and, as a consequence, loss of string integrity. It is important to comply with the recommendations given below, which are based on years of experience of TMK specialists in string runs of various complexity.

Implementation of recommendations will also help to reduce string running time.

We are ready to consider your requests, if you need to modify existing connection designs or develop fundamentally new designs for your specific tasks or conditions.

This guidebook includes the latest data. The company's products are regularly improved, to get the most up-to-date information, please, contact us at: techsales@tmk-group.com or check our website: www.tmkup.com

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Premium Connections
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TMK UP Series

Pipes with standard properties

Pipes with Premium connections of TMK UP Series enterprises belonging to TMK Group as well as Service License.

Pipes with standard properties are supplied according to API* Spec 5CT or GOST 31446 standards, or similar technical specifications and TMK (STO TMK) standards.

Pipes with specific properties are supplied in compliance with TMK-Premium Service standards (STO TMK-PS).

Strength groups according to API* Spec 5CT and GOST 31446

Minimum yield point	MPa	276	380	449	552	621	656	759	863	932
	ksi	40	55	65	80	90	95	110	125	135
Class 1		H40	J55 K55*		N80 1 type N80 Q type		R95			
Class 2				M65	L80 1 L80 type 9Cr L80 type 13Cr type	C90 1 type	T95 1 type	C110		
Class 3								P110		
Class 4									Q125 1 type	Q135*

* According to GOST 31446, this strength group includes not only casing, but also tubing.

Pipes with special properties

Pipes with special properties
TMK Group developed a wide range of tubing and casing pipes with special properties of use in the most extreme conditions: low temperatures, high corrosivity and high collapse pressures.

Low temperature (LT)
Are designed to be used in the production fields of Siberia and the Far North. The metal of these pipes has high ductility and impact toughness at minus temperatures.
To define cold resistance, the pipe metal is tested for impact bending according to the Sharpie method at a temperature of -60°C with quality control of a ductile constituent in the bent fracture of the test sample.
Additionally there is a special delineation of strength groups of low temperature pipes — "LT".

Sour service (S, SS)
Are designed to be used in extraction fields which contain sulphurated hydrogen in their extracted products. The metal of the pipes has sulfide stress cracking resistance, which is defined during tests according to the NACE TM0177 standard. The coefficient of threshold voltage during the test of pipes metal is chosen according to the partial pressure of sulphurated hydrogen.
Depending on the partial pressure of sulphurated hydrogen, pipes can be produced with two levels of resistance:
— for mid-sulphurous fields with a partial pressure of sulphurated hydrogen from 0.01 MPa to 1.50 MPa. Additional labelling of strength groups — S;
— for high-sulphur fields with a partial pressure of sulphurated hydrogen more than 1.50 MPa. Additional labelling of strength groups — SS.
Additional labelling of strength groups of sour gas resistant pipes — S or SS.

Corrosion resistant alloys (13Cr, 13CrS)
These are designed to be used in extraction fields which contain carbon dioxide in their extracted products. The metal of these pipes has carbon dioxide corrosion resistance. The content of chrome in the steel is 13%, which provides for corrosion resistance in these pipes.
Depending on field conditions: pressure, temperature, partial pressure of CO_2 and H_2S, these pipes can be produced with two levels of resistance:
— for standard pressures, temperatures and environment, containing CO_2;
— for high pressures, temperatures and environment, containing CO_2, and also small quantities of H_2S.

High collapse (HC)
These pipes are designed to be used at high external pressures in oil- and gas-wells. Withstand higher external collapse pressures well over calculated according to requirements of the ISO 10400 standard. Sections of pipes are tested for external collapse pressure to confirm to these properties.
Additional labelling of strength groups of pipes with high collapse resistance — HC.

Deep and super-deep wells (DW)
These are designed to be used at deep and super-deep wells at high pressures. Pipes have a minimum yield strength of metal, exceeding 966 mPa. Additional labelling of strength groups of pipes for deep and super-deep wells — DW.

Strength groups of pipes with special properties

Minimum yield strength	MPa	379	552	621	655	758	862	930	965	1035
	ksi	55	80	90	95	110	125	135	140	150
Low temperature		TMK 55LT	TMK 80LT	TMK 90LT	TMK 95LT	TMK 110LT	TMK 125LT	TMK 135LT	TMK 140LT	TMK 150LT
H_2S resistant pipes			TMK 80S	TMK 90S	TMK 95S	TMK 110S TMK 110SS				
CO_2 resistant pipes			TMK 80 13Cr		TMK 95 13Cr TMK 95 13CrS	TMK 110 13CrS	TMK 125 13Cr	TMK 135 13Cr		
Pipes with a high resistance to collapse			TMK 80HC	TMK 90HC	TMK 95HC	TMK 110HC	TMK 125HC	TMK 135HC	TMK 140HC	
Pipes for deep and super-deep wells									TMK 140DW	TMK 150DW

Guidelines for maintenance and operation of pipes

Guidelines on pipes operation and maintenance in field conditions include guidelines on string landing and lifting, pipe preparation for making-up and assembly, pipe control during operation, as well as transportation, handling and storage instructions.

Transportation, handling operations and storage

- All pipe handling operations shall be performed with thread protectors installed at the pin and box ends.
- It is forbidden to drop the pipes at a height, to skid the pipes or to carry out any operations leading to thread damaging or dents formation on the pipes.
- For corrosion-proof pipes it is required to use special handling equipment and methods to ensure the pipe does not collide with each other or any other objects. Mutual pipe collision and collision with other objects may result in significant local pipe surface hardness increase and may have impact on the pipe resistance to sulphide pressure cracking.
- If pipes are unloaded by hands, use forged loops, roll the pipes down using guide pieces in parallel to the pile, avoiding fast movement and mutual collision of the pipes ends, which may result in damaging the pipe and coupling threads, even if thread protectors are provided.
- When handling long pipes using a lifting crane, use spreader bars with ropes according to approved point of lift.
- A special area shall be arranged at the drilling site for pipe stacking. It is absolutely forbidden to stack and unload the pipes directly onto the ground.
- Pipes shall be put onto racks with the following conditions observed:
  – racks shall be free from stones, sand or dirt;
  – supports shall be installed in such manner that the lowest pipe row shall be not below 350 mm from the ground level;
  – pipe rack supports shall be installed on the same level and shall be supported by the posts capable to withstand a full pipe stack load;
  – it is recommended to install anti-rolling devices on the racks.
- Sufficient number of racks shall be installed for stacking the entire casing string.
- When stacking pipes on the rack, the following shall be considered:
  – position pipes in such manner, that the box end was directed towards the well head;
  – stack pipes on the supports in such way to avoid pipe flexure or thread damage;
  – install wooden blocks between pipes runs. Position blocks perpendicular to the pipes, directly above the blocks of the previous run and the supports in order to avoid pipe flexure;
  – install at least three wooden blocks between the adjacent pipe runs to avoid pipe flexure. Block thickness must be sufficient to exclude coupling contact and coupling thread damage;
  – stack not more than 6 runs of pipes on the racks.
- In the process of stacking consider the sequence of pipe running into the well in such manner, that the first pipe according to the work schedule is above the pipes, which shall be run down later. Pipes numeration shall begin from the first run.

Materials and equipment for pipe running

In order to avoid thread damaging or dents formation on the pipes during pipe running down use dedicated materials and equipment, including:
– thread protectors
– bell guide
– chain slider
– lifting cap or chain slider (for streamlined joints)
– hydraulic tongs for making up joints with automated torque control system
– thread compound.

Work schedule

All works on the string assembly shall be performed according to the approved work schedule, prepared in compliance with the working design and the requirements of "Guidelines on assembling and operation of coreshells and pressure-tight strings with TMK group threaded connections".
The works schedule shall contain information regarding the sequence of pipe and equipment running to the well, making-up torques, landing depth, the type of thread compound. Assembling of casing string shall be carried out under the supervision of the officer, responsible for the works, who is specified in the work schedule. The content of the schedule must be communicated to all interes ted parties, including subcontractors.

External examination

Before lifting pipes to the drilling platform, visually inspect the pipes, couplings, screw-plug fuses for the absence of mechanical damage (bottomholes, dents, etc.), occurred during transportation and stacking.

Drifting

Drifting must be performed along the full length of the pipes in form of steel plug. For drifting pipes of chrome and corrosion-proof steels use polymer or aluminum plugs and nonmetal rope. Pipe position during drifting process must exclude the pipe flexure. Cords and rods, used for drifting (if any), must be clean. Heat pipes with steam before gaging, if the temperature is below zero.
Dimensions of the operating part of the plug shall be determined by the internal diameter of the pipes.

Sizes of the working part of the draft for the wiper drifting

Outside pipe diameter		Length, mm	Dimeter, mm
in	mm		
up to 2 7/8	up to 73 (73,02)* inclusive	1067	inside pipe diameter – 2,38
more than 2 7/8	more than 73 (73,02)*	1067	inside pipe diameter – 3,18
up to 9 5/8	up to 244,48	152	inside pipe diameter – 3,18
from 9 5/8 up to 13 3/8	from 244,48 up to 339,72 inclusive	305	inside pipe diameter – 3,97
more than 13 3/8	more than 339,72	305	inside pipe diameter – 4,76
* If pipes are delivered by nominal outer diameter with accuracy to two decimal digits.			

It is recommended to check the diameter of the drift mandrel in three planes across the length every 50 pipes. If the plug diameter reduction exceeds 0.5 mm in any plane, such plug shall be rejected.
The drift must freely pass through the entire pipe, when moving it by hands without applying excessive force.
If the plug may not pass through the pipe, it shall be replaced with a new pipe, and the pipes shall be renumbered.

Make-up Loss

When determining the quantity of joints, required for the string running to the calculated depth, it is recommended to consider the pipe length reduction during making-up. For this purpose, the length of each pipe shall be measured from the free (without thread protector) edge of the coupling to free (without thread protector) edge of the pin pipe end and deduct the make-up loss, and then mark the measured length using a marker or piece of chalk on the pipecase.

Removal of Thread Protectors

To protect thread from damage during transportation and stacking, storage compound, applied on the thread, and thread protectors, shall be used.

If during pipe delivery to the drilling platform thread protectors were installed with use of running compound, it is allowed not to remove thread protectors and apply fresh compound, provided the string assembly is performed not later than 3 months after the pipe manufacturing date.

If during the pipe delivery to the drilling platform the thread protectors were installed on the pipes with use of running compound and the string is assembled after such 3-months period from the pipe manufacturing date, the compound must be replaced.

Thread protectors shall be removed using a special wrench by one person. If any troubles occur during the thread protector removal, it is allowed to strike slightly onto the thread protector edge using a wooden object to eliminate possible misalignment.

Thread Compound Removal

After thread protector removal, thread compound shall be removed from pipe and coupling threaded connections. For this purpose it is recommended to use hot soap water under pressure or steam cleaner, which provides easy and safe compound removal. At temperatures below zero it is allowed to remove compound using a solvent with following threaded connection blow-down with compressed air.

It is forbidden to use diesel fuel, kerosene, brine water, bari te and metallic brush for compound removal!

Use of diesel fuel and kerosene lead to formation of a film on the connection surface, thus impeding the compound application and reducing its adhesion with metal. Use of metal brush or barite leads to cracks formation on the sealing surfaces of the threaded connection, and may result in loss of the connection leak tightness.

After thread compound removal threaded connections shall be wiped with a clean and dry cloth or dry by blowing-down using compressed air.

Inspection of threaded connection surface

Directly before the string running into the well inspect the thread from the box and pin side to avoid assembling threaded connections with mechanical defects.
Threaded connections shall be inspected by specialists:
– string assembling team,
– pipe inspection companies.
When inspecting threaded connections of pipes and couplings (including thread, sealing and support element surfaces) the following aspects shall be considered:
– damage in the result of any external shock impacts;
– traces of rust, corrosion or other chemical damage in the result of environmental impacts or aggressive components of the compound.

Determination of corrosion depth, barbs, scabs, scratches shall be performed as follows:

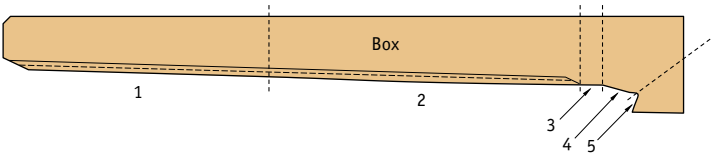
– visually.

If any damage is detected, condition the surface (or polish it) according to the operation manual.

Damage of threaded connection surface and repair

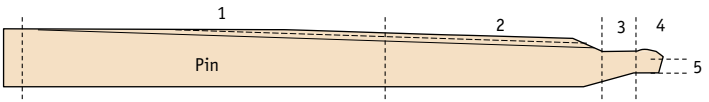
Threaded connection surface site	Damages	Damage repair
1, 2, 5	Pit corrosionless than 0.0039 inch deep or insignificant surface rust	Manual repair (removal) using non-metal brush with soft bristle or polishing paper with grain 0
	Pit corrosion more than 0.0039 inch deep	Not to be repaired
	Burrsless than 0.0118 inch wide. Tears and scratchesless than 0.0039 inch deep	Manual repair using needle file or polishing paper with grain 0
	Dents, nicks and other mechanical damages	Not to be repaired
3	Pit corrosionless than 0.0039 inch deep or insignificant surface rust	Manual repair using a needle file or polishing paper
	Pit corrosion more than 0.0039 inch deep	Not to be repaired
	Burrsless than 0.0118 inch wide. Tears and scratchesless than 0.0118 inch deep	Manual repair using a needle file or polishing paper with grain 0
4	Pit corrosion of any depth	Not to be repaired
	Insignificant surface rust	Buffing
	Burrs, steps and scratches	Not to be repaired
	Nicks	Not to be repaired
	Small grooves	Buffing

Pipe and coupling threaded connection surface areas



Box Internal thread surface

1 — Runout of thread
2 — Thread
3 — Cylindrical section of coupling seal
4 — Cone section of coupling seal
5 — Torque shoulder



Pin External thread surface

1 — Runout of thread
2 — Thread
3 — Cylindrical section of coupling seal
4 — Cone section of coupling seal
5 — Torque shoulder

Installation of thread protectors

Pipes shall be lifted to the drilling platform for the string assembling only provided that special thread protectors are installed (Klepo).
Previously removed thread protectors may be installed again, provided that before installation they are carefully cleaned from earlier applied thread compound and inspected for any damage. Thread compound shall be removed in compliance with the requirements on pipe and coupling threaded connections cleaning. Thread protectors with significant thread damage and distortions must not be re-used.

Thread Compound Application

To ensure optimum making-up conditions and to avoid galling of the mating surfaces, it is necessary to apply thread compound to the thread, sealing and shoulder area of pins and boxes. Thread compound shall comply with the requirements of API* RP 5A3/ISO 13678.

The following thread compounds are recommended:

RUSMA-1
RUSMA-R-4
API* Modified HP/HT
BestoLife (API* Modified)
BestoLife NM
BestoLife 2000
BestoLife 72733
GREENWELL Crystal

Before applying a thread compound check the expiration date, specified on the container. Expired thread compound must not be used.

The following guidelines shall be observed when using a thread compound:

- for assembling a string only one type of compound shall be used;
- use new compound container for each running;
- use compound without foreign inclusions;
- carefully stir the compound before using it;
- heat the compound before applying it, if the temperature is be low zero;
- compound shall be stored in closed container;
- compound shall be stored at the temperature, specified by the compound manufacturer;
- specify the date of the first use on the container with remaining compound, when putting it to storage.

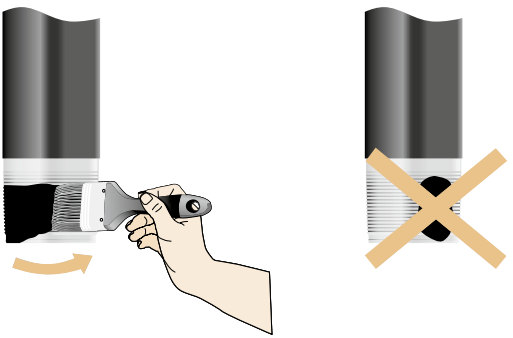
Thread compound shall be applied on the entire thread surface, as well as on the surface of sealing and shoulder elements of pin and box connections.

Carefully dry the threaded connection surface before applying thread compound.

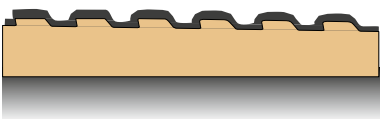
Check the threaded connection for any damage before applying the lubricant.

Thread compound shall be evenly applied on the entire thread surface, as well as on the surface of sealing and stop elements of pipe and coupling connections.

Correct and Incorrect application of the thread compound



Correct distribution of the thread compound across the thread profile



It is recommended to apply compound using flat nylon brushes, and a textured brush – for applying grease on the box end.

It is forbidden to use metal brushes for applying compound!

• Before running the pipes into the well make sure that the amount of the thread compound available is sufficient.

• If a friction coefficient, specified on the thread compound container, is different from 1.0, contact technical specialist of TMK to determine the corrected makeup torque at techsales@tmk-group.com.

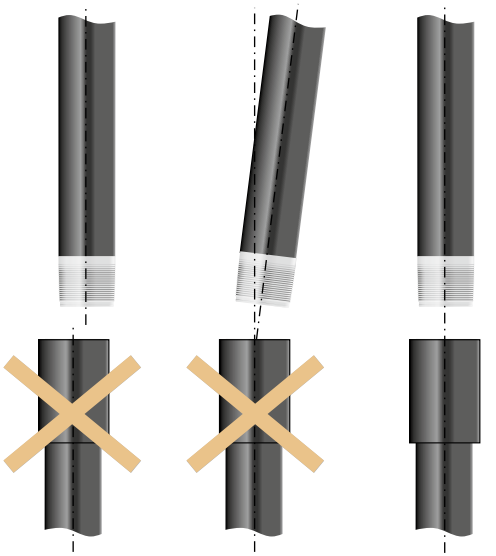
• Before makeup make sure that the thread, sealing and shoulder surfaces of the connection with applied thread compound are free from drilling fluid, containing small particles, which may deteriorate the connection leak resistance. In case of drilling or sludge liquid contact with the connection surface, remove such liquid and apply the thread compound again to the connection in order to determine the corrected makeup torque.

• When making-up pipes with crossover subs or other string elements, a thread sealant may be used, provided that the following conditions are met:
– if the shoulder torque of the connection is between the minimum and the maximum makeup torques;
– if the shoulder torque is within the range from 70% to 80% of the optimum makeup torque, and the delta slope is larger than the optimum makeup torque;
– if the shoulder torque of the connection exceeds 80% of the optimum makeup torque, and it is not the result of the thread jamming or damaging, and 20% of the optimum makeup torque is applied after the connection thrust elements shouldering.

• When using a thread sealant, it is recommended to apply small amount of thread compound to the sealing and thrust elements of the threaded connection and to the first two thread strings of the pipe and the coupling.

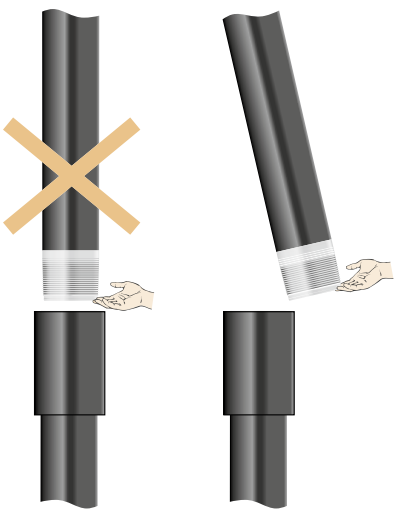
String assembly

- Pipe string shall be assembled only by a qualified operator.
- Check alignment of the pipe axis and the well axis before string assembling.

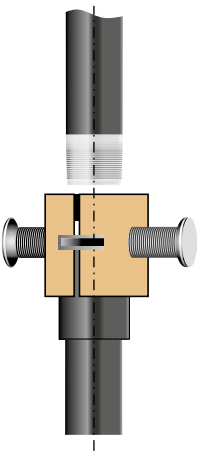


Check of the pipe and well axes alignment

- Before makeup, check by-touch the absence of mechanical damage of sealing and thrust surfaces at the free end of the pipe.



Mechanical damage checking at the pipe free end



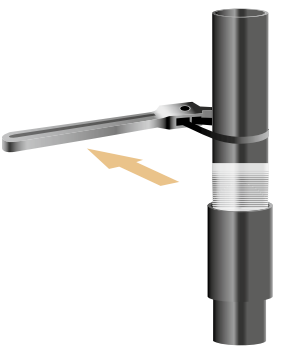
Stabbing with use of bell guide

• When implanting the pipe into its coupling, it is not allowed to hit the pipe end on the coupling face or "sliding" of the pipe end into the coupling when the pipe end touches the coupling face.

It is recommended to use a re-entry guide. When lowering the pin into the coupling, this provides alignment and prevents damage to the joints.

• For proper thread engagement during makeup process the first two turns shall be performed by hands or using a special wrench with a belt or a chain wrench, depending on the pipe weight. At the initial stage of assembly the first two pipe turns are recommended to do with strap wrenches (allowed to use chain wrenches with a protective gasket preventing damage to the pipe body) to confirm catching of the pin thread with the coupling, i.e. the pin thread entering the respective profile of the coupling. At this stage it is allowed to have a half-turnback rotation of the pipe to securely continuemaking-up without overlapping the joint threads and to achieve high-quality assembly.

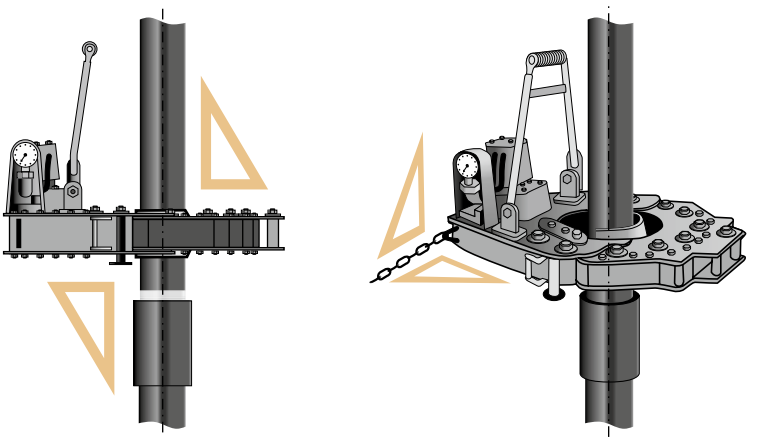
When making the first two turns with the chain wrench it is necessary to use a cloth between the wrench and pipe body to protect the pipe from damage.



Making first two turns of assembly with special wrench with belt

• Power tongs shall have a rotation speed regulator and provide the speed of 2-5 rpm at the final stage of makeup.

• The tongs shall have clamps for specific pipe size to ensure the largest possible contact area with the pipe case. Clamp size shall be 1% greater that the nominal outer diameter of the pipe. Clamps shall be adjusted in such manner, that they could reliably hold the pipe and do not slide off during operation.
During makeup ensure the possibility of gradual tongs lowering (for example, by means of compensator).



Installation of the power tongs before makeup

• The makeup equipment shall provide the torque at least 30% greater than the recommended maximum makeup torque to avoid shocks during the threaded connection making up.

• To unscrew the threaded connection, a greater torque is required in comparison with the makeup torque (breakaway torque), which may be higher than the optimum torque by 15%.

Making-up shall be smooth and without significant (not exceeding 50°C) coupling heating. Recommended speed after making-up of the first two turns is 10 rpm, and the recommended makeup speed during the torqueing is 2 rpm.

Makeup and breakout speeds of the threaded connections using a power tings

Making-up			Breaking-out		
Makeup start		Makeup end (torqueing)	Breakout start		Breakout end
First two turns	Next turns		First two turns	Next turns	
Low speed, better by hands	High speed, not exceeding 10 rpm	Low speed, not exceeding 2 rpm	Low speed, not exceeding 2 rpm	High speed	Low speed, better by hands

There shall be no significant (exceeding 5% of the wall thickness) mechanical damage (tearing, scuffing, etc.) from the hydraulic wrench inserts on the pipe and the coupling case after the making-up.

Makeup torque

Optimum makeup torques of the threaded connections are given in the tables. Maximum and minimum makeup moments differ from the optimum one by 10% (±).

The connection making-up control shall be carried out according to the makeup diagram. For complex cases there exists the following method for determining the makeup torque – the optimum torque is determined upon the results of the first ten pipes makeup.

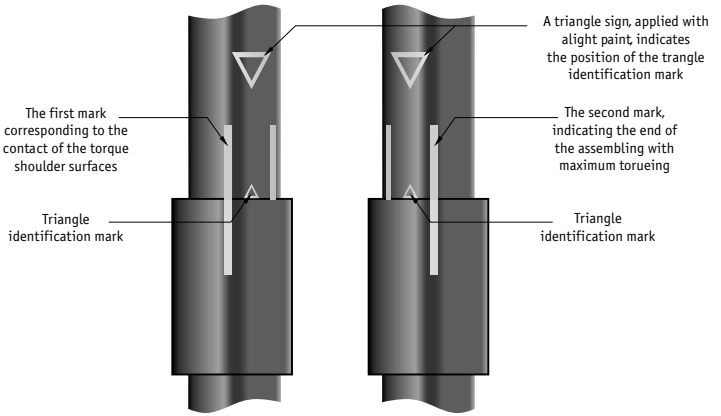
At this, it is necessary to determine the connection shouldering torque by mating the mark on the coupling with the first along the makeup path on the pipe, by mating the coupling end with the basement of the triangle identification mark and/according to the makeup diagram.

The corrected makeup torque shall be defined based on mean shoulder torques of the first ten making-ups and shall be calculated according to the formula below:

$$T_m = T_{sh} + 20\%\ T_{opt}$$

Minimum and maximum makeup torques shall be calculated according to the formulas below:

$$T_{min} = T_{opt} - 20\%\ T_{opt}$$
$$T_{max} = T_{opt} + 20\%\ T_{opt}$$



Determination of the shouldering torques according to makeup marks and the triangle identification mark.

Where:
T_m – corrected makeup torque of the connection;
T_{sh} – mean actual shoulder torque upon the results of ten making-ups;
T_{opt} – calculated optimum makeup torque;
T_{min} – minimum makeup torque;
T_{max} – maximum makeup torque.

Definite corrected makeup torque is used for making-up the rest pipes of the string in the same makeup conditions (the same compound, ambient temperature, strength group, piping size, etc.) At this, the minimum makeup torque shall be at least 90% of the corrected optimum makeup torque, and the maximum makeup torque – at least 110% of the corrected optimum makeup torque.

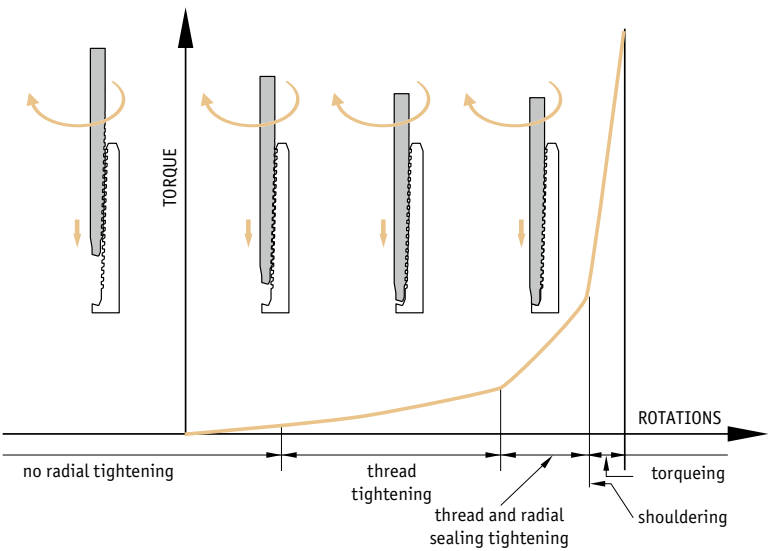
Makeup diagram for correct making-up

When the makeup is correct, the torque increase on the makeup diagram during the first turns shall be slow and even. Then, when the thread is matched with excessive tightening, the torque growth acceleration shall take place until the coupling of the sealing and thrust elements of the connection, which is accompanied by the sharp increase of the torque, indicating that the makeup is correct. Final makeup torque of the connection shall be between the minimum and the optimum makeup moment.

Shoulder torque T_{sh} of the connection thrust surfaces (coupling thrust seat and the pipe thrust end) shall be within the range between 5% and 80% of the optimum makeup torque (recommended to the corrected makeup torque).

Torqueing of the connection shall be within the range from 0.02 to 0.06 rotation.

In case of the correct diagram form it shall be considered that the component of the radial sealing of the connection makeup torque is significantly less compared to the thread component, that is why it is not always distinctive on the diagram.



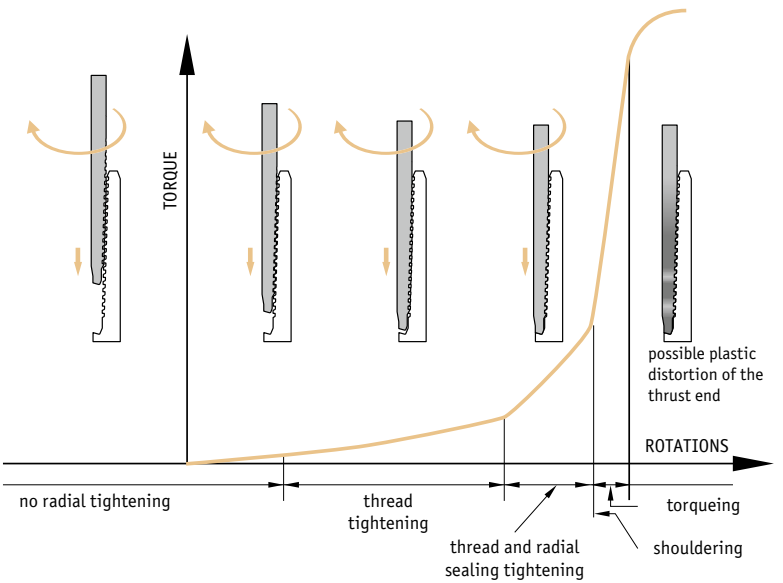
Threaded connection makeup diagram in case of correct making-up

Makeup diagram for incorrect making-up

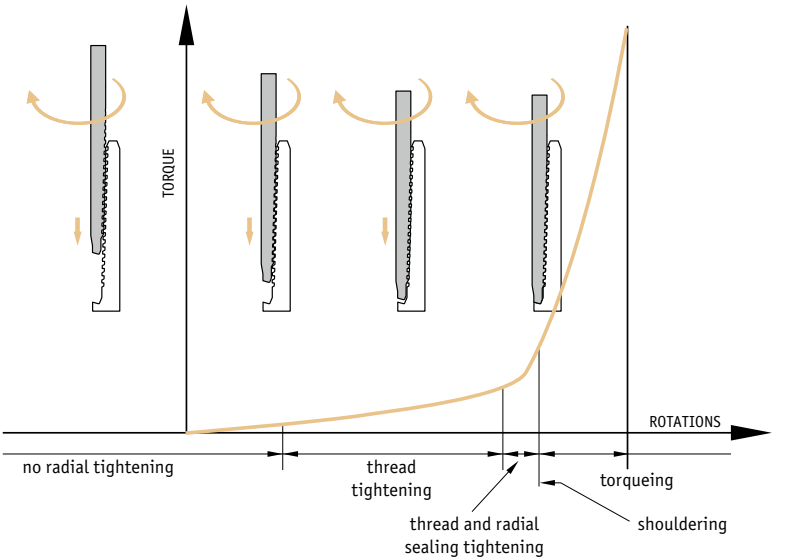
If there is an area, corresponding to possible plastic distortion of the torque shoulder, on the makeup diagram, disassemble the connection and check the pipe and the coupling ends. If upon the results of the inspection and by-hand and drift tests on the thrust and mating surfaces of the connection no traces of plastic distortion (form change) are detected, the repeated making-up of such connection may be performed.

Evidences of the distortion include tearing and other damage of thread, shoulder and sealing surfaces, as well as deformation of the internal coupling bore.

If a minor torque gain (0.02 rotations) is observed on the make up diagram from the radial sealing (see the diagram on page 30), this relates to small sea ling area and matching of high thread tightening and low sealing tightening. Such type of connection is acceptable. However, in case of doubt regarding the connection assembly, perform control making-up/breaking-out of the connection.



Threaded connection makeup diagram in case of incorrect making-up



Makeup diagram with low torque gain from the radial sealing

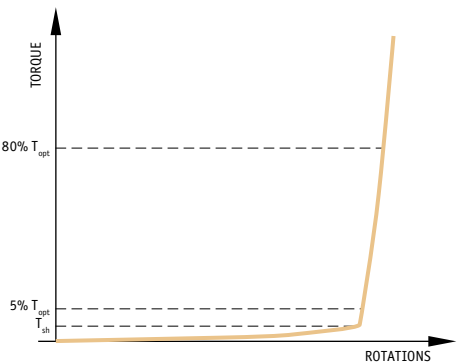
Shoulder torque T_{sh} of the connection thrust surfaces (coupling thrust seat and the pipe thrust end) shall be within the range between 5% and 80% of the corrected optimum makeup torque.

Too low T_{sh} on the makeup diagram may be caused by:

– unfavorable combination of process parameters of the matched connection;

– application of improper grease type;

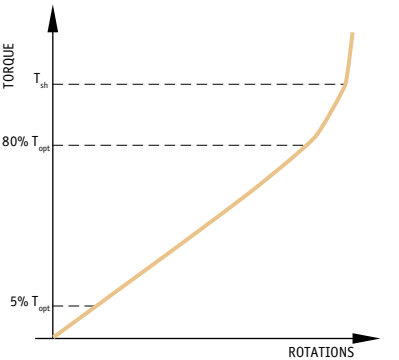
– grease contamination or unfavorable storage conditions.



Makeup diagram with low T_{sh}

Unscrew the connection, remove thread compound and inspect. If the results of visual inspection are satisfactory, apply the thread compound of the proper type and quality once again and repeat the making-up.

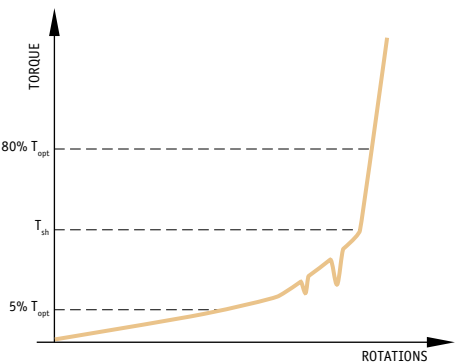
Too high T_{sh} on the makeup diagram may be caused by:
– the connection thread and/or sealing elements damage;
– improper thread cleaning;
– application of improper compound type;
– compound contamination or high density of the compound (for example, at low temperatures);
– unfavorable combination of process parameters of the matched connection.



Makeup diagram with high T_{sh}

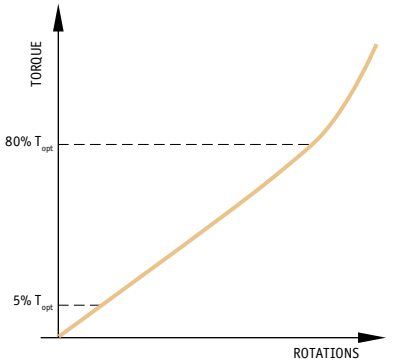
Unscrew the connection, remove grease and inspect. If the results of visual inspection are satisfactory, apply the grease of the proper type and quality once again and repeat the making-up.

Torque skipping on the makeup diagram may be caused by:
– improper removal of preservation compound from the connection;
– power tongs misalignment;
– insufficient torqueing force applied to the connection.



Makeup diagram with high T_{sh}

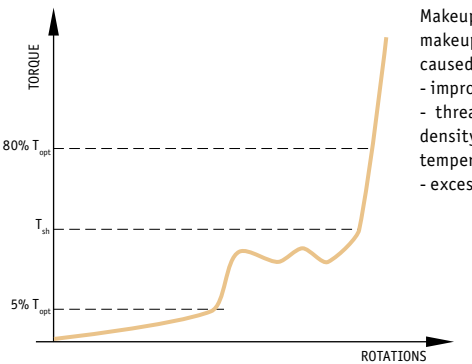
Unscrew the connection, remove thread compound and inspect. If the results of visual inspection are satisfactory, apply the thread compound of the proper type and quality once again, check the wrench position and repeat the making-up.



Makeup diagram without distinctive T_{sh}

Makeup curve on the makeup diagram without clear T_{sh} may be cause by:
- thread damage;
- improper thread cleaning;
- unfavorable combination of process parameters of the matched connection.

Unscrew the connection, remove thread compound and inspect. If the results of visual inspection are satisfactory, apply the compound of the proper type and quality once again and repeat the making-up.



Makeup diagram with "wave" effect, not exceeding T_{sh}

Makeup curve with "wave" effect on the makeup diagram, not exceeding T_{sh}, may be caused by:
- improper thread cleaning;
- thread compound contamination or high density of the compound (for example, at low temperatures);
- excessive amount of compound.

Unscrew the connection, make sure that the wave effect is not caused by the thread compound quality or its application method, and repeat the making-up. Otherwise, clean the connection and apply the thread compound of the proper type and quality once again and repeat the making-up.

Anyway, if the makeup curve has improper shape, such connection shall be unscrewed. Connections, shall be cleaned from thread compound and inspected. If no damage is detected during such visual examination, apply the thread compound of the proper type and quality to the connection, check the equipment installation and repeat the making-up.
If the result of the repeated making-up is similar to the results of the first making-up, such pipe shall be rejected and replaced with a new pipe for making-up with the same coupling. If the resulted curve is of improper shape when making-up the second pipe with the same coupling, such pipe shall be removed from the well together with the coupling and rejected.

Makeup quality control

Threaded connection making-up control shall be carried out according to the makeup diagram.

If necessary, the quality of the threaded connection making-up may be controlled:
- according to the makeup control marks on the pipe and the coupling;
- according to the coupling end position in relation to the triangle identification mark.

Making-up with different wall thickness and/or of different strength groups

When making-up pipes with different wall thickness and/or belonging to different strength groups, it is possible to use the makeup torques determined as follows (provided that the threaded connection of A type has smaller makeup torque compared to threaded connection of B type):

- if the optimum makeup torque of A type connection is greater than the minimum makeup torque of B type connection, the following makeup torques shall be used:
– for minimum torque – minimum torque of B type connection;
– for optimum torque – half the sum of the maximum torque of A type connection and the minimum torque of B type threaded connection;
– for maximum torque – maximum torque of A type connection.

- if the optimum makeup torque of A type connection is less than the minimum makeup torque of B type connection, the following makeup torques shall be used:
– for minimum torque – minimum torque of A type connection minus 5%;
– for optimum torque – half the sum of the maximum torque of A type connection plus 5% and the minimum torque of B type threaded connection minus 5%;
– for maximum torque – maximum torque of A type connection plus 5%.

- if the maximum makeup torque of A type connection is less than the minimum makeup torque of B type connection, the makeup torques of A type connection, increased by 5%, shall be used.

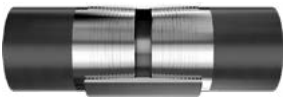
Note: The determining factor when deciding upon the correctness of the threaded connection assembly shall be the makeup diagram with distinctive shouldering area of sealing surfaces.

Threaded connections “Premium” TMK UP Series

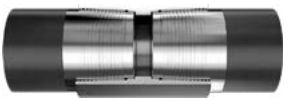
The connections are made on drill pipe, casing, and tubing strings, intended for a variety of applications. The connections may be used in vertical, deviated, horizontal wells of oil, gas and gas condensate fields in complicated operation conditions (high tensile, compressive, bending loads, excessive torque; aggressive environments, containing H_2S and CO_2; low and high temperatures).

Torque Series

TMK UP MOMENTUM



TMK UP MOMENTUM GT



TMK UP MOMENTUM SFL

TMK UP MOMENTUM FL

Pro Series

TMK UP PF

TMK UP PF ET

TMK UP CENTUM

TMK UP CENTUM ET

TMK UP CENTUM ET CHS

Classic Series

TMK UP FMC

Lite Series

TMK UP SIMPLEX

TMK UP CWB

TMK UP CWB II

TMK UP MAGNA

Connectors Series

TMK UP MOLOT

TMK UP KATRAN HD

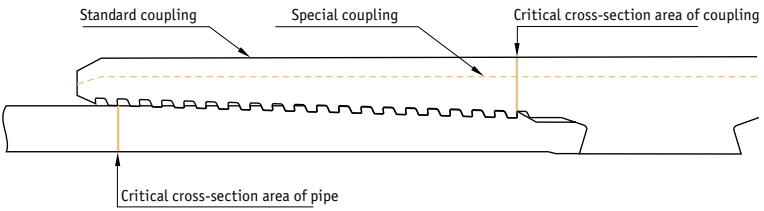
Pipe diameter range, manufactured with threaded connections of “Premium” class. TMK UP Series

Outside diameter of pipe		TMK UP PF	TMK UP PF ET	TMK UP CENTUM	TMK UP CENTUM ET	TMK UP FMC	TMK UP SIMPLEX	TMK UP CWB	TMK UP CWB II	TMK UP MAGNA	TMK UP MOMENTUM	TMK UP MOMENTUM GT	TMK UP MOMENTUM SFL	TMK UP MOMENTUM FL	TMK UP MOLOT	TMK UP KATRAN HD
in	mm															
2 3/8	60,32	■		■												
2 7/8	73,02	■		■												
3 1/2	88,90	■		■	■									■		
4	101,60	■		■				■						■		
4 1/2	114,30	■	■	■	■	■	■	■	■		■	■		■		
5	127,00	■	■		■	■	■	■	■		■	■		■		
5 1/2	139,70	■	■	■	■	■	■	■	■		■	■	■	■		
5 3/4	146,05	■				■	■	■	■							
6 5/8	168,28	■	■	■	■	■	■	■	■			■	■	■		
7	177,80	■	■	■	■	■	■	■	■		■	■	■	■		
7 5/8	193,68	■	■	■		■	■	■	■				■	■		
8 5/8	219,08	■	■	■		■				■				■		
9 5/8	244,48	■	■	■		■	■	■	■	■	■	■	■	■		
9 7/8	250,83	■	■	■		■				■						
10 3/4	273,05	■	■	■		■	■	■	■	■		■				
11 3/4	298,45	■	■													
11 7/8	301,63	■	■													
12 3/4	323,85	■	■	■		■	■	■	■	■						
13 3/8	339,72	■	■	■		■	■	■	■	■						
13 5/8	346,08			■												
14	355,6									■						
16	406,4									■				■		
16 7/9	426,00									■						
20	508,00									■						■
30	762,00														■	■

Special couplings

Pipes with threaded and coupled connections TMK UP Series can be supplied with special couplings which have reduced outside diameter.

Critical cross-section area of such special coupling is less than the pipe critical cross-section. For ensuring uniform strength of the threaded connection a special grade coupling shall belong to the higher strength group compared to the pipe.



Critical cross-section areas of pipe and coupling

Recommendations for selection of special couplings see on page 38-39

Guidelines for selection of steel grades for special couplings

Outside diameter of pipe, mm	Pipe wall thickness, mm	Outside diameter of special coupling, mm	Pipes with steel grades J55, K55	Pipes with steel grades N80, L80	Pipes with steel grades C90	Pipes with steel grades R95, C95, T95	TPipes with steel grades P110
			Steel grades of special couplings				
73,02	5,51	83,20	J55, K55	N80, L80	C90	R95, C95, T95	P110
	7,01		N80, L80	R95, C95, T95	P110	P110	-
	7,82		N80, L80	P110	-	-	-
	8,64		N80, L80	-	-	-	-
	9,96		R95, C95	-	-	-	-
	11,18		R95, C95	-	-	-	-
88,90	5,49	98,10	J55, K55	N80, L80	C90	R95, C95, T95	P110
	6,45		N80, L80	R95, C95, T95	P110	P110	-
	7,34		N80, L80	P110	-	-	-
	9,52		R95, C95	-	-	-	-
	10,92		P110	-	-	-	-
	12,09		P110	-	-	-	-
114,30	7,37	123,82	N80, L80	R95, C95, T95	P110	Q125	-
	8,56		N80, L80	P110	-	-	-
127,00	7,52	136,52	N80, L80	R95, C95	P110	-	-
	9,19		N80, L80	P1 10	-	-	-
	11,10		R95, C95	-	-	-	-
	12,14		P110	-	-	-	-
	12,70		P110	-	-	-	-
139,70	6,98	149,22	N80, L80	R95, C95	P110	-	-
	7,72		N80, L80	R95, C95	P110	-	-
	9,17		N80, L80	P110	-	-	-
	10,54		R95, C95, T95	-	-	-	-
146,05	7,00	156,00	N80, L80	R95, C95	-	-	-
	7,70		N80, L80	R95, C95	-	-	-
	8,50		N80, L80	P110	-	-	-
	9,50		N80, L80	P110	-	-	-
	10,70		R95, C95	-	-	-	-
168,28	7,32	177,80	N80, L80	R95, C95	P110	-	-
	8,94		N80, L80	P110	-	-	-
			R95, C95	-	-	-	-
	12,06		R95, C95	-	-	-	-

Guidelines for selection of steel grades for special couplings

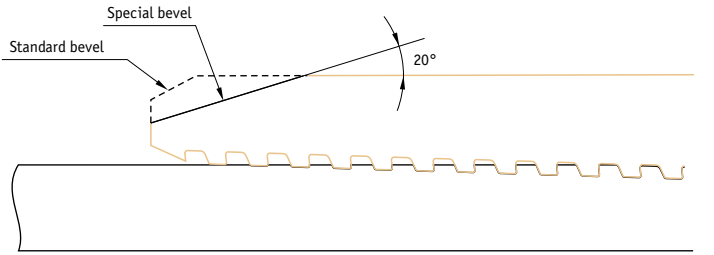
Outside diameter of pipe, mm	Pipe wall thickness, mm	Outside diameter of special coupling, mm	Pipes with steel grades J55, K55	Pipes with steel grades N80, L80	Pipes with steel grades C90	Pipes with steel grades R95, C95, T95	Pipes with steel grades P110
			Steel grades of special couplings				
177,80	8,05	187,32	N80, L80	R95, C95	P110	-	-
	9,19		N80, L80	P110	-	-	-
	10,36		R95, C95	-	-	-	-
	11,51		R95, C95	-	-	-	-
	12,65		P110	-	-	-	-
193,68	8,33	206,38	N80, L80	R95, C95	-	-	-
	9,52		N80, L80	R95, C95	-	-	-
	10,92		N80, L80	P110	-	-	-
	12,70		N80, L80	-	-	-	-
	14,27		R95, C95	-	-	-	-
	15,11		R95, C95	-	-	-	-
219,08	8,94	231,78	N80, L80	R95, C95	P110	-	-
	10,16		N80, L80	R95, C95	P110	-	-
	11,43		N80, L80	P110	-	-	-
	12,70		N80, L80	-	-	-	-
	14,15		R95, C95	-	-	-	-
244,48	8,94	257,18	N80, L80	R95, C95	P110	-	-
	10,03		N80, L80	R95, C95	-	-	-
	11,05		N80, L80	P110	-	-	-
	11,99		N80, L80	P110	-	-	-
	13,84		R95, C95	-	-	-	-
	15,11		R95, C95	-	-	-	-

Notes:
1. Selection of steel grade of special couplings for pipes with special properties and pipes with thick walls is upon agreement with TMK-Premium Service.
2. Dash in the table means that the making-up with a special grade coupling is not applicable.

Coupling with special bevel

For facilitating the string run into the well with complex geometry, standard couplings may be manufactured with a special bevel.

Spiders or slip elevators are mandatory during string landing, if couplings with a special bevel are used.



Standard coupling with special bevel

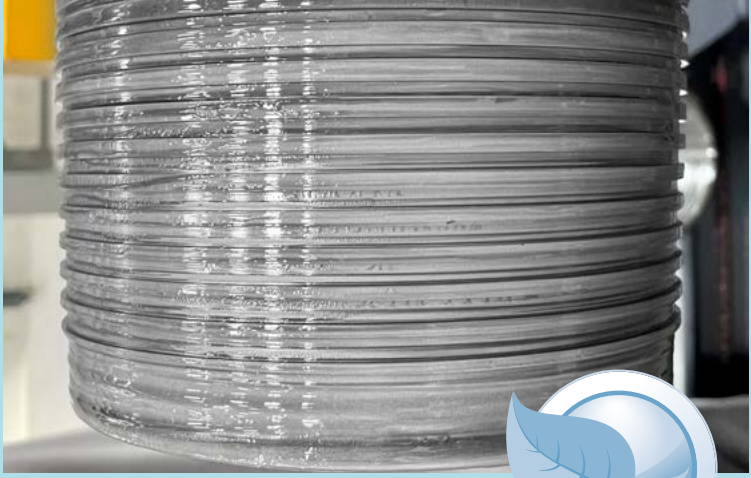
GREENWELL®

GREENWELL

GREENWELL – is a solid plating with polymer matrix.

Main advantages of applying this technology:

- GREENWELL Technology is available for the most connections of TMK UP Series;
- Performs dual function: provides corrosion resistance during transportation and creates the necessary friction coefficient to provide multiple assembly;
- Pipes are immediately ready for running. No need to remove rust-preventing grease and apply operating compound;
- Saving time for casing preparation up to 90% and running operations - up to 20%;
- Reducing of pipe total cost by 10% through increasing the rig operating efficiency;
- Prevents contamination of the connection. No adhesion of sand or other hazardous particles;
- Increases the efficiency of operations of the drilling services;
- Provides protection of environment from pollution by thread compound.



GREENWELL®
Crystal

GREENWELL Crystal

GREENWELL Crystal – transparent thread compound for gas-tight Premium connections.

Main advantages of applying this technology:

- Saving time for casing preparing and running operations due to fewer operations
- Visual inspection of thread and sealing without thread compound removal
- Applicable for chromium casing and tubing
- Provides multiple makeup and breakout:
  - 3-times for casing
  - 9-times for tubing
  - re-makeup after storage
- Operation at -50°C to +50°C
- Storage at -60°C to +60°C

TORQUE SERIES

The Torque series are high torque wedge threaded connections designed to withstand the extreme torsional loads encountered in the construction of extended reach wells.***

TMK UP MOMENTUM

TMK UP MOMENTUM GT

TMK UP MOMENTUM SFL

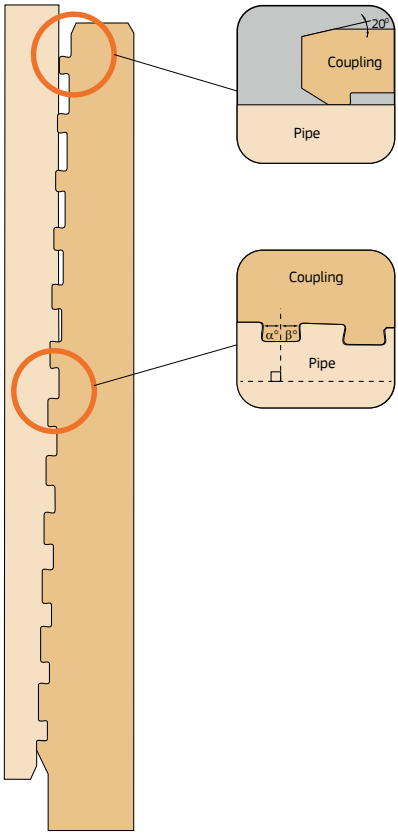
TMK UP MOMENTUM FL

*** All Characteristics are based on the results of connection tests (in accordance with ISO 13679 in accredited laboratories) and mathematical modeling

Torque series

Threaded connection

TMK UP MOMENTUM



TMK UP MOMENTUM
Performance Envelope

Threaded connection TMK UP MOMENTUM

High-torque T&C liquid-tight connection with wedge thread profile. Designed for safe operation under extreme torsional loads (casing while drilling, including ERD-wells, etc.) in the construction of oil wells.

Range: 4 1/2″–9 5/8″ / 114.30 mm–244.48 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Sealability through thread compound
- Variable pitch of wedge thread provides 1.5 to 2 times higher operating torque than connections with constant pitch

Application:
- Deviated and horizontal wells, ERD wells
- Overlapping of formations with low gas to oil rating
- RIH with rotation
- Cementing with rotation
- Casing while Drilling (CwD)

Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
4 1/2	114.3	15,1	8,56	22,32	0,66	5,06	4,12	2844	3199	2686	97,18	127	124,4	232	94	106
		17	9,65	24,9	0,67	6,92	4,12	3173	4327	2686	95	132,1	124,4	232	91,82	106
		18,9	10,92	27,84	0,68	6,92	4,12	3547	4327	2686	92,46	132,1	124,4	232	89,28	106
		21,5	12,7	31,82	0,69	6,92	4,12	4054	4237	2686	88,9	132,1	124,4	232	85,72	106
5	127	15	7,52	22,16	0,94	6,82	4,84	2823	4068	3025	123,6	141,3	136,52	244	108,78	111
		18	9,19	26,7	0,95	6,82	4,84	3401	4068	3025	122	141,3	136,52	244	105,44	111
		20,3	10,36	29,81	0,96	6,82	4,84	3796	4068	3025	119	141,3	136,52	244	103,1	111
5 1/2	139.7	17	7,72	25,13	1,16	7,46	5,4	3201	4381	3322	123,6	153,67	149,22	250	121,08	114
		20	9,17	29,52	1,2	7,46	5,4	3760	4381	3322	122	153,67	149,22	250	118,18	114
		23	10,54	33,57	1,22	7,46	5,1	4277	4381	3322	119	153,67	149,22	250	115,44	114
7	177.8	23	8,05	33,7	1,1	13,56	7,76	4293	7946	4874	161,68	200,03	190	240	158,52	105
		26	9,19	38,21	1,1	13,56	7,76	4868	7946	4874	159,4	200,03	190	240	156,24	105
		29	10,36	42,78	1,1	13,56	7,76	5450	7946	4874	157,06	200,03	190	240	153,9	105
		32	11,51	47,2	1,1	13,56	7,76	6013	7946	4874	154,76	200,03	190	240	151,6	105
		35	12,65	51,52	1,1	13,56	7,76	6563	7946	4874	152,48	200,03	190	240	149,32	105
9 5/8	244.48	36	8,94	51,93	1,3	21	11,1	6615	12154	6897	226,6	269,88	257,18	240	222,63	105
		40	10,03	57,99	1,3	21	11,1	7388	12154	6897	224,42	269,88	257,18	240	220,45	105
		43,5	11,05	63,61	1,3	21	11,1	8103	12154	6897	222,38	269,88	257,18	240	218,41	105
		47	11,99	68,75	1,3	21	11,1	8757	12154	6897	220,5	269,88	257,18	240	216,53	105
		53,5	13,84	78,72	1,3	21	11,1	10028	12154	6897	216,8	269,88	257,18	240	212,83	105

We draw your attention to the fact that technical characteristics are for reference only, and any person who uses this information should check its relevance, by contacting the technical department: techsales@tmk-group.com

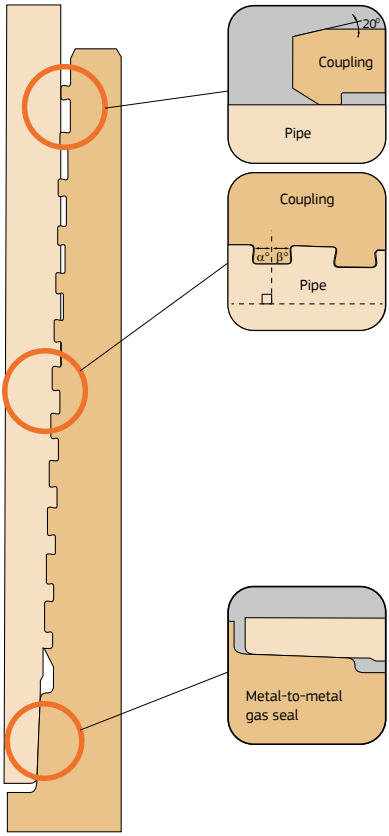
Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114.3	15,1	8,56	1078	1570	1766	1863	2155	2451	2647	2747	3139	49,7	72,3	81	85,8	99,3	113	122	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
		17	9,65	1202	1751	1970	2078	2405	2735	2954	3065	3503	56	81,6	92	96,8	112	127,4	137,6	142,7	152,9	58,7	85,3	96	101,3	117,3	133,3	144	149,2	157,8
		18,9	10,92	1344	1958	2202	2323	2688	3057	3302	3426	3915	63,4	92,3	104	109,5	126,7	144,1	155,7	161,5	173	65,6	95,4	107,3	113,3	131,2	149,1	161	166,9	178,9
		21,5	12,7	1536	2238	2517	2655	3073	3494	3774	3916	4475	73,7	107,3	121	127,4	147,4	167,6	181	187,8	201,3	75	109	122,7	129,5	149,9	170,4	184	190,8	204,4
5	127	15	7,52	1070	1558	1753	1849	2140	2433	2628	2727	3116	39,3	57,2	64	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50	54,1	56	61,1	65,4	67,8	68,9	70,7
		18	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3755	48	69,9	79	82,9	96	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108	110,8	116,2
		20,3	10,36	1439	2096	2357	2487	2878	3272	3534	3667	4191	54,1	78,8	89	93,5	108,2	123,1	132,9	137,9	147,8	56,9	82,7	93,1	98,2	113,7	127,9	136,1	140,1	148
5 1/2	139.7	17	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3534	36,7	53,4	60	63,3	73,3	83,4	90	93,4	100,1	33,9	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20	9,17	1425	2076	2335	2463	2850	3241	3501	3633	4151	43,5	63,4	71	75,2	87,1	99	106,9	111	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23	10,54	1621	2361	2656	2801	3242	3687	3982	4131	4722	50	72,9	82	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77	85,4	89,2	100,3	110,8	117,4	120,6	126,8
7	177.8	23	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4739	30	43,7	49	51,9	60,1	68,3	73,8	76,5	82	22,5	26,4	27,8	28,6	30,6	32	32,6	32,8	33
		26	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5374	34,3	49,9	56	59,2	68,6	78	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,4	46,1	47,4
		29	10,36	2065	3008	3384	3570	4131	4698	5074	5264	6016	38,6	56,3	63	66,8	77,3	87,9	94,9	98,5	105,5	37,3	48,4	52,2	54	58,8	62,8	65	65,9	67,5
		32	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6638	42,9	62,5	70	74,2	85,9	97,7	105,5	109,4	117,3	44,8	59,4	64,7	67,6	74,4	81,3	85,2	87	90,4
		35	12,65	2487	3623	4076	4299	4975	5658	6110	6340	7246	47,2	68,7	77	81,6	94,4	107,3	115,9	120,3	128,9	50,2	70,3	77,1	80,4	89,9	98,8	104,3	106,9	112
9 5/8	244.48	36	8,94	2507	3652	4108	4333	5014	5702	6159	6384	7303	24,3	35,3	40	41,9	48,5	55,2	59,6	61,8	66,2	14	16,4	16,8	17	17,1	17,2	17,3	17,3	17,4
		40	10,03	2800	4078	4588	4839	5600	6368	6878	7129	8156	27,2	39,6	45	47	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,5	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8946	30	43,7	49	51,8	60	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9668	32,5	47,4	53	56,2	65,1	74	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,5	13,84	3801	5536	6227	6568	7601	8644	9336	9677	11071	37,5	54,7	62	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8

Torque series

Threaded connection

TMK UP MOMENTUM GT



TMK UP MOMENTUM GT
Performance Envelope

Threaded connection TMK UP MOMENTUM GT

TMK UP Momentum GT is a threaded and coupled high-torque wedge threaded connection. Designed for safe operations under the influence of extreme torsional loads (casing while drilling, including ERD wells, etc.) in the construction of gas wells and wells with a high GOR.

Range: 4 1/2"–10 3/4" / 114.30 mm–273.05 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Gas-tight metal-to-metal seal
- Variable pitch of wedge thread provides 1.5 to 2 times higher operating torque than connections with constant pitch

Application:
- Deviated and horizontal wells, ERD wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation
- Casing while Drilling (CwD)

Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM GT

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
4 1/2	114.3	11,6	6,35	16,91	-	-	-	2154	2657	2143	101,6	127	124,4	220	98,42	100
		12,6	6,88	18,23	-	-	-	2322	2657	2143	100,54	127	124,4	220	97,36	100
		13,5	7,37	19,44	-	-	-	2476	2657	2143	99,56	127	124,4	220	96,38	100
		15,1	8,56	22,32	1,18	6,56	5,46	2844	3092	2578	97,2	127	124,4	270	94	120
		17	9,65	24,9	1,2	8,82	5,52	3173	4129	2578	95	132,1	124,4	270	91,82	120
		18,9	10,92	27,84	1,22	8,88	5,58	3547	4129	2578	92,5	132,1	124,4	270	89,28	120
		21,5	12,7	31,82	1,24	8,98	5,68	4054	4129	2578	88,9	132,1	124,4	270	85,72	120
5	127	15	7,52	22,16	1,44	8,59	6,28	2823	3953	2910	123,6	141,3	136,52	280	108,78	123
		18	9,19	26,7	1,48	8,64	6,36	3401	3953	2910	122	141,3	136,52	280	105,44	123
		20,3	10,36	29,81	1,5	8,72	6,44	3796	3953	2910	119	141,3	136,52	280	103,1	123
5 1/2	139.7	17	7,72	25,13	1,64	9,21	6,82	3201	4339	3280	123,6	153,7	143,22	290	121,08	128
		20	9,17	29,52	1,68	9,32	6,92	3760	4339	3280	122	153,7	149,22	290	118,18	128
		23	10,54	33,57	1,7	9,4	7	4277	4339	3280	119	153,7	149,22	290	115,44	128
6 5/8	168.28	20	7,32	29,06	1,44	13,16	7,38	3702	6340	3498	153,6	187,71	177,8	260	150,46	113,5
		24	8,94	35,13	1,44	13,32	7,54	4475	6340	3498	150,4	187,71	177,8	260	147,22	113,5
		28	10,59	41,18	1,44	13,48	7,7	5246	6340	3498	147,1	187,71	177,8	260	143,92	113,5
		32	12,06	46,46	1,44	13,62	7,84	5919	6340	3498	144,2	187,71	177,8	260	140,98	113,5

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Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM GT

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
7	177.8	23	8,05	33,7	1,22	17,1	10,4	4293	7647	4574	161,7	200,03	190	280	158,52	120
		26	9,19	38,21	1,24	17,26	10,56	4868	7647	4574	159,4	200,03	190	280	156,24	120
		29	10,36	42,78	1,26	17,42	10,7	5450	7647	4574	157,1	200,03	190	280	153,9	120
		32	11,51	47,2	1,28	17,56	10,86	6013	7647	4574	154,8	200,03	190	280	151,6	120
		35	12,65	51,52	1,3	17,72	11	6563	7647	4574	152,5	200,03	190	280	149,32	120
9 5/8	244.48	36	8,94	51,93	1,62	26,36	14,88	6615	11739	6482	226,6	269,88	257,18	280	222,63	120
		40	10,03	57,99	1,64	26,58	15,1	7388	11739	6482	224,42	269,88	257,18	280	220,45	120
		43,5	11,05	63,61	1,66	26,76	15,28	8103	11739	6482	222,38	269,88	257,18	280	218,41	120
		47	11,99	68,75	1,68	26,94	15,46	8757	11739	6482	220,5	269,88	257,18	280	216,53	120
		53,5	13,84	78,72	1,7	27,28	15,8	10028	11739	6482	216,8	269,88	257,18	280	212,83	120
10 3/4	273.05	40,5	8,89	57,91	-	-	-	7378	12973	7146	255,27	298,45	285,75	280	251,3	120
		45,5	10,16	65,87	-	-	-	8391	12973	7146	252,73	298,45	285,75	280	248,76	120
		51	11,43	73,75	-	-	-	9394	12973	7146	250,19	298,45	285,75	280	246,22	120
		55,5	12,57	80,75	-	-	-	10286	13041	7213	247,91	298,45	285,75	300	243,94	125
		60,7	13,84	88,47	-	-	-	11270	13041	7213	245,37	298,45	285,75	300	241,4	125
		65,7	15,11	96,12	-	-	-	12244	13041	7213	242,83	298,45	285,75	300	238,86	125

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TMK UP MOMENTUM GT

Strenght characteristics of pipes with TMK UP MOMENTUM GT threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114.3	11,6	6,35	816	1189	1337	1411	1632	1856	2005	2080	2377	36,8	53,7	60	63,7	73,7	83,8	90,5	93,9	100,6	34,2	43,8	47	48,4	52,3	55,2	56,7	57,3	58,1
		12,6	6,88	880	1282	1442	1521	1760	2001	2162	2243	2563	39,9	58,1	65	69	79,8	90,8	98,1	101,8	109	39,5	51,7	56	58	63,5	68,2	70,8	72	74,1
		13,5	7,37	938	1367	1537	1622	1877	2134	2305	2392	2733	42,8	62,3	70	73,9	85,5	97,3	105,1	109	116,8	44,3	59	64,2	66,7	73,8	80,1	83,9	85,7	88,9
		15,1	8,56	1078	1570	1766	1863	2155	2451	2647	2747	3139	49,7	72,3	81	85,8	99,3	113	122	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
		17	9,65	1202	1751	1970	2078	2405	2735	2954	3065	3503	56	81,6	92	96,8	112	127,4	137,6	142,7	152,9	58,7	85,3	96	101,3	117,3	133,3	144	149,2	157,8
		18,9	10,92	1344	1958	2202	2323	2688	3057	3302	3426	3915	63,4	92,3	104	109,5	126,7	144,1	155,7	161,5	173	65,6	95,4	107,3	113,3	131,2	149,1	161	166,9	178,9
		21,5	12,7	1536	2238	2517	2655	3073	3494	3774	3916	4475	73,7	107,3	121	127,4	147,4	167,6	181	187,8	204,4	75	109	122,7	129,5	149,9	170,4	184	190,8	204,4
5	127	15	7,52	1070	1558	1753	1849	2140	2433	2628	2727	3116	39,3	57,2	64	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50	54,1	56	61,1	65,4	67,8	68,9	70,7
		18	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3755	48	69,9	79	82,9	96	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108	110,8	116,2
		20,3	10,36	1439	2096	2357	2487	2878	3272	3534	3667	4191	54,1	78,8	89	93,5	108,2	123,1	132,9	137,9	147,8	56,9	82,7	93,1	98,2	113,7	127,9	136,1	140,1	148
5 1/2	139.7	17	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3534	36,7	53,4	60	63,3	73,3	83,4	90	93,4	100,1	33,9	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20	9,17	1425	2076	2335	2463	2850	3241	3501	3633	4151	43,5	63,4	71	75,2	87,1	99	106,9	111	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23	10,54	1621	2361	2656	2801	3242	3687	3982	4131	4722	50	72,9	82	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77	85,4	89,2	100,3	110,8	117,4	120,6	126,8
6 5/8	168.28	20	7,32	1403	2043	2299	2424	2806	3191	3446	3576	4086	28,9	42	47	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		24	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4941	35,2	51,3	58	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5792	41,7	60,8	68	72,1	83,5	94,9	102,5	106,4	114	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		32	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6534	47,5	69,2	78	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8

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Strenght characteristics of pipes with TMK UP MOMENTUM GT threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
7	177.8	23	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4739	30	43,7	49	51,9	60,1	68,3	73,8	76,5	82	22,5	26,4	27,8	28,6	30,6	32	32,6	32,8	33
		26	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5374	34,3	49,9	56	59,2	68,6	78	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,4	46,1	47,4
		29	10,36	2065	3008	3384	3570	4131	4698	5074	5264	6016	38,6	56,3	63	66,8	77,3	87,9	94,9	98,5	105,5	37,3	48,4	52,2	54	58,8	62,8	65	65,9	67,5
		32	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6638	42,9	62,5	70	74,2	85,9	97,7	105,5	109,4	117,3	44,8	59,4	64,7	67,6	74,4	81,3	85,2	87	90,4
		35	12,65	2487	3623	4076	4299	4975	5658	6110	6340	7246	47,2	68,7	77	81,6	94,4	107,3	115,9	120,3	128,9	50,2	70,3	77,1	80,4	89,9	98,8	104,3	106,9	112
9 5/8	244.48	36	8,94	2507	3652	4108	4333	5014	5702	6159	6384	7303	24,3	35,3	40	41,9	48,5	55,2	59,6	61,8	66,2	14	16,4	16,8	17	17,1	17,2	17,3	17,3	17,4
		40	10,03	2800	4078	4588	4839	5600	6368	6878	7129	8156	27,2	39,6	45	47	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,5	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8946	30	43,7	49	51,8	60	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9668	32,5	47,4	53	56,2	65,1	74	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,5	13,84	3801	5536	6227	6568	7601	8644	9336	9677	11071	37,5	54,7	62	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
10 3/4	273.05	40,5	8,89	2796	4072	4582	4832	5592	6360	6869	7119	8145	21,6	31,5	35	37,3	43,2	49,1	53	55	59	10,9	11,9	12	12	12,1	12,2	12,3	12,4	12,5
		45,5	10,16	3180	4632	5211	5496	6360	7233	7812	8097	9264	24,7	35,9	40	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18	17,5	17,6	17,7
		51	11,43	3560	5186	5834	6153	7121	8098	8746	9066	10371	27,8	40,4	45	48	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24	25,2	25,8	25,9	26	26,1
		55,5	12,57	3899	5678	6388	6738	7797	8867	9577	9926	11356	30,5	44,5	50	52,8	61,1	69,4	75	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,7	13,84	4271	6221	6999	7382	8543	9715	10493	10876	12442	33,6	49	55	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44	45,1
		65,7	15,11	4641	6759	7604	8020	9281	10555	11399	11816	13518	36,7	53,5	60	63,4	73,4	83,5	90,2	93,5	100,2	34	43,5	46,6	48	51,7	54,6	56	56,6	57,4

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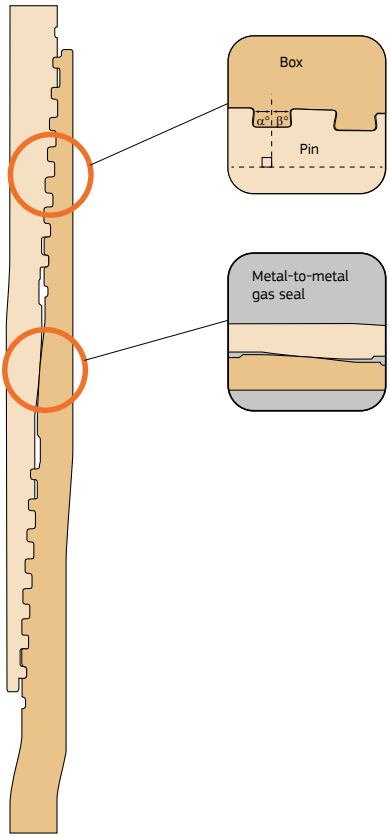
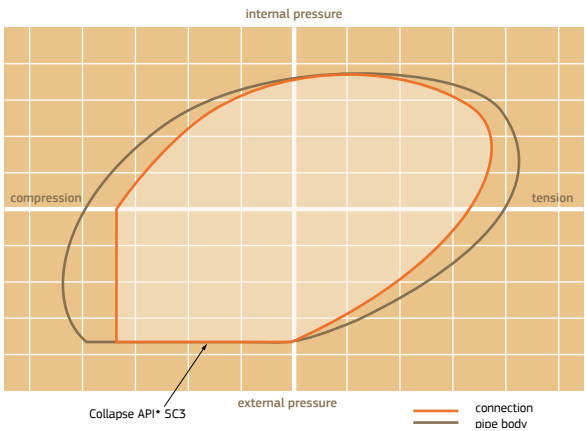
Torque series

Threaded connection

TMK UP MOMENTUM SFL



TMK UP MOMENTUM SFL
Performance Envelope



Threaded connection TMK UP MOMENTUM SFL

TMK UP Momentum SFL – high torque premium gas-tight Semi-flush connection with wedge thread profile. Designed for safe exploitation under extreme torsional loads (ERD well constructions) in wells with high gas to oil rating.
The semi-flush contour of this connection allows it to be used in cases where there are restrictions on the dimensions of the used column and threaded and coupled connections are not suitable, but comparable characteristics are required.

Range: 5 1/2"–9 5/8" / 139.7 mm–244.48 mm

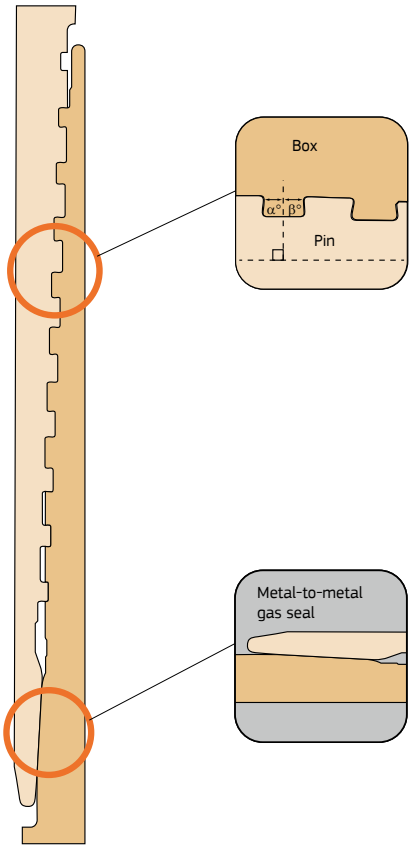
Unique Feature:
- 85%** compression efficiency
- 85%** tension efficiency
- Gas-tight metal-to-metal seal
- Variable pitch of wedge thread provides 1.5 to 2 times higher operating torque than connections with constant pitch

Application:
- Deviated and horizontal wells, ERD wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation

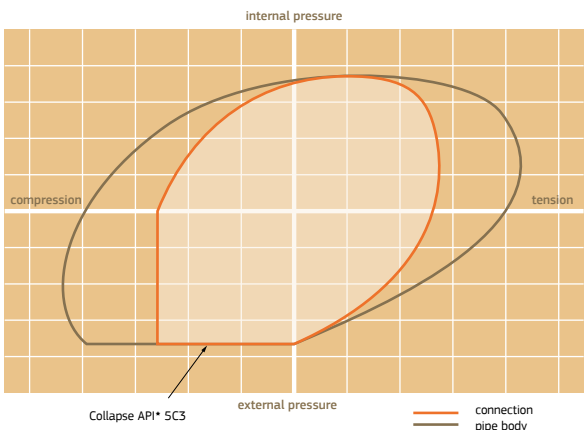
Torque series

Threaded connection

TMK UP MOMENTUM FL



TMK UP MOMENTUM FL
Performance Envelope



Threaded connection TMK UP MOMENTUM FL

TMK UP Momentum FL – gas-tight premium Integral flush connection with wedge thread, which provides a high range of performance while maintaining the nominal outside diameter of the pipe.

Range: 3 1/2"–16" / 88.9 mm–406.4 mm

Unique Feature:
- Not less than 57% compression efficiency
- Not less than 57% tension efficiency
- Gas-tight metal-to-metal seal
- Variable pitch of wedge thread provides 1.5 to 2 times higher operating torque than connections with constant pitch
- External diameter equal to the diameter of the pipe body, fully flush integral connection

Application:
- Deviated and horizontal wells, ERD wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation

TMK UP MOMENTUM FL

Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM FL

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Pipe crossection area	Connection C/S area	Box ID	Box OD	Drift diameter	Special Drift diameter	Length makeup loss
in	mm	lb/ft	mm	kg/m	mm²	mm²	mm	mm	mm	mm	mm
4 1/2	114,30	12,60	6,88	18,23	2 322	1416	98,60	114,30	97,36	-	94,00
		13,50	7,37	19,44	2 476	1510	98,00	114,30	96,38	-	94,00
		15,10	8,56	22,32	2 844	1735	95,60	114,30	94,00	-	104,00
5	127,00	15,00	7,52	22,16	2 823	1694	110,40	127,00	108,78	-	106,50
		18,00	9,19	26,70	3 401	2109	106,70	127,00	105,44	-	110,50
		20,30	10,36	29,80	3 796	2316	104,50	127,00	103,10	-	120,50
		21,40	11,10	31,73	4 042	2506	102,90	127,00	101,62	-	120,50
		23,20	12,14	34,39	4 381	2760	100,80	127,00	99,54	-	115,00
5 1/2	139,70	17,00	7,72	25,13	3 201	1953	122,50	139,70	121,08	-	108,20
		20,00	9,17	29,52	3 760	2331	119,40	139,70	118,18	-	110,30
		23,00	10,54	33,57	4 277	2652	116,80	139,70	115,44	-	113,90
		26,80	12,70	39,78	5 067	3142	112,30	139,70	111,12	-	109,20
6 5/8	168,28	24,00	8,94	35,14	4 475	2819	148,50	168,28	147,22	-	104,00
7	177,80	26,00	9,19	38,21	4 868	2969	157,80	177,80	156,24	-	104,00
		29,00	10,36	42,78	5 450	3324	155,30	177,80	153,90	-	104,00
		32,00	11,51	47,20	6 013	3728	153,50	177,80	151,60	152,40	109,50
		35,00	12,65	51,52	6 563	4200	150,70	177,80	149,32	-	112,50
7 5/8	193,68	26,40	8,33	38,08	4 851	2765	175,60	193,68	173,84	-	106,00
		29,70	9,52	43,28	5 508	3305	172,80	193,68	171,46	-	111,30
		33,70	10,92	49,22	6 270	3825	170,10	193,68	168,66	-	114,00
		39,00	12,70	56,68	7 221	4332	166,30	193,68	165,10	-	114,00
16	406,40	95,00	14,37	139,02	17 698	10619	376,6	406,40	372,9	374,65	122,50
		109,00	16,66	160,13	20 399	12647	372,08	406,40	368,32	374,65	126,50
		118,00	18,16	173,86	22 150	13954	369,08	406,40	365,32	374,65	130,10

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Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114.3	12.60	6.88	537	782	880	928	1074	1221	1317	1368	1466	39.9	58.1	65.4	69.0	79.8	90.8	98.0	101.8	109.0	39.5	51.7	56.0	58.0	63.5	68.2	70.8	72.0	74.1
		13.50	7.37	572	834	938	989	1145	1302	1405	1459	1563	42.8	62.3	70.1	73.9	85.5	97.3	104.9	109.0	116.8	44.3	59.0	64.2	66.7	73.8	80.1	83.9	85.7	88.9
		15.10	8.56	657	957	1077	1136	1315	1495	1613	1676	1795	49.7	72.3	81.4	85.8	99.3	113.0	121.9	126.6	135.6	52.6	76.5	84.3	88.1	98.9	109.2	115.7	118.9	124.9
5	127.00	15.00	7.52	642	935	1052	1109	1284	1460	1575	1636	1753	39.3	57.2	64.3	67.9	78.5	89.3	96.4	100.1	107.2	38.4	50.0	54.1	56.0	61.1	65.4	67.8	68.9	70.7
		18.00	9.19	799	1164	1310	1381	1598	1818	1961	2037	2183	48.0	69.9	78.6	82.9	96.0	109.2	117.8	122.3	131.1	50.9	72.3	79.4	82.9	92.8	102.2	108.0	110.8	116.2
		20.30	10.36	878	1278	1438	1517	1755	1996	2154	2237	2397	54.1	78.8	88.7	93.5	108.2	123.1	132.8	137.9	147.8	56.8	82.7	93.1	98.1	113.6	127.8	136.1	140.1	148.0
		21.40	11.10	950	1383	1556	1641	1899	2160	2330	2421	2594	58.0	84.4	95.0	100.2	115.9	131.8	142.2	147.8	158.3	60.5	88.1	99.1	104.6	121.1	137.6	148.6	154.1	165.1
		23.20	12.14	1046	1523	1714	1808	2092	2379	2567	2666	2856	63.4	92.3	103.9	109.6	126.8	144.2	155.6	161.6	173.1	65.6	95.4	107.4	113.3	131.2	149.1	161.1	167.0	179.0
5 1/2	139.7	17.00	7.72	740	1078	1213	1279	1480	1683	1816	1886	2021	36.7	53.4	60.1	63.3	73.3	83.4	89.9	93.4	100.1	33.9	43.3	46.4	47.9	51.5	54.4	55.8	56.3	57.1
		20.00	9.17	884	1287	1448	1527	1767	2010	2168	2252	2413	43.5	63.4	71.3	75.2	87.1	99.0	106.8	111.0	118.9	45.6	60.9	66.5	69.1	76.6	83.4	87.5	89.4	92.9
		23.00	10.54	1005	1464	1647	1737	2010	2286	2466	2561	2744	50.0	72.9	82.0	86.5	100.1	113.8	122.8	127.5	136.7	52.9	77.0	85.4	89.2	100.3	110.8	117.4	120.6	126.8
		26.80	12.70	1191	1734	1951	2058	2381	2708	2922	3035	3252	60.3	87.8	98.8	104.2	120.6	137.1	148.0	153.7	164.7	62.6	91.2	102.6	108.3	125.5	142.5	154.0	159.7	171.1
6 5/8	168.28	24.00	8.94	1069	1556	1751	1847	2137	2430	2622	2724	2918	35.2	51.3	57.7	60.9	70.5	80.1	86.5	89.8	96.2	31.4	39.7	42.3	43.5	46.4	48.4	49.3	49.5	50.6
7	177.80	26.00	9.19	1125	1639	1844	1945	2251	2560	2762	2869	3073	34.3	49.9	56.2	59.2	68.6	78.0	84.1	87.4	93.6	29.8	37.3	39.6	40.5	42.9	44.4	45.4	46.1	47.4
		29.00	10.36	1260	1835	2064	2177	2520	2866	3092	3211	3441	38.6	56.3	63.3	66.8	77.3	87.9	94.8	98.5	105.5	37.3	48.4	52.2	54.0	58.8	62.8	65.0	65.9	67.5
		32.00	11.51	1413	2058	2315	2442	2826	3214	3467	3601	3859	42.9	62.5	70.4	74.2	85.9	97.7	105.4	109.4	117.3	44.8	59.4	64.7	67.6	74.4	81.3	85.2	87.0	90.4
		35.00	12.65	1592	2319	2608	2751	3184	3621	3906	4058	4347	47.2	68.7	77.3	81.6	94.4	107.3	115.8	120.3	128.9	50.2	70.3	77.1	80.4	89.9	98.8	104.3	106.9	112.0
7 5/8	193.68	26.40	8.33	1048	1526	1717	1811	2096	2383	2571	2671	2862	28.5	41.5	46.7	49.3	57.1	64.9	70.0	72.7	77.9	20.0	23.5	24.9	25.6	27.0	27.9	28.1	28.2	28.3
		29.70	9.52	1252	1824	2052	2165	2505	2849	3073	3192	3420	32.6	47.5	53.4	56.3	65.2	74.1	80.0	83.1	89.0	26.9	33.0	34.7	35.4	36.8	39.1	40.3	40.8	41.7
		33.70	10.92	1450	2111	2375	2505	2899	3297	3557	3695	3958	37.4	54.5	61.3	64.6	74.8	85.1	91.8	95.3	102.1	35.1	45.2	48.6	50.2	54.3	57.5	59.2	59.9	61.0
		39.00	12.70	1642	2392	2690	2838	3284	3735	4029	4185	4484	43.5	63.3	71.3	75.2	87.0	98.9	106.7	110.8	118.8	45.6	60.8	66.3	69.0	76.4	83.2	87.3	89.2	92.7
16	406.40	95.00	14.37	4025	5862	6594	6955	8049	9153	9876	10258	10991	23.45	34.2	38.4	40.5	46.9	53.3	57.5	59.8	64.0	13.0	15.0	15.3	15.4	15.5	15.6	15.7	15.8	15.9
		109.00	16.66	4793	6981	7854	8284	9587	10902	11762	12217	13090	27.19	39.6	44.6	47.0	54.4	61.8	66.7	69.3	74.3	17.7	21.2	22.4	22.9	23.9	24.2	24.3	24.4	24.5
		118.00	18.16	5289	7703	8666	9140	10577	12029	12977	13480	14443	29.64	43.2	48.6	51.2	59.3	67.4	72.7	75.5	80.9	21.9	25.4	27.0	27.8	29.7	31.0	31.4	31.5	31.6

PRO SERIES

The Pro Series (Professional Series) premium connections feature an extraordinary ability to withstand high tension, compression, and bending loads at excessive internal and external pressures. High tension and compression efficiences in combination with high operating torques allow for excellent sealability in both onshore and offshore wells. The most of the Pro Series connections have been validated with the stringent requirements of ISO 13679 / API* 5C5 CAL IV.***

TMK UP PF

TMK UP PF ET

TMK UP CENTUM

TMK UP CENTUM ET

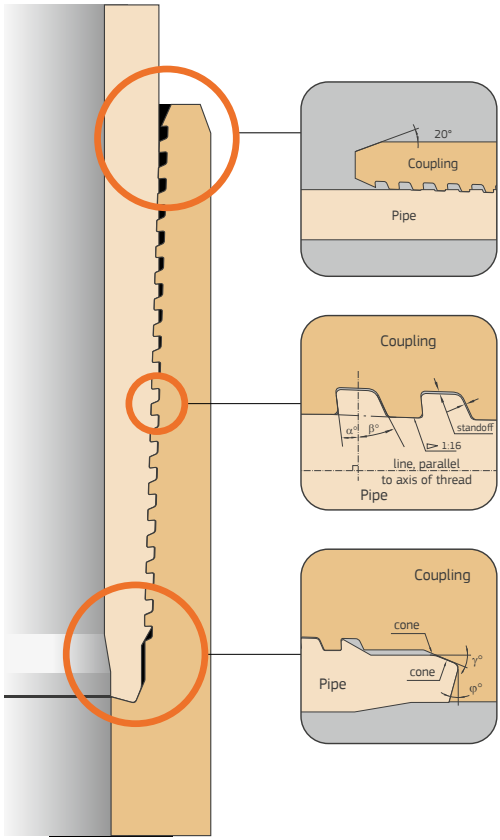
TMK UP CENTUM ET CHS

*** All Characteristics are based on the results of connection tests (in accordance with API* 5C5, ISO/PAS 12835 (TWCCEEP) in accredited laboratories) and mathematical modeling

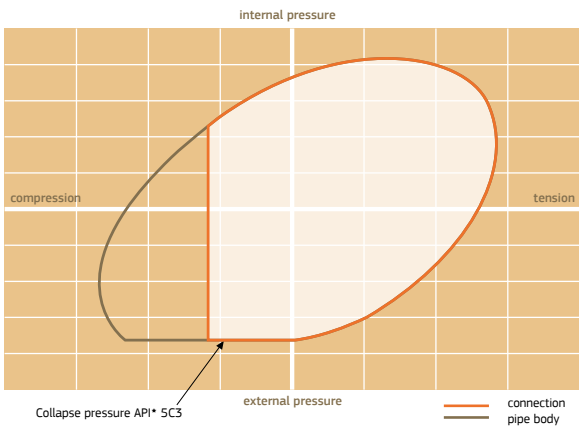
Pro Series

Threaded connection
TMK UP PF

Certified in accordance
with ISO 13679 CAL IV



TMK UP PF casing and tubing
Performance Envelope



TMK UP PF for Casing and Tubing

TMK UP PF is a threaded and coupled gas-tight connection for highly deviated and horizontal wells. Provides high performance in complex drilling environments (significant bending, compressive, tensile loads, torque, aggressive applications), and ensures a high gas tightness. The high reliability of this connection is confirmed by ISO 13679 CAL IV qualification and long-term experience of supplies for challenging oil and gas projects.

Tubing: 2-3/8″–4-1/2″ / 60.32–114.3 mm
Casing: 4-1/2″–13-3/8″ / 114.3–339.72 mm

Unique Features:
- 60%** (casing) and 80%** (tubing) compression efficiency
- 100%** tension efficiency
- Metal-to-metal gas-tight seal
- Optimized thread profile offers robust galling resistance
- Over-torque protection during make-up
- Hooked thread profile
- Reduced cross threading

Application:
- Casing and tubing
- Horizontal wells
- Oil and gas wells
- RIH with rotation
- Cementing with rotation
- High pressure
- Complicated well trajectory

TMK UP PF

Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
2 3/8	60,32	4,60	4,83	6,61	0,13	2,00	-	842	1313	689	49,70	73,02	66,20	165,00	48,28	72,00
		5,80	6,45	8,57	0,13	2,03	-	1 092	1313	689	46,50	73,02	66,20	165,00	45,04	72,00
		6,60	7,49	9,76	0,13	2,05	-	1 243	1313	689	45,20	73,02	66,20	165,00	42,96	72,00
		7,35	8,53	10,89	0,14	2,06	-	1 388	1313	689	44,20	73,02	66,20	165,00	40,88	72,00
2 7/8	73,02	6,40	5,51	9,17	0,17	3,33	2,25	1 169	2058	1288	61,20	88,90	83,20	180,00	59,62	74,50
		7,80	7,01	11,41	0,17	3,39	2,30	1 454	2058	1288	58,00	88,90	83,20	180,00	56,62	74,50
		8,60	7,82	12,57	0,18	3,41	2,32	1 602	2058	1288	57,50	88,90	83,20	180,00	55,00	74,50
		9,35	8,64	13,72	0,19	3,42	2,34	1 747	2058	1288	56,70	88,90	83,20	180,00	53,36	74,50
		10,50	9,96	15,49	0,21	3,45	2,36	1 973	2058	1288	55,40	88,90	83,20	180,00	50,72	74,50
		11,50	11,18	17,05	0,23	3,49	2,40	2 172	2058	1288	53,60	88,90	83,20	180,00	48,28	74,50
3 1/2	88,90	7,70	5,49	11,29	0,25	5,33	2,82	1 439	3058	1455	77,00	108,00	98,10	200,00	74,74	82,10
		9,20	6,45	13,12	0,25	5,40	2,88	1 671	3058	1455	75,00	108,00	98,10	200,00	72,82	82,10
		10,20	7,34	14,76	0,25	5,42	2,91	1 881	3058	1455	73,80	108,00	98,10	200,00	71,04	82,10
		12,70	9,52	18,64	0,29	5,49	2,98	2 374	3058	1455	71,70	108,00	98,10	200,00	66,68	82,10
		14,30	10,92	21,00	0,32	5,55	3,04	2 675	3058	1455	69,90	108,00	98,10	200,00	63,88	82,10
		15,50	12,09	22,90	0,33	5,62	3,10	2 917	3058	1455	67,80	108,00	98,10	200,00	61,54	82,10
		17,00	13,46	25,04	0,34	5,69	3,17	3 190	3058	1455	65,40	108,00	98,10	200,00	58,80	82,10
4	101,60	9,50	5,74	13,57	0,35	5,88	3,11	1 729	3533	1768	89,70	120,70	111,00	200,00	86,94	90,10
		10,70	6,50	15,24	0,35	5,92	3,15	1 942	3533	1768	87,70	120,70	111,00	200,00	85,42	90,10
		10,70	6,65	15,57	0,35	5,92	3,15	1 984	3533	1768	87,70	120,70	111,00	200,00	85,12	90,10
		13,20	8,38	19,27	0,37	5,96	3,19	2 454	3533	1768	85,00	120,70	111,00	200,00	81,66	90,10
		16,10	10,54	23,67	0,42	6,01	3,24	3 015	3533	1768	82,90	120,70	111,00	200,00	77,34	90,10

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Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm^2	mm^2	mm^2	mm	mm	mm	mm	mm	mm
4 1/2	114,30	11,60	6,35	16,91	0,54	5,82	4,62	2 154	2743	2116	101,10	127,00	123,82	245,00	98,42	103,60
		12,60	6,88	18,23	0,54	7,75	4,79	2 322	3780	2210	99,60	132,10	124,30	240,00	97,36	103,60
		13,50	7,37	19,44	0,54	5,94	4,74	2 476	2743	2116	98,60	127,00	123,82	245,00	96,38	103,60
		15,20	8,56 HKT (tubing)	22,32	0,55	7,81	4,85	2 844	3780	2210	96,20	132,10	124,30	240,00	94,00	103,60
		15,10	8,56	22,32	0,58	5,99	4,78	2 844	2743	2116	96,20	127,00	123,82	245,00	94,00	103,60
		17,00	9,65	24,90	0,55	7,85	4,89	3 173	3780	2210	94,00	132,10	124,30	240,00	91,82	103,60
		18,90	10,92	27,84	0,58	7,90	4,94	3 547	3780	2210	93,30	132,10	124,30	240,00	89,28	103,60
		21,50	12,70	31,82	0,63	7,96	5,00	4 054	3780	2210	91,60	132,10	124,30	240,00	85,72	103,60
5	127	15,00	7,52	22,16	0,65	7,40	5,36	2 823	3426	2378	111,10	141,30	136,52	250,00	108,78	106,70
		18,00	9,19	26,70	0,69	7,45	5,41	3 401	3426	2378	110,10	141,30	136,52	250,00	105,44	106,70
		21,40	11,10	31,73	0,77	7,54	5,49	4 042	3426	2378	108,50	141,30	136,52	250,00	101,62	106,70
		23,20	12,14	34,39	0,78	7,64	5,59	4 381	3426	2378	106,50	141,30	136,52	250,00	99,54	106,70
		24,10	12,70	35,80	0,79	7,69	5,64	4 560	3426	2378	105,50	141,30	136,52	250,00	98,42	106,70
5 1/2	139,7	15,50	6,98	22,85	0,75	8,51	6,31	2 910	3701	2631	126,00	153,67	149,22	265,00	122,56	108,30
		17,00	7,72	25,13	0,76	8,63	6,42	3 201	3701	2631	124,50	153,67	149,22	265,00	121,08	108,30
		20,00	9,17	29,52	0,76	8,83	6,63	3 760	3701	2631	121,70	153,67	149,22	265,00	118,18	108,30
		23,00	10,54	33,57	0,83	8,86	6,66	4 277	3701	2631	121,30	153,67	149,22	265,00	115,44	108,30
		26,00	12,09	38,05	0,86	9,04	6,84	4 847	3701	2631	118,40	153,67	149,22	265,00	112,34	108,30
5 3/4	146.05	16,14	7	24	0,8	11,88	6,66	3058	5387	2858	130,4	166	156	265	128,87	108,3
		17,68	7,7	26,27	0,8	11,98	6,76	3347	5387	2858	130,4	166	156	265	127,47	108,3
		19,62	8,5	28,83	0,82	12,1	6,88	3673	5387	2858	128,8	166	156	265	125,87	108,3
		21,51	9,5	31,99	0,82	12,26	7,02	4075	5387	2858	126,8	166	156	265	123,87	108,3
		24,01	10,7	35,71	0,84	12,42	7,2	4550	5387	2858	124,4	166	156	265	121,47	108,3

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TMK UP PF

Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
6 5/8	168,28	20,00	7,32	29,06	0,99	14,20	8,06	3 702	6082	3240	152,30	187,71	177,80	265,00	150,46	113,90
		21,25	8,00	31,62	0,99	14,32	8,18	4 028	6082	3240	150,90	187,71	177,80	265,00	149,10	113,90
		24,00	8,94	35,13	1,00	14,41	8,27	4 475	6082	3240	149,90	187,71	177,80	265,00	147,22	113,90
		28,00	10,59	41,18	1,08	14,50	8,36	5 246	6082	3240	148,90	187,71	177,80	265,00	143,92	113,90
		32,00	12,06	46,46	1,20	14,55	8,41	5 919	6082	3240	148,30	187,71	177,80	265,00	140,98	113,90
7	177,8	23,00	8,05	33,70	1,15	16,71	8,36	4 293	7356	3493	160,90	200,03	187,32	275,00	158,52	118,70
		26,00	9,19	38,21	1,19	16,79	8,44	4 868	7356	3493	159,90	200,03	187,32	275,00	156,24	118,70
		29,00	10,36	42,78	1,25	16,86	8,52	5 450	7356	3493	158,90	200,03	187,32	275,00	153,90	118,70
		32,00	11,51	47,20	1,32	16,94	8,59	6 013	7356	3493	157,90	200,03	187,32	275,00	151,60	118,70
		35,00	12,65	51,52	1,39	17,03	8,69	6 563	7356	3493	156,70	200,03	187,32	275,00	149,32	118,70
		38,00	13,72	55,52	1,39	17,21	8,86	7 072	7356	3493	154,40	200,03	187,32	275,00	147,18	118,70
		42,70	15,88	63,41	1,46	17,51	9,16	8 078	7356	3493	150,60	200,03	187,32	275,00	142,86	118,70
		46,40	17,45	69,01	1,51	17,72	9,38	8 791	7356	3493	147,80	200,03	187,32	275,00	139,72	118,70
7 5/8	193,68	26,40	8,33	38,08	1,39	19,91	12,55	4 851	8077	4919	176,30	215,90	206,38	297,00	173,84	124,90
		29,70	9,52	43,24	1,44	20,01	12,65	5 508	8077	4919	175,30	215,90	206,38	297,00	171,46	124,90
		33,70	10,92	49,22	1,53	20,12	12,76	6 270	8077	4919	174,30	215,90	206,38	297,00	168,66	124,90
		39,00	12,70	56,68	1,65	20,32	12,96	7 221	8077	4919	172,40	215,90	206,38	297,00	165,10	124,90
		42,80	14,27	63,14	1,69	20,62	13,26	8 043	8077	4919	169,50	215,90	206,38	297,00	161,96	124,90
		45,30	15,11	66,54	1,71	20,79	13,43	8 477	8077	4919	167,90	215,90	206,38	297,00	160,28	124,90
		51,20	17,45	75,84	3,84	22,40	19,30	9 661	8077	4919	158,78	215,90	206,38	297,00	155,60	135,00
		55,30	19,05	82,04	3,88	22,60	19,48	10 451	8077	4919	155,58	215,90	212,09	297,00	152,40	135,00

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Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
8 5/8	219,08	32,00	8,94	46,33	1,71	25,07	14,00	5 902	10366	5616	201,50	244,48	231,78	297,00	198,02	128,00
		36,00	10,16	52,35	1,78	25,18	14,10	6 668	10366	5616	200,50	244,48	231,78	297,00	195,58	128,00
		40,00	11,43	58,53	1,89	25,28	14,21	7 456	10366	5616	199,50	244,48	231,78	297,00	193,04	128,00
		44,00	12,70	64,64	1,99	25,43	14,36	8 234	10366	5616	198,10	244,48	231,78	297,00	190,50	128,00
		49,00	14,15	71,51	2,03	25,72	14,64	9 110	10366	5616	195,40	244,48	231,78	297,00	187,60	128,00
9 5/8	244,48	36,00	8,94	51,93	1,91	27,69	15,44	6 615	11510	6253	226,90	269,88	257,18	297,00	222,63	128,00
		40,00	10,03	57,99	1,98	27,80	15,55	7 388	11510	6253	225,90	269,88	257,18	297,00	220,45	128,00
		43,50	11,05	63,61	2,06	27,91	15,65	8 103	11510	6253	224,90	269,88	257,18	297,00	218,41	128,00
		47,00	11,99	68,75	2,13	28,02	15,76	8 757	11510	6253	223,90	269,88	257,18	297,00	216,53	128,00
		53,50	13,84	78,72	2,29	28,27	16,02	10 028	11510	6253	221,60	269,88	257,18	297,00	212,83	128,00
		58,40	15,11	85,47	2,33	28,54	16,28	10 888	11510	6253	219,20	269,88	257,18	297,00	210,29	128,00
9 7/8	250,83	62,80	15,88	92,01	2,52	30,27	-	11 721	12433	-	225,50	276,00	-	297,00	215,10	128,00
		66,40	16,79	96,91	2,55	30,48	-	12 345	12433	-	224,60	276,00	-	297,00	213,28	128,00
		72,10	18,29	104,89	2,60	30,83	-	13 362	12433	-	223,10	276,00	-	297,00	210,28	128,00
10 3/4	273,05	40,50	8,89	57,91	2,13	30,70	17,11	7 378	12795	6968	255,40	298,45	285,75	297,00	251,30	129,00
		45,50	10,16	65,87	2,23	30,81	17,23	8 391	12795	6968	254,40	298,45	285,75	297,00	248,76	129,00
		51,00	11,43	73,75	2,37	30,93	17,35	9 394	12795	6968	253,40	298,45	285,75	297,00	246,22	129,00
		55,50	12,57	80,75	2,55	30,89	17,31	10 286	12795	6968	253,80	298,45	285,75	297,00	243,94	129,00
		60,70	13,84	88,47	2,56	31,02	17,44	11 270	12795	6968	252,80	298,45	285,75	297,00	241,40	129,00
		65,70	15,11	96,12	2,64	31,57	17,99	12 244	12795	6968	248,00	298,45	285,75	297,00	238,86	129,00
		73,20	17,07	107,76	2,72	32,02	18,43	13 727	12795	6968	244,30	298,45	285,75	297,00	234,94	129,00

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TMK UP PF

Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
11 3/4	298,45	42	8,46	60,5	2,28	33,35	-	7 707	13941	-	281	323,85	-	297	277,56	129
		47	9,52	67,83	2,33	33,51	-	8 641	13941	-	279,7	323,85	-	297	275,44	129
		54	11,05	78,32	2,45	33,72	-	9 977	13941	-	278,1	323,85	-	297	272,38	129
		60	12,42	87,61	2,61	33,88	-	11 160	13941	-	276,9	323,85	-	297	269,64	129
		65	13,56	95,27	2,76	34,02	-	12 136	13941	-	275,8	323,85	-	297	267,36	129
		71	14,78	103,4	2,92	34,19	-	13 172	13941	-	274,5	323,85	-	297	264,92	129
11 7/8	301,63	67,9	13,97	99,1	2,86	33,54	-	12 625	13813	-	278,7	326,25	-	297	269,72	129
		71,8	14,78	104,56	2,97	33,66	-	13 319	13813	-	277,8	326,25	-	297	268,1	129
12 3/4	323,85	50,89	9,5	73,65	2,62	38,45	-	9 382	16048	-	306,2	351	-	297	300,88	129
		58,78	11	84,87	2,83	38,59	-	10 811	16048	-	305,2	351	-	297	297,88	129
		65,13	12,4	95,24	2,95	38,88	-	12 133	16048	-	303,2	351	-	297	295,08	129
		72,87	14	106,98	3,17	39,13	-	13 628	16048	-	301,4	351	-	297	291,88	129
13 3/8	339,72	54,5	9,65	78,55	2,77	37,93	-	10 007	15795	-	322	365,12	-	297	316,45	129
		61	10,92	88,55	2,93	38,08	-	11 280	15795	-	321	365,12	-	297	313,91	129
		68	12,19	98,46	3,14	38,23	-	12 543	15795	-	320	365,12	-	297	311,37	129
		72	13,06	105,21	3,04	38,69	-	13 403	15795	-	319,1	365,12	-	297	309,63	129
		77	14	112,46	3,07	38,98	-	14 326	15795	-	315,1	365,12	-	297	307,75	129
		85	15,4	123,17	3,21	39,29	-	15 691	15795	-	313,1	365,12	-	297	304,95	129

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Strenght characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
2 3/8	60,32	4,60	4,83	319	465	523	552	638	726	784	813	871	53,1	77,4	87,0	91,8	106,2	120,8	130,5	135,4	145,0	55,9	81,3	91,5	96,6	111,5	123,7	131,5	135,4	142,8
		5,80	6,45	414	603	678	715	827	941	1016	1054	1130	70,9	103,3	116,2	122,6	141,8	161,3	174,2	180,8	193,7	72,5	105,4	118,6	125,2	145,0	164,7	177,9	184,5	197,7
		6,60	7,49	471	686	772	814	942	1072	1157	1201	1287	82,4	119,9	134,9	142,3	164,7	187,3	202,3	209,9	224,9	82,5	120,1	135,1	142,6	165,1	187,6	202,6	210,1	225,1
		7,35	8,53	498	725	815	860	995	1132	1223	1268	1359	93,8	136,6	153,7	162,1	187,6	213,3	230,4	239,1	256,1	92,2	134,0	150,8	159,2	184,3	209,4	226,2	234,6	251,3
2 7/8	73,02	6,40	5,51	443	645	726	765	886	1007	1088	1129	1210	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,6	136,7	53,0	77,0	85,4	89,2	100,3	110,8	117,5	120,7	126,9
		7,80	7,01	551	802	903	952	1102	1253	1353	1404	1505	63,7	92,7	104,3	110,0	127,3	144,8	156,4	162,3	173,9	65,9	95,8	107,8	113,8	131,7	149,7	161,7	167,7	179,6
		8,60	7,82	607	884	995	1049	1214	1381	1491	1547	1658	71,0	103,5	116,4	122,8	142,1	161,6	174,5	181,0	194,0	72,6	105,6	118,8	125,4	145,2	165,0	178,1	184,7	197,9
		9,35	8,64	662	965	1085	1145	1325	1506	1627	1688	1809	78,5	114,3	128,6	135,6	157,0	178,5	192,8	200,0	214,3	79,2	115,2	129,6	136,8	158,4	180,0	194,4	201,6	215,9
		10,50	9,96	748	1089	1225	1292	1496	1701	1837	1906	2042	90,5	131,8	148,2	156,3	180,9	205,8	222,2	230,6	247,1	89,4	130,0	146,3	154,4	178,8	203,2	219,5	227,6	143,8
		11,50	11,18	780	1136	1278	1348	1560	1774	1916	1988	2130	101,5	147,9	166,4	175,5	203,1	231,0	249,5	258,8	277,3	98,4	143,2	161,0	170,0	196,8	223,7	241,6	250,5	268,4
3 1/2	88,90	7,70	5,49	545	794	893	942	1090	1240	1339	1390	1489	41,0	59,7	67,1	70,8	81,9	93,2	100,6	104,4	111,9	41,2	54,3	59,0	61,2	67,2	72,5	75,6	77,0	79,5
		9,20	6,45	633	922	1038	1094	1266	1440	1555	1614	1729	48,1	70,1	78,8	83,2	96,2	109,4	118,2	122,7	131,4	51,1	72,7	79,8	83,3	93,3	102,7	108,6	111,4	116,8
		10,20	7,34	713	1038	1168	1232	1426	1621	1751	1817	1947	54,8	79,8	89,7	94,6	109,5	124,5	134,5	139,6	149,5	57,5	83,6	94,1	99,3	115,0	130,7	139,2	143,3	151,4
		12,70	9,52	900	1310	1474	1555	1800	2046	2210	2293	2457	71,0	103,4	116,4	122,7	142,1	161,5	174,5	181,0	194,0	72,6	105,6	118,8	125,4	145,1	164,9	178,1	184,7	197,9
		14,30	10,92	1014	1477	1661	1752	2028	2306	2491	2584	2769	81,5	118,7	133,5	140,8	162,9	185,3	200,1	207,7	222,5	81,8	119,0	133,8	141,3	163,6	185,9	200,7	208,2	223,0
		15,50	12,09	1106	1610	1812	1911	2211	2515	2716	2818	3019	90,2	131,4	147,8	155,9	180,4	205,1	221,6	229,9	246,3	89,2	129,7	145,9	154,0	178,4	202,7	218,9	227,0	243,2
		17,00	13,46	1159	1688	1899	2003	2318	2636	2847	2954	3165	100,4	146,3	164,5	173,5	200,8	228,4	246,7	256,0	274,2	97,5	141,8	159,6	168,4	195,0	221,6	239,4	248,2	266,0
4	101,60	9,50	5,74	655	954	1073	1132	1310	1490	1609	1670	1789	37,5	54,6	61,4	64,8	74,9	85,2	92,0	95,5	102,3	35,3	45,4	48,8	50,4	54,5	57,8	59,5	60,3	61,4
		10,70	6,50	736	1072	1206	1272	1472	1674	1808	1876	2010	42,4	61,8	69,5	73,3	84,9	96,5	104,2	108,2	115,9	43,7	58,1	63,3	65,7	72,5	78,7	82,4	84,1	87,2
		10,70	6,65	752	1095	1232	1299	1504	1710	1847	1916	2053	43,4	63,2	71,1	75,0	86,8	98,7	106,6	110,6	118,6	45,4	60,6	66,1	68,7	76,2	82,8	86,9	88,8	92,3
		13,20	8,38	930	1355	1524	1607	1860	2115	2285	2371	2540	54,7	79,7	89,6	94,5	109,4	124,4	134,4	139,4	149,4	57,4	83,5	94,0	99,2	114,9	130,4	138,9	143,0	151,1
		16,10	10,54	1143	1664	1872	1975	2286	2599	2807	2913	3121	68,8	100,2	112,7	118,9	137,6	156,5	169,0	175,4	187,9	70,6	102,6	115,5	121,9	141,1	160,4	173,2	179,6	192,5

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TMK UP PF

Strenght characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, kN									Collapse Pressure, Mpa								
				Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,30	11,60	6,35	816	1189	1337	1411	1632	1856	2005	2080	2229	36,8	53,7	60,4	63,7	73,7	83,8	90,5	93,9	100,6	34,2	43,8	47,0	48,4	52,3	55,2	56,7	57,3	58,1
		12,60	6,88	880	1282	1442	1521	1760	2001	2162	2243	2403	39,9	58,1	65,4	69,0	79,8	90,8	98,1	101,8	109,0	39,5	51,7	56,0	58,0	63,5	68,2	70,8	72,0	74,1
		13,50	7,37	938	1367	1537	1622	1877	2134	2305	2392	2562	42,8	62,3	70,1	73,9	85,5	97,3	105,1	109,0	116,8	44,3	59,0	64,2	66,7	73,8	80,1	83,9	85,7	88,9
		15,20	8,56 HKT (tubing)	1078	1570	1766	1863	2155	2451	2647	2747	2943	49,7	72,3	81,4	85,8	99,3	113,0	122,0	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
		15,10	8,56	1040	1514	1703	1797	2079	2364	2554	2650	2839	49,7	72,3	81,4	85,8	99,3	113,0	122,0	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
		17,00	9,65	1202	1751	1970	2078	2405	2735	2954	3065	3284	56,0	81,6	91,8	96,8	112,0	127,4	137,6	142,7	152,9	58,7	85,3	96,0	101,3	117,3	133,3	144,0	149,2	157,8
		18,90	10,92	1344	1958	2202	2323	2688	3057	3302	3426	3671	63,4	92,3	103,8	109,5	126,7	144,1	155,7	161,5	173,0	65,6	95,4	107,3	113,3	131,2	149,1	161,0	166,9	178,9
		21,50	12,70	1433	2087	2347	2476	2865	3258	3519	3651	3912	73,7	107,3	120,8	127,4	147,4	167,6	181,0	187,8	201,3	75,0	109,0	122,7	129,5	149,9	170,4	184,0	190,8	204,4
5	127	15,00	7,52	1070	1558	1753	1849	2140	2433	2628	2727	2921	39,3	57,2	64,3	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50,0	54,1	56,0	61,1	65,4	67,8	68,9	70,7
		18,00	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3520	48,0	69,9	78,6	82,9	96,0	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108,0	110,8	116,2
		21,40	11,10	1298	1891	2128	2244	2597	2953	3190	3310	3546	58,0	84,4	95,0	100,2	115,9	131,8	142,4	147,8	158,3	60,5	88,1	99,1	104,6	121,1	137,6	148,6	154,1	165,1
		23,20	12,14	1298	1891	2128	2244	2597	2953	3190	3310	3546	63,4	92,3	103,9	109,6	126,8	144,2	155,7	161,6	173,1	65,6	95,4	107,4	113,3	131,2	149,1	161,1	167,0	179,0
		24,10	12,70	1298	1891	2128	2244	2597	2953	3190	3310	3546	66,3	96,6	108,7	114,6	132,7	150,9	162,9	169,1	181,1	68,3	99,4	111,8	118,0	136,6	155,3	167,7	173,9	186,3
5 1/2	139,7	15,50	6,98	1103	1607	1807	1906	2206	2509	2710	2811	3012	33,1	48,3	54,3	57,3	66,3	75,4	81,4	84,5	90,5	27,9	34,4	36,2	37,0	38,8	40,5	41,9	42,5	43,5
		17,00	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3313	36,7	53,4	60,1	63,3	73,3	83,4	90,0	93,4	100,1	33,9	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20,00	9,17	1403	2043	2298	2424	2805	3190	3446	3575	3831	43,5	63,4	71,3	75,2	87,1	99,0	106,9	111,0	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23,00	10,54	1403	2043	2298	2424	2805	3190	3446	3575	3831	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77,0	85,4	89,2	100,3	110,8	117,4	120,6	126,8
		26,00	12,09	1403	2043	2298	2424	2805	3190	3446	3575	3831	57,4	83,6	94,1	99,2	114,8	130,5	141,0	146,3	156,8	59,9	87,3	98,2	103,6	119,8	136,4	147,2	152,7	163,6
5 3/4	146,05	16,14	7	1159	1688	1899	2003	2318	2636	2847	2954	3165	31,8	46,3	52,1	54,9	63,6	72,3	78,1	81	86,8	25,5	30,9	32,3	32,8	34,8	36,8	37,9	38,3	38,9
		17,68	7,7	1268	1847	2078	2192	2537	2885	3116	3233	3464	35	50,9	57,3	60,4	69,9	79,5	85,9	89,1	95,5	31	39	41,5	42,7	45,4	47,3	48	48,2	49,7
		19,62	8,5	1392	2028	2281	2406	2784	3166	3420	3548	3802	38,6	56,2	63,2	66,7	77,2	87,8	94,8	98,4	105,4	37,2	48,3	52,1	53,9	58,6	62,6	64,7	65,7	67,2
		21,51	9,5	1545	2250	2531	2669	3089	3513	3794	3937	4218	43,1	62,8	70,7	74,6	86,3	98,1	106	110	117,8	45	59,9	65,3	67,9	75,2	81,7	85,7	87,5	90,9
		24,01	10,7	1724	2511	2825	2980	3449	3922	4236	4395	4709	48,6	70,8	79,6	84	97,2	110,5	119,4	123,9	132,7	51,5	73,9	81,2	84,7	95	104,7	110,7	113,7	119,3

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Strenght characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, kN									Collapse Pressure, Mpa								
				Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	3446	3576	3831	28,9	42,0	47,3	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24,0	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		21,25	8,00	1527	2224	2502	2639	3053	3472	3750	3891	4169	31,5	45,9	51,7	54,5	63,1	71,7	77,5	80,4	86,1	25,1	30,2	31,6	32,0	34,2	36,1	37,1	37,5	38,1
		24,00	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28,00	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41,7	60,8	68,4	72,1	83,5	94,9	102,5	106,4	114,0	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		32,00	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6126	47,5	69,2	77,9	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8
7	177,8	23,00	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4443	30,0	43,7	49,2	51,9	60,1	68,3	73,8	76,5	82,0	22,5	26,4	27,8	28,6	30,6	32,0	32,6	32,8	33,0
		26,00	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5038	34,3	49,9	56,2	59,2	68,6	78,0	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,4	46,1	47,4
		29,00	10,36	2065	3008	3384	3570	4131	4698	5074	5264	5640	38,6	56,3	63,3	66,8	77,3	87,9	94,9	98,5	105,5	37,3	48,4	52,2	54,0	58,8	62,8	65,0	65,9	67,5
		32,00	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6223	42,9	62,5	70,4	74,2	85,9	97,7	105,5	109,4	117,3	44,8	59,4	64,7	67,6	74,4	81,3	85,2	87,0	90,4
		35,00	12,65	2487	3623	4076	4299	4975	5658	6110	6340	6793	47,2	68,7	77,3	81,6	94,4	107,3	115,9	120,3	128,9	50,2	70,3	77,1	80,4	89,9	98,8	104,3	106,9	112,0
		38,00	13,72	2680	3904	4392	4632	5361	6096	6584	6832	7320	51,2	74,5	83,9	88,5	102,4	116,4	125,7	130,4	139,8	54,0	78,6	88,4	92,7	104,4	115,6	122,7	126,1	132,7
		42,70	15,88	2788	4061	4568	4818	5576	6341	6848	7106	7613	59,2	86,3	97,1	102,4	118,5	134,7	145,5	151,0	161,8	61,7	89,8	101,0	106,6	123,5	140,3	151,5	157,1	168,4
		46,40	17,45	2788	4061	4568	4818	5576	6341	6848	7106	7613	65,1	94,8	106,7	112,5	130,2	148,1	159,9	165,9	177,8	65,2	97,7	109,9	116,0	134,4	152,7	164,9	171,0	183,2
7 5/8	193,68	26,40	8,33	1838	2677	3012	3177	3677	4181	4516	4686	5020	28,5	41,5	46,7	49,3	57,1	64,9	70,1	72,7	77,9	20,0	23,5	24,9	25,6	27,0	27,9	28,1	28,2	28,3
		29,70	9,52	2087	3040	3420	3608	4175	4748	5128	5321	5701	32,6	47,5	53,4	56,3	65,2	74,1	80,1	83,1	89,0	26,9	33,0	34,7	35,4	36,8	39,1	40,3	40,8	41,7
		33,70	10,92	2376	3461	3894	4107	4753	5405	5837	6057	6489	37,4	54,5	61,3	64,6	74,8	85,1	91,9	95,3	102,1	35,1	45,2	48,6	50,2	54,3	57,5	59,2	59,9	61,0
		39,00	12,70	2737	3986	4484	4730	5473	6224	6723	6975	7474	43,5	63,3	71,3	75,2	87,0	98,9	106,8	110,8	118,8	45,6	60,8	66,3	69,0	76,4	83,2	87,3	89,2	92,7
		42,80	14,27	3048	4440	4995	5268	6097	6933	7488	7770	8325	48,9	71,2	80,1	84,5	97,7	111,1	120,0	124,6	133,4	51,8	74,6	82,0	85,6	96,0	105,8	112,0	115,0	120,7
		45,30	15,11	3061	4459	5016	5290	6122	6962	7520	7802	8360	51,7	75,4	84,8	89,4	103,5	117,7	127,1	131,9	141,3	54,6	79,4	89,3	94,3	106,5	117,9	125,3	128,8	135,7
		51,20	17,45	3061	4459	5016	5290	6122	6962	7520	7802	8360	59,8	87,0	97,9	103,3	119,5	135,9	146,8	152,3	163,2	62,1	90,5	101,8	107,4	124,3	141,3	152,6	158,4	169,7
		55,30	19,05	3061	4459	5016	5290	6122	6962	7520	7802	8360	65,2	95,0	106,9	112,7	130,5	148,4	160,2	166,3	178,2	67,2	97,9	110,1	116,2	134,4	152,9	165,1	171,3	183,6

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TMK UP PF

Strenght characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, kN									Collapse Pressure, Mpa								
				Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
8 5/8	219,08	32,00	8,94	2237	3258	3665	3866	4474	5087	5495	5701	6109	27,1	39,4	44,3	46,8	54,1	61,6	66,5	69,0	73,9	17,5	21,0	22,2	22,6	23,6	23,7	23,7	23,8	23,9
		36,00	10,16	2527	3681	4141	4368	5055	5748	6208	6442	6902	30,8	44,8	50,4	53,2	61,5	70,0	75,6	78,4	84,0	23,8	28,3	29,3	30,0	32,3	34,0	34,7	35,0	35,3
		40,00	11,43	2826	4116	4630	4884	5652	6427	6942	7203	7717	34,6	50,4	56,7	59,8	69,2	78,7	85,0	88,2	94,5	30,4	38,1	40,5	41,5	44,1	45,7	46,2	47,0	48,4
		44,00	12,70	3121	4545	5113	5393	6242	7098	7666	7954	8522	38,4	56,0	63,0	66,4	76,9	87,4	94,4	98,0	105,0	36,9	47,9	51,7	53,4	58,1	61,9	63,9	64,8	66,3
		49,00	14,15	3453	5029	5657	5967	6905	7853	8481	8800	9429	42,8	62,4	70,2	74,0	85,7	97,4	105,2	109,2	117,0	44,5	59,1	64,4	67,0	74,1	80,4	84,1	85,8	89,1
9 5/8	244,48	36,00	8,94	2507	3652	4108	4333	5014	5702	6159	6384	6847	24,3	35,3	39,7	41,9	48,5	55,2	59,6	61,8	66,2	14,0	16,4	16,8	17,0	17,1	17,2	17,3	17,3	17,4
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	7129	7646	27,2	39,6	44,6	47,0	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8387	30,0	43,7	49,1	51,8	60,0	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9064	32,5	47,4	53,3	56,2	65,1	74,0	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	9677	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
		58,40	15,11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41,0	59,7	67,2	70,8	82,0	93,2	100,7	104,4	111,9	41,3	54,5	59,1	61,3	67,3	72,7	75,8	77,2	79,7
9 7/8	250,83	62,80	15,88	4442	6470	7279	7677	8885	10104	10913	11311	12132	42,0	61,2	68,8	72,6	84,0	95,5	103,1	106,9	114,7	43,0	57,0	62,0	64,3	70,9	76,9	80,3	82,0	84,9
		66,40	16,79	4679	6814	7666	8086	9358	10641	11493	11913	12777	44,4	64,7	72,7	76,7	88,8	101,0	109,1	113,0	121,2	47,1	63,1	69,0	71,7	79,7	87,0	91,4	93,5	97,4
		72,10	18,29	4712	6863	7721	8144	9424	10717	11575	11998	12868	48,4	70,4	79,2	83,6	96,7	110,0	118,8	123,1	132,1	51,2	73,3	80,5	84,0	94,1	103,7	109,7	112,6	118,1
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	6869	7119	7636	21,6	31,5	35,4	37,3	43,2	49,1	53,0	55,0	59,0	10,9	11,9	12,0	12,0	12,1	12,2	12,3	12,4	12,5
		45,50	10,16	3180	4632	5211	5496	6360	7233	7812	8097	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18,0	17,5	17,6	17,7
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	9066	9723	27,8	40,4	45,5	48,0	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24,0	25,2	25,8	25,9	26,0	26,1
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	9926	10646	30,5	44,5	50,0	52,8	61,1	69,4	75,0	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	10876	11665	33,6	49,0	55,1	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44,0	45,1
		65,70	15,11	4641	6759	7604	8020	9281	10555	11399	11816	12673	36,7	53,5	60,1	63,4	73,4	83,5	90,2	93,5	100,2	34,0	43,5	46,6	48,0	51,7	54,6	56,0	56,6	57,4
		73,20	17,07	4849	7063	7946	8381	9699	11029	11912	12347	13243	41,5	60,4	67,9	71,7	82,9	94,3	101,9	105,6	113,2	42,1	55,6	60,4	62,7	69,1	74,6	77,9	79,4	82,8

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Strenght characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, kN									Collapse Pressure, Mpa								
				Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi									Minimum yield strenght Mpa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
11 3/4	298,45	42,00	8,46	2921	4254	4786	5048	5842	6644	7176	7445	7977	18,8	27,4	30,8	32,5	37,6	42,8	46,2	47,9	51,3	7,7	7,8	7,9	8,0	8,1	8,2	8,3	8,4	8,5
		47,00	9,52	3275	4770	5366	5660	6550	7449	8045	8348	8944	21,2	30,8	34,7	36,6	42,3	48,1	52,0	53,9	57,8	10,4	10,5	10,6	10,7	10,8	10,9	11,0	11,1	11,2
		54,00	11,05	3781	5507	6196	6535	7563	8600	9289	9638	10326	24,6	35,8	40,2	42,4	49,1	55,9	60,3	62,6	67,1	14,3	16,9	17,4	17,6	17,7	17,8	17,9	18,0	18,1
		60,00	12,42	4230	6161	6931	7310	8460	9620	10390	10781	11551	27,6	40,2	45,2	47,7	55,2	62,8	67,8	70,4	75,4	18,4	21,9	23,2	23,7	24,9	25,4	25,5	25,6	25,7
		65,00	13,56	4600	6699	7537	7949	9199	10462	11299	11724	12561	30,1	43,9	49,4	52,1	60,3	68,5	74,0	76,8	82,3	22,7	26,7	28,0	28,8	30,8	32,3	32,9	33,1	33,3
		71,00	14,78	4992	7271	8180	8627	9984	11354	12263	12724	13633	32,8	47,8	53,8	56,8	65,7	74,7	80,7	83,7	89,7	27,3	33,6	35,4	36,1	37,7	39,7	41,0	41,6	42,5
11 7/8	301,63	67,90	13,97	4785	6969	7840	8269	9570	10883	11754	12196	13067	30,7	44,7	50,3	53,1	61,4	69,9	75,5	78,3	83,9	23,7	28,2	29,2	29,9	32,2	33,9	34,7	35,0	35,3
		71,80	14,78	5048	7352	8271	8724	10096	11481	12400	12866	13785	32,5	47,3	53,3	56,2	65,0	73,9	79,8	82,8	88,8	26,7	32,7	34,4	35,0	36,4	38,8	40,0	40,5	41,3
12 3/4	323,85	50,89	9,50	3556	5179	5826	6145	7111	8087	8734	9063	9710	19,5	28,3	31,9	33,6	38,9	44,3	47,8	49,6	53,1	8,5	8,6	8,7	8,7	8,8	8,9	9,0	9,1	9,2
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	10444	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12,0	13,5	13,6	13,6	13,7	13,8	13,9	14,0	14,1
		65,13	12,40	4598	6697	7534	7947	9197	10458	11296	11720	12557	25,4	37,0	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19,0	19,3	19,6	19,7	19,8	19,9	20,0
		72,87	14,00	5165	7523	8463	8926	10330	11747	12688	13165	14105	28,7	41,8	47,0	49,6	57,3	65,2	70,4	73,1	78,3	20,2	23,7	25,2	25,8	27,4	28,3	28,5	28,6	28,7
13 3/8	339,72	54,50	9,65	3792	5524	6214	6554	7585	8626	9316	9666	10357	18,8	27,4	30,9	32,6	37,7	42,9	46,3	48,0	51,4	7,8	7,9	8,0	8,0	8,1	8,2	8,3	8,4	8,5
		61,00	10,92	4275	6226	7005	7388	8550	9723	10502	10896	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,8	10,8	10,9	11,0	11,1	11,2	11,3
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	12117	12982	23,8	34,7	39,0	41,1	47,6	54,1	58,5	60,7	65,0	13,4	15,6	16,0	16,1	16,2	16,3	16,4	16,5	16,6
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	12947	13872	25,5	37,1	41,8	44,1	51,0	58,0	62,6	65,0	69,6	15,4	18,4	19,2	19,5	19,9	20,0	20,1	20,2	20,3
		77,00	14,00	5430	7908	8896	9383	10859	12349	13337	13839	14827	27,3	39,8	44,8	47,2	54,7	62,2	67,1	69,7	74,6	17,9	21,5	22,7	23,2	24,2	24,6	24,7	24,8	24,9
		85,00	15,40	5947	8661	9744	10277	11894	13525	14608	15157	16240	30,1	43,8	49,3	52,0	60,1	68,4	73,9	76,6	82,1	22,6	26,5	27,8	28,6	30,7	32,1	32,7	32,9	33,1

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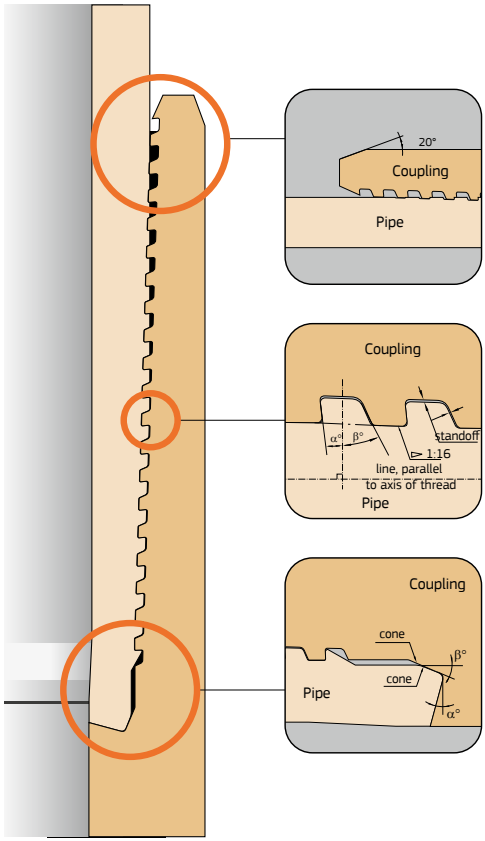
Pro Series

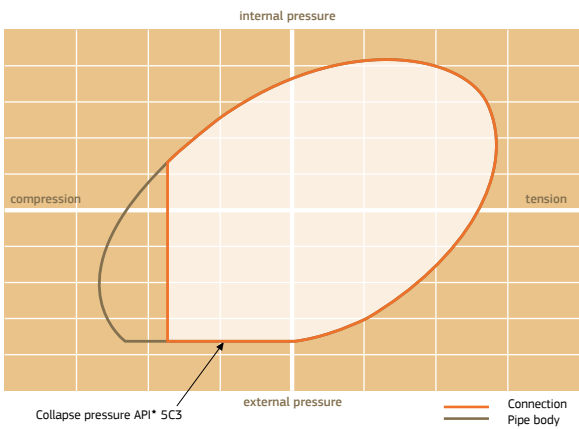
Threaded connection
TMK UP PF ET

TMK UP PF ET

Certified in accordance with ISO 13679 CAL IV



TMK UP PF ET
Performance Envelope



TMK UP PF ET for Casing

TMK UP PF ET is a modified TMK UP PF with a larged trust. It has an increased torque (up to 30% related to TMK UP PF) that allows to use the connection while rotating the pipe string during running, cementing, and drilling while casing. TMK UP PF ET provides high gas tightness under particularly difficult operating conditions (extreme bending, compressive, tensile loads, torque, aggressive environment). Qualified to ISO 13679 CAL IV.

Range: 4-1/2″–13-3/8″ / 114.3–339.72 mm

Unique Feature:
- 80%** compression efficiency
- 100%** tension efficiency
- Gas-tight metal-to-metal seal
- Over-torque protection during make-up
- Hooked thread profile
- Reduced cross threading
- Robust galling resistance

Application:
- Horizontal and ERD wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation
- Casing while Drilling (CwD)
- Complicated well trajectory

TMK UP PF ET

Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm^2	mm^2	mm^2	mm	mm	mm	mm	mm	mm
4 1/2	114,30	11,60	6,35	16,91	0,54	5,82	4,62	2 154	2743	2112	100,10	127,00	123,82	245,00	98,42	103,60
		13,50	7,37	19,44	0,54	5,97	4,76	2 476	2743	2112	98,10	127,00	123,82	245,00	96,38	103,60
		15,10	8,56	22,32	0,55	6,08	4,87	2 844	3760	2210	95,70	127,00	123,82	245,00	94,00	103,60
5	127,00	15,00	7,52	22,16	0,65	7,44	5,39	2 823	3426	2378	110,50	141,30	136,52	250,00	108,78	106,70
		18,00	9,19	26,70	0,66	7,61	5,56	3 401	3426	2378	107,10	141,30	136,52	250,00	105,44	106,70
		21,40	11,10	31,73	0,67	7,81	5,76	4 042	3426	2378	103,30	141,30	136,52	250,00	101,62	106,70
		23,20	12,14	34,39	0,68	7,91	5,86	4 381	3426	2378	101,20	141,30	136,52	250,00	99,54	106,70
		24,10	12,70	35,80	0,69	7,97	5,92	4 560	3426	2378	100,10	141,30	136,52	250,00	98,42	106,70
5 1/2	139,70	15,50	6,98	22,85	0,74	8,64	6,44	2 910	3701	2631	124,20	153,67	149,22	265,00	122,56	108,30
		17,00	7,72	25,13	0,74	8,75	6,55	3 201	3701	2631	122,80	153,67	149,22	265,00	121,08	108,30
		20,00	9,17	29,52	0,75	8,97	6,77	3 760	3701	2631	119,90	153,67	149,22	265,00	118,18	108,30
		23,00	10,54	33,57	0,76	9,17	6,97	4 277	3701	2631	117,10	153,67	149,22	265,00	115,44	108,30
		26,00	12,09	38,05	0,78	9,4	7,20	4 847	3701	2631	114,00	153,67	149,22	265,00	112,34	108,30
6 5/8	168,28	20,00	7,32	29,06	0,99	14,22	8,08	3 702	6082	3240	151,90	187,71	177,80	265,00	150,46	113,90
		21,25	8,00	31,62	0,99	14,35	8,21	4 028	6082	3240	150,60	187,71	177,80	265,00	149,10	113,90
		24,00	8,94	35,13	1	14,52	8,38	4 475	6082	3240	148,70	187,71	177,80	265,00	147,22	113,90
		28,00	10,59	41,18	1,02	14,82	8,67	5 246	6082	3240	145,40	187,71	177,80	265,00	143,92	113,90
		32,00	12,06	46,46	1,04	15,08	8,94	5 919	6082	3240	142,50	187,71	177,80	265,00	140,98	113,90

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Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
7	177,8	20,00	6,91	29,12	1,15	16,6	8,26	3 710	7366	3493	162,30	200,03	187,32	275,00	160,80	118,70
		23,00	8,05	33,70	1,16	16,78	8,43	4 293	7366	3493	160,00	200,03	187,32	275,00	158,52	118,70
		26,00	9,19	38,21	1,17	16,95	8,61	4 868	7366	3493	157,70	200,03	187,32	275,00	156,24	118,70
		29,00	10,36	42,78	1,18	17,14	8,79	5 450	7366	3493	155,40	200,03	187,32	275,00	153,90	118,70
		32,00	11,51	47,20	1,19	17,31	8,97	6 013	7366	3493	153,10	200,03	187,32	275,00	151,60	118,70
		35,00	12,65	51,52	1,21	17,49	9,14	6 563	7366	3493	150,80	200,03	187,32	275,00	149,32	118,70
7 5/8	193,68	24,00	7,62	34,96	1,38	19,88	12,52	4 454	8077	4919	176,50	215,90	206,38	297,00	175,26	124,90
		26,40	8,33	38,08	1,39	20,03	12,67	4 851	8077	4919	175,10	215,90	206,38	297,00	173,84	124,90
		29,70	9,52	43,24	1,4	20,28	12,92	5 508	8077	4919	172,70	215,90	206,38	297,00	171,46	124,90
		33,70	10,92	49,22	1,42	20,58	13,22	6 270	8077	4919	169,90	215,90	206,38	297,00	168,66	124,90
		39,00	12,70	56,68	1,45	20,95	13,59	7 221	8077	4919	166,40	215,90	206,38	297,00	165,10	124,90
		42,80	14,27	63,14	1,48	21,28	13,92	8 043	8077	4919	163,20	215,90	206,38	297,00	161,96	124,90
		45,30	15,11	66,54	1,5	21,46	14,10	8 477	8077	4919	161,60	215,90	206,38	297,00	160,28	124,90
8 5/8	219,08	28,00	7,72	40,24	1,67	25,05	13,97	5 126	10366	5616	201,70	244,48	231,78	297,00	200,46	128,00
		32,00	8,94	46,33	1,68	25,3	14,23	5 902	10366	5616	199,30	244,48	231,78	297,00	198,02	128,00
		36,00	10,16	52,35	1,69	25,56	14,49	6 668	10366	5616	196,90	244,48	231,78	297,00	195,58	128,00
		40,00	11,43	58,53	1,71	25,83	14,75	7 456	10366	5616	194,30	244,48	231,78	297,00	193,04	128,00
		44,00	12,70	64,64	1,74	26,1	15,02	8 234	10366	5616	191,80	244,48	231,78	297,00	190,50	128,00
		49,00	14,15	71,51	1,77	26,41	15,33	9 110	10366	5616	188,90	244,48	231,78	297,00	187,60	128,00

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TMK UP PF ET

Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
9 5/8	244,48	36,00	8,94	51,93	1,87	27,93	15,68	6 615	11510	6253	224,70	269,88	257,18	297,00	222,63	128,00
		40,00	10,03	57,99	1,89	28,17	15,92	7 388	11510	6253	222,50	269,88	257,18	297,00	220,45	128,00
		43,50	11,05	63,61	1,91	28,4	16,14	8 103	11510	6253	220,50	269,88	257,18	297,00	218,41	128,00
		47,00	11,99	68,75	1,93	28,61	16,35	8 757	11510	6253	218,60	269,88	257,18	297,00	216,53	128,00
		53,50	13,84	78,72	1,97	29,02	16,76	10 028	11510	6253	214,90	269,88	257,18	297,00	212,83	128,00
		58,40	15,11	85,47	2	29,31	17,05	10 888	11510	6253	212,40	269,88	257,18	297,00	210,29	128,00
		59,40	15,47	87,37	2,02	29,39	17,13	11 130	11510	6253	211,60	269,88	257,18	297,00	209,57	128,00
		64,90	17,07	95,73	2,07	29,75	17,49	12 195	11510	6253	208,40	269,88	257,18	297,00	206,37	128,00
		70,30	18,64	103,82	2,13	30,11	17,85	13 225	11510	6253	205,30	269,88	257,18	297,00	203,23	128,00
		75,60	20,24	111,93	2,19	30,47	18,21	14 258	11510	6253	202,10	269,88	257,18	297,00	200,03	128,00
9 7/8	250,83	62,80	15,88	92,01	2,53	30,44	-	11 721	12433	-	217,20	276,00	-	297,00	215,10	128,00
		66,40	16,79	96,91	2,57	30,65	-	12 345	12433	-	215,40	276,00	-	297,00	213,28	128,00
		72,10	18,29	104,89	2,62	31	-	13 362	12433	-	212,40	276,00	-	297,00	210,28	128,00
10 3/4	273,05	40,50	8,89	57,91	2,09	30,95	17,36	7 378	12795	6968	253,30	298,45	285,75	297,00	251,30	129,00
		45,50	10,16	65,87	2,11	31,25	17,66	8 391	12795	6968	250,70	298,45	285,75	297,00	248,76	129,00
		51,00	11,43	73,75	2,14	31,55	17,96	9 394	12795	6968	248,20	298,45	285,75	297,00	246,22	129,00
		55,50	12,57	80,75	2,17	31,82	18,24	10 286	12795	6968	245,90	298,45	285,75	297,00	243,94	129,00
		60,70	13,84	88,47	2,2	32,13	18,54	11 270	12795	6968	243,40	298,45	285,75	297,00	241,40	129,00
		65,70	15,11	96,12	2,24	32,44	18,85	12 244	12795	6968	240,80	298,45	285,75	297,00	238,86	129,00
		73,20	17,07	107,76	2,31	32,92	19,33	13 727	12795	6968	236,90	298,45	285,75	297,00	234,94	129,00

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Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeuploss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
11 3/4	298,45	42,00	8,46	60,50	2,27	33,6	-	7 707	13941	-	279,50	323,85	-	297,00	277,56	129,00
		47,00	9,52	67,83	2,28	33,88	-	8 641	13941	-	277,40	323,85	-	297,00	275,44	129,00
		54,00	11,05	78,32	2,31	34,27	-	9 977	13941	-	274,40	323,85	-	297,00	272,38	129,00
		60,00	12,42	87,61	2,35	34,63	-	11 160	13941	-	271,60	323,85	-	297,00	269,64	129,00
		65,00	13,56	95,27	2,38	34,94	-	12 136	13941	-	269,30	323,85	-	297,00	267,36	129,00
		71,00	14,78	103,40	2,43	35,27	-	13 172	13941	-	266,90	323,85	-	297,00	264,92	129,00
11 7/8	301,63	67,90	13,97	99,10	2,43	34,48	-	12 625	13813	-	271,70	326,50	-	297,00	269,72	129,00
		71,80	14,78	104,56	2,46	34,7	-	13 319	13813	-	270,10	326,50	-	297,00	268,10	129,00
12 3/4	323,85	50,89	9,50	73,65	2,5	38,93	-	9 382	16048	-	302,90	351,00	-	297,00	300,88	129,00
		58,78	11,00	84,87	2,54	39,35	-	10 811	16048	-	299,90	351,00	-	297,00	297,88	129,00
		65,13	12,40	95,24	2,57	39,76	-	12 133	16048	-	297,10	351,00	-	297,00	295,08	129,00
		72,87	14,00	106,98	2,63	40,22	-	13 628	16048	-	293,90	351,00	-	297,00	291,88	129,00
13 3/8	339,72	54,50	9,65	78,55	2,62	38,46	-	10 007	15795	-	318,40	365,12	-	297,00	316,45	129,00
		61,00	10,92	88,55	2,65	38,85	-	11 280	15795	-	315,90	365,12	-	297,00	313,91	129,00
		68,00	12,19	98,46	2,69	39,23	-	12 543	15795	-	313,30	365,12	-	297,00	311,37	129,00
		72,00	13,06	105,21	2,72	39,5	-	13 403	15795	-	311,60	365,12	-	297,00	309,63	129,00

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TMK UP PF ET

Strenght characteristics of pipes with TMK UP PF ET threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,30	11,60	6,35	816	1189	1337	1411	1632	1856	2005	2080	2229	36,8	53,7	60,4	63,7	73,7	83,8	90,5	93,9	100,6	34,2	43,8	47,0	48,4	52,3	55,2	56,7	57,3	58,1
		13,50	7,37	938	1367	1537	1622	1877	2134	2305	2392	2562	42,8	62,3	70,1	73,9	85,5	97,3	105,1	109,0	116,8	44,3	59,0	64,2	66,7	73,8	80,1	83,9	85,7	88,9
		15,10	8,56	1078	1570	1766	1863	2155	2451	2647	2747	2943	49,7	72,3	81,4	85,8	99,3	113,0	122,0	126,6	135,6	52,6	76,5	98,9	88,1	98,9	109,2	115,7	118,9	124,9
5	127,00	15,00	7,52	1070	1558	1753	1849	2140	2433	2628	2727	2921	39,3	57,2	64,3	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50,0	54,1	56,0	61,1	65,4	67,8	68,9	70,7
		18,00	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3520	48,0	69,9	78,6	82,9	96,0	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108,0	110,8	116,2
		21,40	11,10	1298	1891	2128	2244	2597	2953	3190	3310	3546	58,0	84,4	95,0	100,2	115,9	131,8	142,4	147,8	158,3	60,5	88,1	99,1	104,6	121,1	137,6	148,6	154,1	165,1
		23,20	12,14	1298	1891	2128	2244	2597	2953	3190	3310	3546	63,4	92,3	103,9	109,6	126,8	144,2	155,7	161,6	173,1	65,6	95,4	107,4	113,3	131,2	149,1	161,1	167,0	179,0
		24,10	12,70	1298	1891	2128	2244	2597	2953	3190	3310	3546	66,3	96,6	108,7	114,6	132,7	150,9	162,9	169,1	181,1	68,3	99,4	111,8	118,0	136,6	155,3	167,7	173,9	186,3
5 1/2	139,70	15,50	6,98	1103	1607	1807	1906	2206	2509	2710	2811	3012	33,1	48,3	54,3	57,3	66,3	75,4	81,4	84,5	90,5	27,9	34,4	36,2	37,0	38,8	40,5	41,9	42,5	43,5
		17,00	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3313	36,7	53,4	60,1	63,3	73,3	83,4	90,0	93,4	100,1	33,9	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20,00	9,17	1403	2043	2298	2424	2805	3190	3446	3575	3831	43,5	63,4	71,3	75,2	87,1	99,0	106,9	111,0	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23,00	10,54	1403	2043	2298	2424	2805	3190	3446	3575	3831	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77,0	85,4	89,2	100,3	110,8	117,4	120,6	126,8
		26,00	12,09	1403	2043	2298	2424	2805	3190	3446	3575	3831	57,4	83,6	94,1	99,2	114,8	130,5	141,0	146,3	156,8	59,9	87,3	98,2	103,6	119,8	136,4	147,2	152,7	163,6
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	3446	3576	3831	28,9	42,0	47,3	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24,0	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		21,25	8,00	1527	2224	2502	2639	3053	3472	3750	3891	4169	31,5	45,9	51,7	54,5	63,1	71,7	77,5	80,4	86,1	25,1	30,2	31,6	32,0	34,2	36,1	37,1	37,5	38,1
		24,00	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28,00	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41,7	60,8	68,4	72,1	83,5	94,9	102,5	106,4	114,0	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		32,00	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6126	47,5	69,2	77,9	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8

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Strenght characteristics of pipes with TMK UP PF ET threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
7	177,8	20,00	6,91	1406	2048	2304	2430	2812	3198	3454	3584	3840	25,8	37,5	42,2	44,5	51,6	58,6	63,3	65,7	70,4	15,7	18,9	24,9	20,0	20,5	20,6	13,7	13,8	13,9
		23,00	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4443	30,0	43,7	49,2	51,9	60,1	68,3	73,8	76,5	82,0	22,5	26,4	34,7	28,6	30,6	32,0	32,6	32,8	33,0
		26,00	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5038	34,3	49,9	56,2	59,2	68,6	78,0	84,2	87,4	93,6	29,8	37,3	48,6	40,5	42,9	44,4	45,4	46,1	47,4
		29,00	10,36	2065	3008	3384	3570	4131	4698	5074	5264	5640	38,6	56,3	63,3	66,8	77,3	87,9	94,9	98,5	105,5	37,3	48,4	66,3	54,0	58,8	62,8	65,0	65,9	67,5
		32,00	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6223	42,9	62,5	70,4	74,2	85,9	97,7	105,5	109,4	117,3	44,8	59,4	82,0	67,6	74,4	81,3	85,2	87,0	90,4
		35,00	12,65	2487	3623	4076	4299	4975	5658	6110	6340	6793	47,2	68,7	77,3	81,6	94,4	107,3	115,9	120,3	128,9	50,2	70,3	89,3	80,4	89,9	98,8	104,3	106,9	112,0
7 5/8	193,68	24,00	7,62	1688	2459	2766	2917	3376	3839	4147	4303	4610	26,1	38,0	42,8	45,1	52,2	59,3	64,1	66,5	71,3	16,0	19,4	80,4	20,7	21,3	21,4	21,5	21,6	21,7
		26,40	8,33	1838	2677	3012	3177	3677	4181	4516	4686	5020	28,5	41,5	46,7	49,3	57,1	64,9	70,1	72,7	77,9	20,0	23,5	24,9	25,6	27,0	27,9	28,1	28,2	28,3
		29,70	9,52	2087	3040	3420	3608	4175	4748	5128	5321	5701	32,6	47,5	53,4	56,3	65,2	74,1	80,1	83,1	89,0	26,9	33,0	34,7	35,4	36,8	39,1	40,3	40,8	41,7
		33,70	10,92	2376	3461	3894	4107	4753	5405	5837	6057	6489	37,4	54,5	61,3	64,6	74,8	85,1	91,9	95,3	102,1	35,1	45,2	48,6	50,2	54,3	57,5	59,2	59,9	61,0
		39,00	12,70	2737	3986	4484	4730	5473	6224	6723	6975	7474	43,5	63,3	71,3	75,2	87,0	98,9	106,8	110,8	118,8	45,6	60,8	66,3	69,0	76,4	83,2	87,3	89,2	92,7
		42,80	14,27	3048	4440	4995	5268	6097	6933	7488	7770	8325	48,9	71,2	80,1	84,5	97,7	111,1	120,0	124,6	133,4	51,8	74,6	82,0	85,6	96,0	105,8	112,0	115,0	120,7
		45,30	15,11	3061	4459	5016	5290	6122	6962	7520	7802	8360	51,7	75,4	84,8	89,4	103,5	117,7	127,1	131,9	141,3	54,6	79,4	89,3	94,3	106,5	117,9	125,3	128,8	135,7
8 5/8	219,08	28,00	7,72	1943	2830	3183	3358	3886	4419	4772	4952	5306	23,4	34,0	38,3	40,4	46,7	53,2	57,4	59,6	63,8	12,9	14,9	15,0	15,0	15,1	15,2	15,3	15,4	15,5
		32,00	8,94	2237	3258	3665	3866	4474	5087	5495	5701	6109	27,1	39,4	44,3	46,8	54,1	61,6	66,5	69,0	73,9	17,5	21,0	22,2	22,6	23,6	23,7	23,7	23,8	23,9
		36,00	10,16	2527	3681	4141	4368	5055	5748	6208	6442	6902	30,8	44,8	50,4	53,2	61,5	70,0	75,6	78,4	84,0	23,8	28,3	29,3	30,0	32,3	34,0	34,7	35,0	35,3
		40,00	11,43	2826	4116	4630	4884	5652	6427	6942	7203	7717	34,6	50,4	56,7	59,8	69,2	78,7	85,0	88,2	94,5	30,4	38,1	40,5	41,5	44,1	45,7	46,2	47,0	48,4
		44,00	12,70	3121	4545	5113	5393	6242	7098	7666	7954	8522	38,4	56,0	63,0	66,4	76,9	87,4	94,4	98,0	105,0	36,9	47,9	51,7	53,4	58,1	61,9	63,9	64,8	66,3
		49,00	14,15	3453	5029	5657	5967	6905	7853	8481	8800	9429	42,8	62,4	70,2	74,0	85,7	97,4	105,2	109,2	117,0	44,5	59,1	64,4	67,0	74,1	80,4	84,1	85,8	89,1

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TMK UP PF ET

Strenght characteristics of pipes with TMK UP PF ET threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
9 5/8	244,48	36,00	8,94	2507	3652	4108	4333	5014	5702	6159	6384	6847	24,3	35,3	39,7	41,9	48,5	55,2	59,6	61,8	66,2	14,0	16,4	16,8	17,0	17,1	17,2	17,3	17,3	17,4
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	7129	7646	27,2	39,6	44,6	47,0	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8387	30,0	43,7	49,1	51,8	60,0	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9064	32,5	47,4	53,3	56,2	65,1	74,0	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	9677	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
		58,40	15,11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41,0	59,7	67,2	70,8	82,0	93,2	100,7	104,4	111,9	41,3	54,5	59,1	61,3	67,3	72,7	75,8	77,2	79,7
		59,40	15,47	4218	6144	6912	7290	8437	9594	10362	10740	11520	42,0	61,1	68,8	72,5	83,9	95,5	103,1	106,9	114,6	43,0	56,9	61,9	64,3	70,9	76,8	80,3	81,9	84,8
		64,90	17,07	4362	6354	7148	7539	8725	9922	10716	11107	11913	46,3	67,4	75,9	80,0	92,6	105,3	113,8	117,9	126,5	49,3	68,0	74,6	77,7	86,7	95,1	100,3	102,7	107,4
		70,30	18,64	4362	6354	7148	7539	8725	9922	10716	11107	11913	50,6	73,7	82,9	87,4	101,1	115,0	124,2	128,8	138,1	53,5	77,8	86,9	90,9	102,2	113,0	119,9	123,2	129,6
		75,60	20,24	4362	6354	7148	7539	8725	9922	10716	11107	11913	54,9	80,0	90,0	94,9	109,8	124,9	134,9	139,8	149,9	57,6	83,8	94,3	99,6	115,3	131,0	139,9	144,0	152,2
9 7/8	250,83	62,80	15,88	4442	6470	7279	7677	8885	10104	10913	11311	12132	42,0	61,2	68,8	72,6	84,0	95,5	103,1	106,9	114,7	43,0	57,0	62,0	64,3	70,9	76,9	80,3	82,0	84,9
		66,40	16,79	4679	6814	7666	8086	9358	10641	11493	11913	12777	44,4	64,7	72,7	76,7	88,8	101,0	109,1	113,0	121,2	47,1	63,1	69,0	71,7	79,7	87,0	91,4	93,5	97,4
		72,10	18,29	4712	6863	7721	8144	9424	10717	11575	11998	12868	48,4	70,4	79,2	83,6	96,7	110,0	118,8	123,1	132,1	51,2	73,3	80,5	84,0	94,1	103,7	109,7	112,6	118,1
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	6869	7119	7636	21,6	31,5	35,4	37,3	43,2	49,1	53,0	55,0	59,0	10,9	11,9	12,0	12,0	12,1	12,2	12,3	12,4	12,5
		45,50	10,16	3180	4632	5211	5496	6360	7233	7812	8097	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18,0	17,5	17,6	17,7
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	9066	9723	27,8	40,4	45,5	48,0	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24,0	25,2	25,8	25,9	26,0	26,1
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	9926	10646	30,5	44,5	50,0	52,8	61,1	69,4	75,0	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	10876	11665	33,6	49,0	55,1	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44,0	45,1
		65,70	15,11	4641	6759	7604	8020	9281	10555	11399	11816	12673	36,7	53,5	60,1	63,4	73,4	83,5	90,2	93,5	100,2	34,0	43,5	46,6	48,0	51,7	54,6	56,0	56,6	57,4
		73,20	17,07	4849	7063	7946	8381	9699	11029	11912	12347	13243	41,5	60,4	67,9	71,7	82,9	94,3	101,9	105,6	113,2	42,1	55,6	60,4	62,7	69,1	74,6	77,9	79,4	82,8

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Strenght characteristics of pipes with TMK UP PF ET threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
11 3/4	298,45	42,00	8,46	2921	4254	4786	5048	5842	6644	7176	7445	7977	18,8	27,4	30,8	32,5	37,6	42,8	46,2	47,9	51,3	7,7	7,8	7,9	8,0	8,1	8,2	8,3	8,4	8,5
		47,00	9,52	3275	4770	5366	5660	6550	7449	8045	8348	8944	21,2	30,8	34,7	36,6	42,3	48,1	52,0	53,9	57,8	10,4	10,5	10,6	10,7	10,8	10,9	11,0	11,1	11,2
		54,00	11,05	3781	5507	6196	6535	7563	8600	9289	9638	10326	24,6	35,8	40,2	42,4	49,1	55,9	60,3	62,6	67,1	14,3	16,9	17,4	17,6	17,7	17,8	17,9	18,0	18,1
		60,00	12,42	4230	6161	6931	7310	8460	9620	10390	10781	11551	27,6	40,2	45,2	47,7	55,2	62,8	67,8	70,4	75,4	18,4	21,9	23,2	23,7	24,9	25,4	25,5	25,6	25,7
		65,00	13,56	4600	6699	7537	7949	9199	10462	11299	11724	12561	30,1	43,9	49,4	52,1	60,3	68,5	74,0	76,8	82,3	22,7	26,7	28,0	28,8	30,8	32,3	32,9	33,1	33,3
		71,00	14,78	4992	7271	8180	8627	9984	11354	12263	12724	13633	32,8	47,8	53,8	56,8	65,7	74,7	80,7	83,7	89,7	27,3	33,6	35,4	36,1	37,7	39,7	41,0	41,6	42,5
11 7/8	301,63	67,90	13,97	4785	6969	7840	8269	9570	10883	11754	12196	13067	30,7	44,7	50,3	53,1	61,4	69,9	75,5	78,3	83,9	23,7	28,2	29,2	29,9	32,2	33,9	34,7	35,0	35,3
		71,80	14,78	5048	7352	8271	8724	10096	11481	12400	12866	13785	32,5	47,3	53,3	56,2	65,0	73,9	79,8	82,8	88,8	26,7	32,7	34,4	35,0	36,4	38,8	40,0	40,5	41,3
12 3/4	323,85	50,89	9,50	3556	5179	5826	6145	7111	8087	8734	9063	9710	19,5	28,3	31,9	33,6	38,9	44,3	47,8	49,6	53,1	8,5	8,6	8,7	8,7	8,8	8,9	9,0	9,1	9,2
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	10444	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12,0	13,5	13,6	13,6	13,7	13,8	13,9	14,0	14,1
		65,13	12,40	4598	6697	7534	7947	9197	10458	11296	11720	12557	25,4	37,0	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19,0	19,3	19,6	19,7	19,8	19,9	20,0
		72,87	14,00	5165	7523	8463	8926	10330	11747	12688	13165	14105	28,7	41,8	47,0	49,6	57,3	65,2	70,4	73,1	78,3	20,2	23,7	25,2	25,8	27,4	28,3	28,5	28,6	28,7
13 3/8	339,72	54,50	9,65	3793	5524	6214	6554	7585	8626	9316	9667	10357	18,8	27,4	30,9	32,6	37,7	42,8	46,3	48,0	51,4	7,8	7,9	8,0	8,0	8,1	8,2	8,3	8,4	8,5
		61,00	10,92	4275	6227	7005	7389	8550	9724	10502	10897	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,8	10,8	10,9	11,0	11,1	11,2	11,3
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	12117	12982	23,8	34,7	39,0	41,1	47,6	54,1	58,5	60,7	65,0	13,4	15,6	16,0	16,1	16,2	16,3	16,4	16,5	16,6
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	12947	13872	25,5	37,1	41,8	44,1	51,0	58,0	62,6	65,0	69,6	15,4	18,4	19,2	19,5	19,9	20,0	20,1	20,2	20,3

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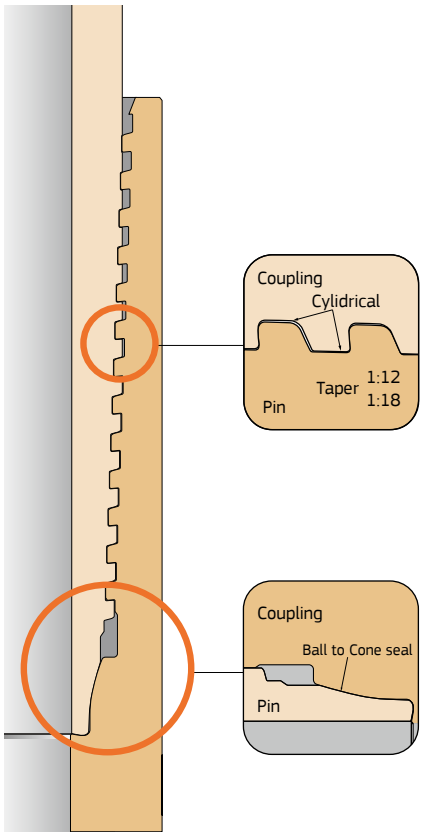
Pro Series

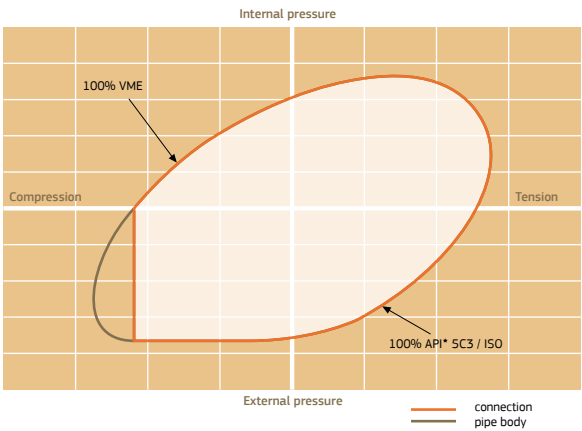
Threaded connection
TMK UP CENTUM

TMK UP CENTUM

Certified in accordance
with ISO 13679 CAL IV



TMK UP CENTUM
Performance Envelope



TMK UP CENTUM for Casing and Tubing

TMK UP CENTUM is threaded and coupled gas-tight quick-assembly connection for casing and tubing. It has 100% efficiency in both compression and tension that allows to use the connection in deep horizontal wells, in particular, in highly deviated wells with large step out and extended horizontal areas.
Qualified to API* 5C5 CAL IV. Can be used on SAGD projects and for CSS cyclic steam stimulation (ISO 12835 tested).

Tubing: 2 3/8″–4 1/2″ / 60,32–114,30 mm
Casing: 4 1/2″–13 5/8″ / 114,3–346,08 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Gas-tight metal-to-metal seal
- Over-torque protection during make-up
- Quick-assembly connection
- Deep and easy stabbing
- Increased bending capacity
- Hooked thread profile
- Reduced cross threading
- Robust galling resistance

Application:
- Casing and tubing
- Deviated and horizontal wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation
- HPHT
- SAGD/CSS projects
- Complicated well trajectory

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Length makeup loss
						Standard	Special								
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm
2 3/8	60,32	4,60	4,83	6,61	0,13	2,06	-	842	1348	-	49,7	73	-	170	70
		5,80	6,45	8,57	0,13	2,10	-	1 092	1348	-	47,9	73	-	170	70
		6,60	7,49	9,76	0,14	2,12	-	1 243	1348	-	46,8	73	-	170	70
		7,35	8,53	10,89	0,14	2,14	-	1 388	1348	-	45,7	73	-	170	70
2 7/8	73,02	6,40	5,51	9,17	0,18	3,30	2,20	1 169	2095	1325	61,5	88,9	83,2	180	73,5
		7,80	7,01	11,41	0,18	3,34	2,26	1 454	2095	1325	59,8	88,9	83,2	180	73,5
		8,60	7,82	12,57	0,18	3,36	2,28	1 602	2095	1325	58,9	88,9	83,2	180	73,5
		9,35	8,64	13,72	0,18	3,38	2,30	1 747	2095	1325	58	88,9	83,2	180	73,5
		10,50	9,96	15,49	0,18	3,42	2,32	1 973	2095	1325	56,7	88,9	83,2	180	73,5
		11,50	11,18	17,05	0,18	3,44	2,36	2 172	2095	1325	55,5	88,9	83,2	180	73,5
3 1/2	88,90	7,70	5,49	11,29	0,36	5,46	3,80	1 439	3142	1540	76,6	108	98,1	210	93,9
		9,20	6,45	13,12	0,37	5,50	3,82	1 671	3142	1540	75,1	108	98,1	210	93,9
		10,20	7,34	14,76	0,37	5,52	3,84	1 881	3142	1540	74,1	108	98,1	210	93,9
		12,70	9,52	18,64	0,47	5,58	3,90	2 374	3142	1540	71,7	108	98,1	210	93,9
		14,30	10,92	21,00	0,47	5,60	3,92	2 675	3142	1540	70,2	108	98,1	210	93,9
		15,50	12,09	22,90	0,38	5,64	3,96	2 917	3142	1540	69	108	98,1	210	93,9
		17,00	13,46	25,04	0,38	5,66	4,00	3 190	3142	1540	67,5	108	98,1	210	93,9
4	101,6	9,50	5,74	13,57	0,42	6,12	3,22	1 729	3557	1792	88,8	120,7	111	210	95
		10,70	6,65	15,57	0,43	6,14	3,26	1 984	3557	1792	87,6	120,7	111	210	95
		13,20	8,38	19,27	0,44	6,20	3,30	2 454	3557	1792	85,7	120,7	111	210	95
		16,10	10,54	23,67	0,44	6,24	3,36	3 015	3557	1792	83,3	120,7	111	210	95

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Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Length makeup loss
						Standard	Special								
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm
4 1/2	114,3	11,60	6,35	16,91	0,30	5,39	4,21	2 154	2696	2069	100,4	127	123,82	240	105
		12,60	6,88	18,23	0,61	7,62	4,66	2 322	3875	2304	99,3	132,1	124,3	240	105
		13,50	7,37	19,44	0,31	5,47	4,29	2 476	2696	2069	98,4	127	123,82	240	105
		13,50	7,37 HKT	19,44	0,61	7,60	4,66	2 476	3875	2304	98,4	132,1	124,3	240	105
		15,10	8,56	22,32	0,31	5,57	4,39	2 844	2696	2069	96	127	123,82	240	105
		15,20	8,56 HKT	22,32	0,61	7,70	4,76	2 844	3875	2304	96	132,1	124,3	240	105
		17,00	9,65	24,90	0,61	7,70	4,76	3 173	3875	2304	96	132,1	124,3	240	105
		18,90	10,92	27,84	0,62	7,80	4,84	3 547	3875	2304	94,8	132,1	124,3	240	105
		21,50	12,70	31,82	0,62	7,88	4,92	4 054	3875	2304	92,9	132,1	124,3	240	105
5 1/2	139,7	17,00	7,72	25,13	0,88	10,36	5,24	3 201	5089	2466	122,2	160,02	149,22	250	119,6
		20,00	9,17	29,52	1,29	13,42	6,88	3 760	5370	2747	119,2	160,02	149,22	320	155
		23,00	10,54	33,57	1,29	13,60	7,06	4 277	5370	2747	116,4	160,02	149,22	320	155
		26,00	12,09	38,05	1,30	13,82	7,26	4 847	5370	2747	113,3	160,02	149,22	320	155
		26,80	12,70	39,78	1,31	13,88	7,34	5 067	5370	2747	112,1	160,02	149,22	320	155
		28,40	13,46	41,90	1,38	14,04	7,46	5 338	5370	2747	110,8	160,02	149,22	320	155
6 5/8	168,28	20,00	7,32	29,06	1,02	11,94	6,38	3 702	5796	2951	151,5	187,71	177,8	250	118,1
		24,00	8,94	35,13	1,53	15,80	8,70	4 475	5979	3134	148,2	187,71	177,8	320	149,4
		28,00	10,59	41,18	1,54	15,92	8,82	5 246	5979	3134	144,9	187,71	177,8	320	149,4
		32,00	12,06	46,46	1,55	16,04	8,94	5 919	5979	3134	142	187,71	177,8	320	149,4

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Length makeup loss
						Standard	Special								
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm
7	177,8	23,00	8,05	33,70	1,86	17,24	8,20	4 293	6958	3086	159,5	200,03	187,32	300	139,5
		26,00	9,19	38,21	1,87	18,72	9,08	4 868	6958	3086	157,2	200,03	187,32	320	154,5
		29,00	10,36	42,78	1,87	18,78	9,12	5 450	6958	3086	154,9	200,03	187,32	320	154,5
		32,00	11,51	47,20	1,88	18,82	9,18	6 013	6958	3086	152,6	200,03	187,32	320	154,5
		35,00	12,65	51,52	1,89	18,88	9,24	6 563	6958	3086	150,3	200,03	187,32	320	154,5
		38,00	13,72	55,52	3,18	20,24	10,60	7 072	6958	3086	150,3	200,03	187,32	320	152,7
7 5/8	193,68	29,70	9,52	43,24	1,96	20,22	12,34	5 508	7807	4650	172,5	215,9	206,38	320	152,5
		33,70	10,92	49,22	1,98	20,32	12,44	6 270	7807	4650	169,7	215,9	206,38	320	152,5
		39,00	12,70	56,68	1,98	20,44	15,56	7 221	7807	4650	166,1	215,9	206,38	320	152,5
8 5/8	219,08	36,00	10,16	52,35	2,40	25,92	14,06	6 668	10070	5319	197,1	244,5	231,8	320	154
		40,00	11,43	58,53	2,40	26,00	14,14	7 456	10070	5319	194,5	244,5	231,8	320	154
		44,00	12,70	64,64	2,42	26,08	14,22	8 234	10070	5319	192	244,5	231,8	320	154
9 5/8	244,48	36,00	8,94	51,93	2,28	29,00	15,88	6 615	10904	5647	224,1	269,88	257,18	320	147
		40,00	10,03	57,99	2,65	29,14	16,02	7 388	10904	5647	222	269,88	257,18	320	147
		43,50	11,05	63,61	3,59	30,24	17,12	8 103	12342	7085	219,9	269,88	257,18	320	155
		47,00	11,99	68,75	3,60	30,30	17,18	8 757	12342	7085	218	269,88	257,18	320	155
		53,50	13,84	78,72	3,61	30,42	17,28	10 028	12342	7085	214,3	269,88	257,18	320	155
9 7/8	250,83	62,80	15,88	92,01	5,77	32,30	26,10	11 721	14098	11525	216,6	276	269,88	310	149,4

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Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Length makeup loss
						Standard	Special								
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm^2	mm^2	mm^2	mm	mm	mm	mm	mm
10 3/4	273,05	40,50	8,89	57,91	6,28	36,54	22,00	7 378	12192	6365	252,8	298,45	285,75	310	147,7
		45,50	10,16	65,87	2,60	30,78	16,68	8 391	12192	6365	250,3	298,45	285,75	310	147,7
		51,00	11,43	73,75	5,19	34,32	19,78	9 394	13967	8140	247,7	298,45	285,75	320	154,7
		55,50	12,57	80,75	5,20	34,40	19,86	10 286	13967	8140	245,4	298,45	285,75	320	154,7
		60,70	13,84	88,47	5,22	34,49	19,95	11 270	13967	8140	242,9	298,45	285,75	320	154,7
		65,70	15,11	96,12	2,62	30,90	16,80	12 244	14928	9100	250,3	298,45	285,75	320	148,8
12 3/4	323,85	50,89	9,50	73,65	3,40	38,70	-	9 382	15480	-	302,4	351	-	310	149,8
		58,78	11,00	84,87	3,36	39,10	-	10 811	15480	-	299,2	351	-	310	149,8
13 3/8	339,72	54,50	9,65	78,55	3,43	38,40	-	10 007	15189	-	318	365,12	-	310	147,9
		61,00	10,92	88,55	3,45	38,60	-	11 280	15189	-	315,4	365,12	-	310	147,9
		68,00	12,19	98,46	5,30	41,10	-	12 543	16667	-	312,9	365,12	-	310	145,4
		72,00	13,06	105,21	5,31	41,20	-	13 403	16667	-	311,1	365,12	-	310	145,4
13 5/8	346,08	88,20	15,88	129,31	7,87	46,30	-	16 473	19358	-	312,7	372,5	-	310	144,9

Strenght characteristics of pipes with TMK UP CENTUM threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
2 3/8	60,32	4,60	4,83	319	465	523	552	638	-	784	813	871	53,1	77,4	87,0	91,8	106,2	-	130,5	135,4	145,0	55,9	81,3	91,5	96,6	111,5	-	131,5	135,4	142,8
		5,80	6,45	414	603	678	715	827	-	1016	1054	1130	70,9	103,3	116,2	122,6	141,8	-	174,2	180,8	193,7	72,5	105,4	118,6	125,2	145,0	-	177,9	184,5	197,7
		6,60	7,49	471	686	772	814	942	-	1157	1201	1287	82,4	119,9	134,9	142,3	164,7	-	202,3	209,9	224,9	82,5	120,1	135,1	142,6	165,1	-	202,6	210,1	225,1
		7,35	8,53	511	744	837	883	1022	-	1255	1302	1395	93,8	136,6	153,7	162,1	187,6	-	230,4	239,1	256,1	92,2	134,0	150,8	159,2	184,3	-	226,2	234,6	251,3
2 7/8	73,02	6,40	5,51	443	645	726	765	886	1007	1088	1129	1210	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,6	136,7	53,0	77,0	85,4	89,2	100,3	110,8	117,5	120,7	126,9
		7,80	7,01	551	802	903	952	1102	1253	1353	1404	1505	63,7	92,7	104,3	110,0	127,3	144,8	156,4	162,3	173,9	65,9	95,8	107,8	113,8	131,7	149,7	161,7	167,7	179,6
		8,60	7,82	607	884	995	1049	1214	1381	1491	1547	1658	71,0	103,5	116,4	122,8	142,1	161,6	174,5	181,0	194,0	72,6	105,6	118,8	125,4	145,2	165,0	178,1	184,7	197,9
		9,35	8,64	662	965	1085	1145	1325	1506	1627	1688	1809	78,5	114,3	128,6	135,6	157,0	178,5	192,8	200,0	214,3	79,2	115,2	129,6	136,8	158,4	180,0	194,4	201,6	215,9
		10,50	9,96	748	1089	1225	1292	1496	1701	1837	1906	2042	90,5	131,8	148,2	156,3	180,9	205,8	222,2	230,6	247,1	89,4	130,0	146,3	154,4	178,8	203,2	219,5	227,6	143,8
		11,50	11,18	780	1136	1278	1348	1560	1774	1916	1988	2130	101,5	147,9	166,4	175,5	203,1	231,0	249,5	258,8	277,3	98,4	143,2	161,0	170,0	196,8	223,7	241,6	250,5	268,4
3 1/2	88,90	7,70	5,49	545	794	893	942	1090	1240	1339	1390	1489	41,0	59,7	67,1	70,8	81,9	93,2	100,6	104,4	111,9	41,2	54,3	59,0	61,2	67,2	72,5	75,6	77,0	79,5
		9,20	6,45	633	922	1038	1094	1266	1440	1555	1614	1729	48,1	70,1	78,8	83,2	96,2	109,4	118,2	122,7	131,4	51,1	72,7	79,8	83,3	93,3	102,7	108,6	111,4	116,8
		10,20	7,34	713	1038	1168	1232	1426	1621	1751	1817	1947	54,8	79,8	89,7	94,6	109,5	124,5	134,5	139,6	149,5	57,5	83,6	94,1	99,3	115,0	130,7	139,2	143,3	151,4
		12,70	9,52	900	1310	1474	1555	1800	2046	2210	2293	2457	71,0	103,4	116,4	122,7	142,1	161,5	174,5	181,0	194,0	72,6	105,6	118,8	125,4	145,1	164,9	178,1	184,7	197,9
		14,30	10,92	1014	1477	1661	1752	2028	2306	2491	2584	2769	81,5	118,7	133,5	140,8	162,9	185,3	200,1	207,7	222,5	81,8	119,0	133,8	141,3	163,6	185,9	200,7	208,2	223,0
		15,50	12,09	1106	1610	1812	1911	2211	2515	2716	2818	3019	90,2	131,4	147,8	155,9	180,4	205,1	221,6	229,9	246,3	89,2	129,7	145,9	154,0	178,4	202,7	218,9	227,0	243,2
		17,00	13,46	1159	1688	1899	2003	2318	2636	2847	2954	3165	100,4	146,3	164,5	173,5	200,8	228,4	246,7	256,0	274,2	97,5	141,8	159,6	168,4	195,0	221,6	239,4	248,2	266,0
4	101,60	9,50	5,74	655	954	1073	1132	1310	-	1609	1670	1789	37,5	54,6	61,4	64,8	74,9	-	92,0	95,5	102,3	35,3	45,4	48,8	50,4	54,5	-	59,5	60,3	61,4
		10,70	6,65	752	1095	1232	1299	1504	-	1847	1916	2053	43,4	63,2	71,1	75,0	86,8	-	106,6	110,6	118,6	45,4	60,6	66,1	68,7	76,2	-	86,9	88,8	92,3
		13,20	8,38	930	1355	1524	1607	1860	-	2285	2371	2540	54,7	79,7	89,6	94,5	109,4	-	134,4	139,4	149,4	57,4	83,5	94,0	99,2	114,9	-	138,9	143,0	151,1
		16,10	10,54	1143	1664	1872	1975	2286	-	2807	2913	3121	68,8	100,2	112,7	118,9	137,6	-	169,0	175,4	187,9	70,6	102,6	115,5	121,9	141,1	-	173,2	179,6	192,5

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Strenght characteristics of pipes with TMK UP CENTUM threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,30	11,60	6,35	784	1142	1285	1355	1568	1783	1926	-	-	36,8	53,7	60,4	63,7	73,7	83,8	90,5	-	-	34,2	43,8	47,0	48,4	52,3	55,2	56,7	-	-
		12,60	6,88	838	1220	1372	1448	1675	-	2058	2135	2287	39,9	58,1	65,4	69,0	79,8	-	98,1	101,8	109,0	39,5	51,7	56,0	58,0	63,5	-	70,8	72,0	74,1
		13,50	7,37	784	1142	1285	1355	1568	1783	1926	-	-	42,8	62,3	70,1	73,9	85,5	97,3	105,1	-	-	44,3	59,0	64,2	66,7	73,8	80,1	83,9	-	-
		13,50	7,37 (tubing)	838	1220	1372	1448	1675	-	2058	2135	2287	42,8	62,3	70,1	73,9	85,5	-	105,1	109,0	116,8	44,3	59,0	64,2	66,7	73,8	-	83,9	85,7	88,9
		15,10	8,56	784	1142	1285	1355	1568	1783	1926	-	-	49,7	72,3	81,4	85,8	99,3	113,0	122,0	-	-	52,6	76,5	84,3	88,1	98,9	109,2	115,7	-	-
		15,20	8,56 (tubing)	838	1220	1372	1448	1675	-	2058	2135	2287	49,7	72,3	81,4	85,8	99,3	-	122,0	126,6	135,6	52,6	76,5	84,3	88,1	98,9	-	115,7	118,9	124,9
		17,00	9,65	838	1220	1372	1448	1675	-	2058	2135	2287	56,0	81,6	91,8	96,8	112,0	-	137,6	142,7	152,9	58,7	85,3	96,0	101,3	117,3	-	144,0	149,2	157,8
		18,90	10,92	838	1220	1372	1448	1675	-	2058	2135	2287	63,4	92,3	103,8	109,5	126,7	-	155,7	161,5	173,0	65,6	95,4	107,3	113,3	131,2	-	161,0	166,9	178,9
		21,50	12,70	838	1220	1372	1448	1675	-	2058	2135	2287	73,7	107,3	120,8	127,4	147,4	-	181,0	187,8	201,3	75,0	109,0	122,7	129,5	149,9	-	184,0	190,8	204,4
5 1/2	139,70	17,00	7,72	1213	1767	1988	2097	2426	2759	2980	-	-	36,7	53,4	60,1	63,3	73,3	83,4	90,0	-	-	33,9	43,3	46,4	47,9	51,5	54,4	55,8	-	-
		20,00	9,17	1425	2076	2335	2463	2850	3241	3501	-	-	43,5	63,4	71,3	75,2	87,1	99,0	106,9	-	-	45,6	60,9	66,5	69,1	76,5	83,3	87,5	-	-
		23,00	10,54	1621	2361	2656	2801	3242	3687	3982	-	-	50,0	72,9	82,0	86,5	100,1	113,8	122,9	-	-	52,9	77,0	85,4	89,2	100,2	110,7	117,4	-	-
		26,00	12,09	1837	2675	3010	3175	3674	4178	4512	-	-	57,4	83,6	94,1	99,2	114,8	130,5	141,0	-	-	59,9	87,3	98,2	103,6	119,8	136,3	147,2	-	-
		26,80	12,70	1920	2797	3147	3319	3841	4368	4717	-	-	60,3	87,8	98,8	104,2	120,6	137,1	148,1	-	-	62,6	91,2	102,6	108,3	125,3	142,5	153,9	-	-
		28,40	13,46	2023	2947	3315	3496	4046	4601	4970	-	-	63,9	93,1	104,7	110,4	127,8	145,3	157,0	-	-	66,0	96,1	108,1	114,1	132,0	150,1	162,1	-	-
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	3446	-	-	28,9	42,0	47,3	49,9	57,7	65,6	70,9	-	-	20,5	24,0	25,5	26,2	27,8	28,8	29,1	-	-
		24,00	8,94	1696	2470	2779	2931	3392	3858	4166	-	-	35,2	51,3	57,7	60,9	70,5	80,1	86,6	-	-	31,4	39,7	42,3	43,5	46,4	48,4	49,3	-	-
		28,00	10,59	1988	2896	3258	3436	3977	4522	4884	-	-	41,7	60,8	68,4	72,1	83,5	94,9	102,5	-	-	42,6	56,3	61,2	63,6	70,1	75,8	79,2	-	-
		32,00	12,06	2243	3267	3676	3877	4486	5102	5510	-	-	47,5	69,2	77,9	82,1	95,1	108,1	116,8	-	-	50,5	71,1	78,1	81,5	91,2	100,2	105,9	-	-

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Strenght characteristics of pipes with TMK UP CENTUM threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
7	177,80	23,00	8,05	1627	2370	2666	2812	3254	3701	3997	-	-	30,0	43,7	49,2	51,9	60,1	68,3	73,8	-	-	22,5	26,4	27,8	28,6	30,6	32,0	32,6	-	-
		26,00	9,19	1845	2687	3023	3189	3690	4196	4532	-	-	34,3	49,9	56,2	59,2	68,6	78,0	84,2	-	-	29,8	37,3	39,6	40,5	42,9	44,4	45,4	-	-
		29,00	10,36	2065	3008	3384	3570	4131	4698	5074	-	-	38,6	56,3	63,3	66,8	77,3	87,9	94,9	-	-	37,3	48,4	52,2	54,0	58,8	62,8	65,0	-	-
		32,00	11,51	2279	3319	3734	3939	4558	5183	5598	-	-	42,9	62,5	70,4	74,2	85,9	97,7	105,5	-	-	44,8	59,4	64,7	67,6	74,4	81,3	85,2	-	-
		35,00	12,65	2487	3623	4076	4299	4975	5658	6110	-	-	47,2	68,7	77,3	81,6	94,4	107,3	115,9	-	-	50,2	70,3	77,1	80,4	89,9	98,8	104,3	-	-
		38,00	13,72	2637	3904	4392	4632	5361	6096	6584	-	-	51,2	74,5	83,9	88,5	102,4	116,4	125,7	-	-	54,0	78,6	88,4	92,7	104,4	115,6	122,7	-	-
7 5/8	193,68	29,70	9,52	2087	3040	3420	3608	4175	4748	5128	-	-	32,6	47,5	53,4	56,3	65,2	74,1	80,1	-	-	26,9	33,0	34,7	35,4	36,8	39,1	40,3	-	-
		33,70	10,92	2376	3461	3894	4107	4753	5405	5837	-	-	37,4	54,5	61,3	64,6	74,8	85,1	91,9	-	-	35,1	45,2	48,6	50,2	54,3	57,5	59,2	-	-
		39,00	12,70	2737	3986	4484	4730	5473	6224	6723			43,5	63,3	71,3	75,2	87,0	98,9	106,8			45,6	60,8	66,3	68,9	76,4	83,2	87,3		
8 5/8	219,08	36,00	10,16	2527	3681	4141	4368	5055	5748	6208	-	-	30,8	44,8	50,4	53,2	61,5	70,0	75,6	-	-	23,8	28,3	29,3	30,0	32,3	34,0	34,7	-	-
		40,00	11,43	2826	4116	4630	4884	5652	6427	6942	-	-	34,6	50,4	56,7	59,8	69,2	78,7	85,0	-	-	30,4	38,1	40,5	41,5	44,1	45,7	46,2	-	-
		44,00	12,70	3121	4545	5113	5393	6242	7098	7666	-	-	38,4	56,0	63,0	66,4	76,9	87,4	94,4	-	-	36,9	47,9	51,7	53,4	58,1	61,9	63,9	-	-
9 5/8	244,48	36,00	8,94	2507	3652	4108	4333	5014	5702	6159	-	-	24,3	35,3	39,7	41,9	48,5	55,2	59,6	-	-	14,0	16,4	16,8	17,0	17,1	17,2	17,3	-	-
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	-	-	27,2	39,6	44,6	47,0	54,4	61,9	66,8	-	-	17,7	21,3	22,4	22,9	23,9	24,3	24,4	-	-
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	-	-	30,0	43,7	49,1	51,8	60,0	68,2	73,6	-	-	22,4	26,3	27,7	28,5	30,5	31,9	32,5	-	-
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	-	-	32,5	47,4	53,3	56,2	65,1	74,0	79,9	-	-	26,8	32,8	34,5	35,1	36,5	38,9	40,1	-	-
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	-	-	37,5	54,7	61,5	64,9	75,1	85,4	92,2	-	-	35,4	45,6	49,1	50,6	54,8	58,1	59,9	-	-
9 7/8	250,83	62,80	15,88	4442	6470	7279	7677	8885	10104	10913	-	-	42,0	61,2	68,8	72,6	84,0	95,5	103,1	-	-	43,0	57,0	62,0	64,3	70,9	76,9	80,3	-	-

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Strenght characteristics of pipes with TMK UP CENTUM threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	6869	-	-	21,6	31,5	35,4	37,3	43,2	49,1	53,0	-	-	10,9	11,9	11,9	12,0	12,1	12,2	12,3	-	-
		45,50	10,16	3180	4632	5211	5496	6360	7233	7812	-	-	24,7	35,9	40,4	42,7	49,4	56,1	60,6	-	-	14,4	17,1	17,7	17,8	17,9	18,0	18,1	-	-
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	-	-	27,8	40,4	45,5	48,0	55,5	63,1	68,2	-	-	18,7	22,2	23,5	24,0	25,2	25,8	25,9	-	-
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	-	-	30,5	44,5	50,0	52,8	61,1	69,4	75,0	-	-	23,4	27,7	28,7	29,6	31,8	33,4	34,1	-	-
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	-	-	33,6	49,0	55,1	58,1	67,2	76,5	82,6	-	-	28,7	35,6	37,6	38,5	40,5	41,9	43,4	-	-
		65,70	15,11	4641	6759	7604	8020	9281	10555	11399	-	-	36,7	53,5	60,1	63,4	73,4	83,5	90,2	-	-	33,9	43,5	46,6	48,0	51,7	54,6	56,0	-	-
12 3/4	323,85	50,89	9,50	3556	5179	5826	6145	7111	8087	8734	-	-	19,5	28,3	31,9	33,6	38,9	44,3	47,8	-	-	8,5	8,6	8,7	8,7	8,8	8,9	9,0	-	-
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	-	-	22,5	32,8	36,9	38,9	45,1	51,2	55,3	-	-	12,0	13,5	13,6	13,6	13,7	13,8	13,9	-	-
13 3/8	339,72	54,50	9,65	3792	5524	6214	6554	7585	8626	9316	-	-	18,8	27,4	30,9	32,6	37,7	42,9	46,3	-	-	7,8	7,9	8,0	8,0	8,1	8,2	8,3	-	-
		61,00	10,92	4275	6226	7005	7388	8550	9723	10502	-	-	21,3	31,1	34,9	36,8	42,6	48,5	52,4	-	-	10,6	10,7	10,8	10,8	10,9	11,0	11,1	-	-
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	-	-	23,8	34,7	39,0	41,1	47,6	54,1	58,5	-	-	13,4	15,6	16,0	16,1	16,2	16,3	16,4	-	-
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	-	-	25,5	37,1	41,8	44,1	51,0	58,0	62,6	-	-	15,4	18,4	19,2	19,5	19,9	20,0	20,1	-	-
13 5/8	346,08	88,20	15,88	6243	9093	10230	10790	12487	14200	15337	-	-	30,4	44,3	49,9	52,6	60,9	69,2	74,8	-	-	23,2	27,4	28,5	29,4	31,5	33,1	33,8	-	-

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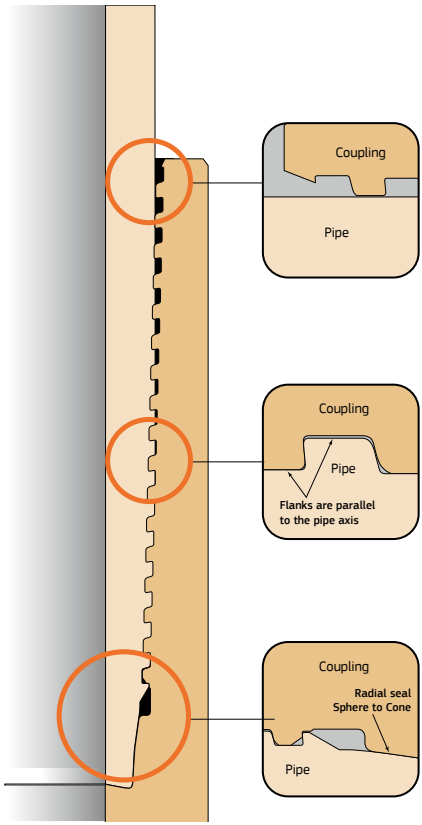
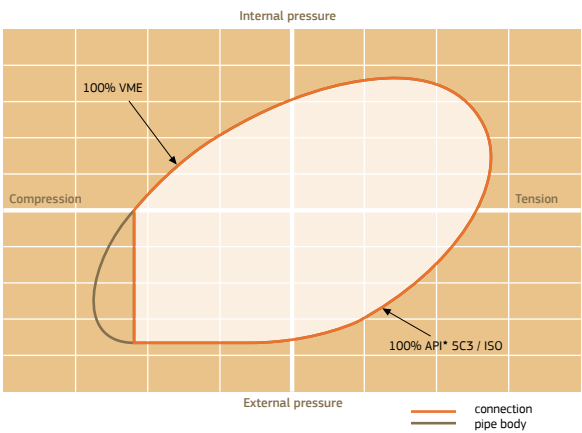
Pro Series

Threaded connection

TMK UP CENTUM ET



TMK UP CENTUM ET
Performance Envelope



TMK UP CENTUM ET for Casing and Tubing

TMK UP CENTUM ET is threaded and coupled gas-tight connection for casing and tubing. It has 100% efficiency in both compression and tension that allows to use the connection in deep horizontal wells, in particular, in highly deviated wells with large step out and extended horizontal areas. It provides increased operational torque relative to TMK UP CENTUM.

Range:
Tubing 3 1/2"–4 1/2" / 88.9–114.3 mm
Casing 4 1/2"–7" / 114.3–177.8 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Gas-tight metal-to-metal seal
- Over-torque protection during make-up
- Increased torque resistance

Application:
- Casing and tubing
- Deviated and horizontal wells, ERD wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation

Geometrical parameters of pipes with threaded connection TMK UP CENTUM ET

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Pipe crossection area	Coupling C/S area	Special coupling C/S area	Alternative coupling C/S area	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Outside diameter of alternative coupling	Coupling length	Drift diameter	Length makeup loss
in	mm	lb/ft	mm	kg/m	mm²	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3 1/2	88,90	7,70	5,49	11,29	1 439	3148	1545	2158	76,80	108,00	98,10	102,00	210,0	74,74	96,8
		9,20	6,45	13,12	1 671	3148	1545	2158	76,00	108,00	98,10	102,00	210,0	72,82	96,8
		10,20	7,34	14,76	1 881	3148	1545	2158	74,30	108,00	98,10	102,00	210,0	71,04	96,8
		12,70	9,52	18,65	2 374	3148	1545	2158	69,90	108,00	98,10	102,00	210,0	66,68	96,8
		14,30	10,92	21,00	2 675	3148	1545	2158	67,10	108,00	98,10	102,00	210,0	63,88	96,8
		15,50	12,09	22,90	2 917	3148	1545	2158	64,80	108,00	98,10	102,00	210,0	61,54	96,8
4	101,60	9,50	5,74	13,57	1 729	3557	1809	-	89,10	120,70	111,10	-	220,0	86,94	101,8
		10,70	6,65	15,57	1 984	3557	1809	-	88,30	120,70	111,10	-	220,0	85,12	101,8
		11,35	7,26	17,26	2 152	3557	1809	-	87,10	120,70	111,10	-	220,0	83,90	101,8
		13,20	8,38	19,27	2 454	3557	1809	-	84,90	120,70	111,10	-	220,0	81,66	101,8
		14,71	9,65	22,10	2 788	3557	1809	-	82,30	120,70	111,10	-	220,0	79,12	101,8
		16,10	10,54	23,67	3 015	3557	1809	-	80,60	120,70	111,10	-	220,0	77,34	101,8
4 1/2	114,30	11,60	6,35	16,91	2 154	3973	2048	2674	100,50	133,35	123,82	127,00	250,0	98,42	106,7
		12,60	6,88	18,23	2 322	3973	2048	2674	100,50	133,35	123,82	127,00	250,0	97,36	106,7
		13,50	7,37	19,44	2 476	3973	2048	2674	99,60	133,35	123,82	127,00	250,0	96,38	106,7
		15,10	8,56	22,32	2 844	3973	2048	2674	97,20	133,35	123,82	127,00	250,0	94,00	106,7
		17,00	9,65	24,90	3 173	3973	2048	2674	95,00	133,35	123,82	127,00	250,0	91,82	106,7
		18,90	10,92	27,84	3 547	3973	2048	2674	92,50	133,35	123,82	127,00	250,0	89,28	106,7
		21,50	12,70	31,82	4 054	4289	2048	2674	88,90	134,85	123,82	127,00	250,0	85,72	106,7
5 1/2	139,70	17,00	7,72	25,13	3 201	5167	2544	-	124,30	160,02	149,22	-	260	121,08	122
		20,00	9,17	29,52	3 760	5167	2544	-	121,40	160,02	149,22	-	260	118,18	122
		23,00	10,54	33,57	4 277	5167	2544	-	118,60	160,02	149,22	-	260	115,44	122
		26,00	12,09	38,05	4 847	5167	2544	-	115,50	160,02	149,22	-	260	112,34	122
		26,80	12,7	39,78	5 067	5167	2544	-	114,30	160,02	149,22	-	260	111,12	122

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Pipe crossection area	Coupling C/S area	Special coupling C/S area	Alternative coupling C/S area	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Outside diameter of alternative coupling	Coupling length	Drift diameter	Length makeup loss
in	mm	lb/ft	mm	kg/m	mm²	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6 5/8	168,28	20,00	7,32	29,06	3 702	5822	2977	-	152,80	187,71	177,80	-	260	150,46	122
		24,00	8,94	35,13	4 475	5822	2977	-	150,40	187,71	177,80	-	260	147,22	122
		28,00	10,59	41,18	5 246	5822	2977	-	147,10	187,71	177,80	-	260	143,92	122
		32,00	12,06	46,46	5 919	5822	2977	-	144,20	187,71	177,80	-	260	140,98	122
7	177,80	23,00	8,05	33,7	4 293	7097	3230	4024	160,30	200,03	187,32	190,00	280	158,52	131,6
		26,00	9,19	38,21	4 868	7097	3230	4024	159,40	200,03	187,32	190,00	280	156,24	131,6
		29,00	10,36	42,78	5 450	7097	3230	4024	157,10	200,03	187,32	190,00	280	153,9	131,6
		32,00	11,51	47,2	6 013	7097	3230	4024	154,80	200,03	187,32	190,00	280	151,6	131,6
		35,00	12,65	51,52	6 563	7097	3230	4024	152,50	200,03	187,32	190,00	280	149,32	131,6

TMK UP CENTUM ET

Strenght characteristics of pipes with TMK UP CENTUM ET

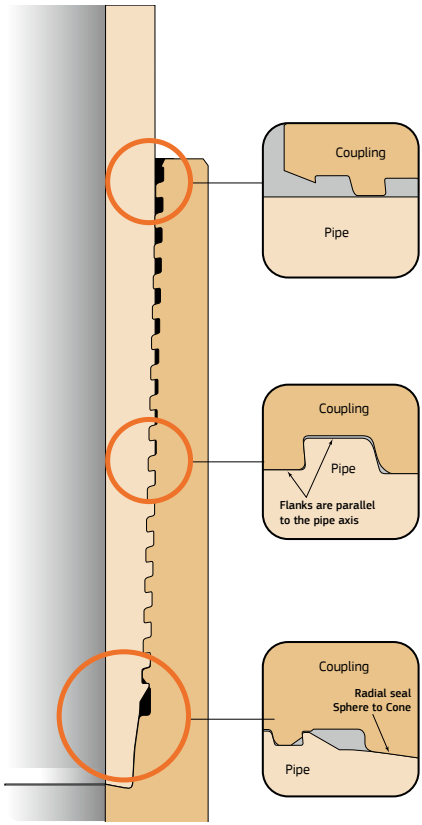
Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
3 1/2	88.90	7.70	5.49	545	794	893	942	1090	1240	1338	1390	1489	41.0	59.7	67.1	70.8	81.9	93.2	100.5	104.4	111.9	41.2	54.3	59.0	61.2	67.2	72.5	75.6	77.0	79.5
		9.20	6.45	633	922	1038	1094	1266	1440	1554	1614	1729	48.1	70.1	78.8	83.2	96.2	109.4	118.1	122.7	131.4	51.1	72.7	79.8	83.3	93.3	102.7	108.6	111.4	116.8
		10.20	7.34	713	1038	1168	1232	1426	1621	1749	1817	1947	54.8	79.8	89.7	94.6	109.5	124.5	134.4	139.6	149.5	57.5	83.6	94.1	99.3	115.0	130.7	139.2	143.3	151.4
		12.70	9.52	900	1310	1474	1555	1800	2046	2208	2293	2457	71.0	103.4	116.4	122.7	142.1	161.5	174.3	181.0	194.0	72.6	105.6	118.8	125.4	145.1	164.9	178.1	184.7	197.9
		14.30	10.92	1014	1477	1661	1752	2028	2306	2488	2584	2769	81.5	118.7	133.5	140.8	162.9	185.3	199.9	207.7	222.5	81.8	119.0	133.8	141.3	163.6	185.9	200.7	208.2	223.0
		15.50	12.09	1106	1610	1812	1911	2211	2515	2713	2818	3019	90.2	131.4	147.8	155.9	180.4	205.1	221.3	229.9	246.3	89.2	129.7	145.9	154.0	178.4	202.7	218.9	227.0	243.2
4	101.60	9.50	5.74	655	954	1073	1132	1310	1490	1608	1670	1789	37.5	54.6	61.4	64.8	74.9	85.2	91.9	95.5	102.3	35.3	45.4	48.8	50.4	54.5	57.8	59.5	60.3	61.4
		10.70	6.65	752	1095	1232	1299	1504	1710	1845	1916	2053	43.4	63.2	71.1	75.0	86.8	98.7	106.5	110.6	118.6	45.4	60.6	66.1	68.7	76.2	82.8	86.9	88.8	92.3
		11.35	7.26	815	1188	1336	1409	1631	1855	2001	2079	2227	47.4	69.0	77.7	81.9	94.8	107.8	116.3	120.8	129.4	50.3	70.8	77.7	81.1	90.7	99.7	100.7	101.7	102.7
		13.20	8.38	930	1355	1524	1607	1860	2115	2282	2371	2540	54.7	79.7	89.6	94.5	109.4	124.4	134.2	139.4	149.4	57.4	83.5	94.0	99.2	114.9	130.4	138.9	143.0	151.1
		14.71	9.65	1056	1539	1731	1826	2113	2403	2592	2693	2885	63.0	91.8	103.2	108.9	126.0	143.3	154.6	160.6	172.0	65.2	94.9	106.7	112.7	130.4	148.2	149.2	150.2	151.2
		16.10	10.54	1143	1664	1872	1975	2286	2599	2804	2913	3121	68.8	100.2	112.7	118.9	137.6	156.5	168.8	175.4	187.9	70.6	102.6	115.5	121.9	141.1	160.4	173.2	179.6	192.5
4 1/2	114.30	11.60	6.35	816	1189	1337	1411	1632	1856	2003	2080	2229	36.8	53.7	60.4	63.7	73.7	83.8	90.4	93.9	100.6	34.2	43.8	47.0	48.4	52.3	55.2	56.7	57.3	58.1
		12.60	6.88	880	1282	1442	1521	1760	2001	2159	2243	2403	39.9	58.1	65.4	69.0	79.8	90.8	98.0	101.8	109.0	39.5	51.7	56.0	58.0	63.5	68.2	70.8	72.0	74.1
		13.50	7.37	938	1367	1537	1622	1877	2134	2303	2392	2562	42.8	62.3	70.1	73.9	85.5	97.3	104.9	109.0	116.8	44.3	59.0	64.2	66.7	73.8	80.1	83.9	85.7	88.9
		15.10	8.56	1078	1570	1766	1863	2155	2451	2645	2747	2943	49.7	72.3	81.4	85.8	99.3	113.0	121.9	126.6	135.6	52.6	76.5	84.3	88.1	98.9	109.2	115.7	118.9	124.9
		17.00	9.65	1202	1751	1970	2078	2405	2735	2951	3065	3284	56.0	81.6	91.8	96.8	112.0	127.4	137.4	142.7	152.9	58.7	85.3	96.0	101.3	117.3	133.3	144.0	149.2	157.8
		18.90	10.92	1344	1958	2202	2323	2688	3057	3298	3426	3671	63.4	92.3	103.8	109.5	126.7	144.1	155.5	161.5	173.0	65.6	95.4	107.3	113.3	131.2	149.1	161.0	166.9	178.9
		21.50	12.70	1536	2238	2517	2655	3073	3494	3770	3916	4196	73.7	107.3	120.8	127.4	147.4	167.6	180.8	187.8	201.3	75.0	109.0	122.7	129.5	149.9	170.4	184.0	190.8	204.4

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
5 1/2	139.7	17.00	7.72	1213	1767	1988	2097	2426	2759	2977	3092	3313	36.7	53.4	60.1	63.3	73.3	83.4	89.9	93.4	100.1	33.9	43.3	46.4	47.9	51.5	54.4	55.8	56.3	57.1
		20.00	9.17	1425	2076	2335	2463	2850	3241	3497	3633	3892	43.5	63.4	71.3	75.2	87.1	99.0	106.8	111.0	118.9	45.6	60.9	66.5	69.1	76.6	83.4	87.5	89.4	92.9
		23.00	10.54	1621	2361	2656	2801	3242	3687	3977	4131	4426	50.0	72.9	82.0	86.5	100.1	113.8	122.8	127.5	136.7	52.9	77.0	85.4	89.2	100.3	110.8	117.4	120.6	126.8
		26.00	12.09	1837	2675	3010	3175	3674	4178	4508	4682	5017	57.4	83.6	94.1	99.2	114.8	130.5	140.8	146.3	156.8	59.9	87.3	98.2	103.6	119.8	136.4	147.2	152.7	163.6
		26.80	12.7	1920	2797	3147	3319	3841	4368	4712	4895	5244	60.3	87.8	98.8	104.2	120.6	137.1	148.0	153.7	164.7	62.7	91.1	102.6	108.2	125.3	142.4	153.8	159.5	170.9
6 5/8	168.28	20.00	7.32	1403	2043	2299	2424	2806	3191	3442	3576	3831	28.9	42.0	47.3	49.9	57.7	65.6	70.8	73.5	78.8	20.5	24.0	25.5	26.2	27.8	28.8	29.1	29.2	29.3
		24.00	8.94	1696	2470	2779	2931	3392	3858	4162	4323	4632	35.2	51.3	57.7	60.9	70.5	80.1	86.5	89.8	96.2	31.4	39.7	42.3	43.5	46.4	48.4	49.3	49.5	50.6
		28.00	10.59	1988	2896	3258	3436	3977	4522	4879	5068	5430	41.7	60.8	68.4	72.1	83.5	94.9	102.4	106.4	114.0	42.6	56.3	61.2	63.6	70.1	75.8	79.2	80.8	83.6
		32.00	12.06	2243	3267	3676	3877	4486	5102	5504	5718	6126	47.5	69.2	77.9	82.1	95.1	108.1	116.6	121.2	129.8	50.5	71.1	78.1	81.5	91.2	100.2	105.9	108.6	113.8
7	177.8	23.00	8.05	1627	2370	2666	2812	3254	3701	3992	4147	4443	30.0	43.7	49.2	51.9	60.1	68.3	73.7	76.5	82.0	22.5	26.4	27.8	28.6	30.6	32.0	32.6	32.8	33.0
		26.00	9.19	1845	2687	3023	3189	3690	4196	4527	4702	5038	34.3	49.9	56.2	59.2	68.6	78.0	84.1	87.4	93.6	29.8	37.3	39.6	40.5	42.9	44.4	45.4	46.1	47.4
		29.00	10.36	2065	3008	3384	3570	4131	4698	5068	5264	5640	38.6	56.3	63.3	66.8	77.3	87.9	94.8	98.5	105.5	37.3	48.4	52.2	54.0	58.8	62.8	65.0	65.9	67.5
		32.00	11.51	2279	3319	3734	3939	4558	5183	5592	5809	6223	42.9	62.5	70.4	74.2	85.9	97.7	105.4	109.4	117.3	44.8	59.4	64.7	67.6	74.4	81.3	85.2	87.0	90.4
		35.00	12.65	2487	3623	4076	4299	4975	5658	6104	6340	6793	47.2	68.7	77.3	81.6	94.4	107.3	115.8	120.3	128.9	50.2	70.3	77.1	80.4	89.9	98.8	104.3	106.9	112.0

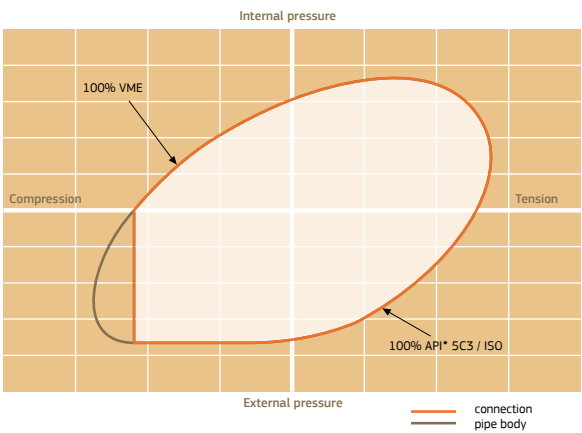
Pro Series

Threaded connection

TMK UP CENTUM ET CHS



TMK UP CENTUM ET
Performance Envelope



TMK UP CENTUM ET CHS for casing and tubing

TMK UP CENTUM ET CHS is threaded and coupled connection for casing and tubing. It has all advantages of TMK UP CENTUM ET. This connection was developed for CCUS projects (Carbon Capture, Utilization and Storage). Tested under combined loads at minus 60 °C.

Range:
Tubing 3 1/2" – 4 1/2" / 88,9 – 114,30 mm;
Casing 7" / 177,8 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Gas-tight metal-to-metal seal
- Efficiency at extremely low temperatures

Application:
- Casing and tubing
- Gas and oil wells
- CO_2 injection

Geometric parameters of pipes with TMK UP CENTUM ET CHS

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Pipe crossection area	Coupling C/S area	Special coupling C/S area	Alternative coupling C/S area	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Outside diameter of alternative coupling	Coupling length	Drift diameter	Length makeup loss
in	mm	lb/ft	mm	kg/m	mm²	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3 1/2	88,90	7,70	5,49	11,29	1 439	3148	1545	2158	76,80	108,00	98,10	102,00	210,0	74,74	96,8
		9,20	6,45	13,12	1 671	3148	1545	2158	76,00	108,00	98,10	102,00	210,0	72,82	96,8
		10,20	7,34	14,76	1 881	3148	1545	2158	74,30	108,00	98,10	102,00	210,0	71,04	96,8
		12,70	9,52	18,65	2 374	3148	1545	2158	69,90	108,00	98,10	102,00	210,0	66,68	96,8
		14,30	10,92	21,00	2 675	3148	1545	2158	67,10	108,00	98,10	102,00	210,0	63,88	96,8
		15,50	12,09	22,90	2 917	3148	1545	2158	64,80	108,00	98,10	102,00	210,0	61,54	96,8
7	177,80	23,00	8,05	33,7	4 293	7097	3230	4024	160,30	200,03	187,32	190,00	280	158,52	131,6
		26,00	9,19	38,21	4 868	7097	3230	4024	159,40	200,03	187,32	190,00	280	156,24	131,6
		29,00	10,36	42,78	5 450	7097	3230	4024	157,10	200,03	187,32	190,00	280	153,9	131,6
		32,00	11,51	47,2	6 013	7097	3230	4024	154,80	200,03	187,32	190,00	280	151,6	131,6
		35,00	12,65	51,52	6 563	7097	3230	4024	152,50	200,03	187,32	190,00	280	149,32	131,6

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	мм	lb/ft	мм	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
3 1/2	88,90	7,70	5,49	545	794	893	942	1090	1240	1338	1390	1489	41,0	59,7	67,1	70,8	81,9	93,2	100,5	104,4	111,9	41,2	54,3	59,0	61,2	67,2	72,5	75,6	77,0	79,5
		9,20	6,45	633	922	1038	1094	1266	1440	1554	1614	1729	48,1	70,1	78,8	83,2	96,2	109,4	118,1	122,7	131,4	51,1	72,7	79,8	83,3	93,3	102,7	108,6	111,4	116,8
		10,20	7,34	713	1038	1168	1232	1426	1621	1749	1817	1947	54,8	79,8	89,7	94,6	109,5	124,5	134,4	139,6	149,5	57,5	83,6	94,1	99,3	115,0	130,7	139,2	143,3	151,4
		12,70	9,52	900	1310	1474	1555	1800	2046	2208	2293	2457	71,0	103,4	116,4	122,7	142,1	161,5	174,3	181,0	194,0	72,6	105,6	118,8	125,4	145,1	164,9	178,1	184,7	197,9
		14,30	10,92	1014	1477	1661	1752	2028	2306	2488	2584	2769	81,5	118,7	133,5	140,8	162,9	185,3	199,9	207,7	222,5	81,8	119,0	133,8	141,3	163,6	185,9	200,7	208,2	223,0
		15,50	12,09	1106	1610	1812	1911	2211	2515	2713	2818	3019	90,2	131,4	147,8	155,9	180,4	205,1	221,3	229,9	246,3	89,2	129,7	145,9	154,0	178,4	202,7	218,9	227,0	243,2
7	177,80	23,00	8,05	1627	2370	2666	2812	3254	3701	3992	4147	4443	30,0	43,7	49,2	51,9	60,1	68,3	73,7	76,5	82,0	22,5	26,4	27,8	28,6	30,6	32,0	32,6	32,8	33,0
		26,00	9,19	1845	2687	3023	3189	3690	4196	4527	4702	5038	34,3	49,9	56,2	59,2	68,6	78,0	84,1	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,4	46,1	47,4
		29,00	10,36	2065	3008	3384	3570	4131	4698	5068	5264	5640	38,6	56,3	63,3	66,8	77,3	87,9	94,8	98,5	105,5	37,3	48,4	52,2	54,0	58,8	62,8	65,0	65,9	67,5
		32,00	11,51	2279	3319	3734	3939	4558	5183	5592	5809	6223	42,9	62,5	70,4	74,2	85,9	97,7	105,4	109,4	117,3	44,8	59,4	64,7	67,6	74,4	81,3	85,2	87,0	90,4
		35,00	12,65	2487	3623	4076	4299	4975	5658	6104	6340	6793	47,2	68,7	77,3	81,6	94,4	107,3	115,8	120,3	128,9	50,2	70,3	77,1	80,4	89,9	98,8	104,3	106,9	112,0

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CLASSIC SERIES

Series of connections which have gas-tight metal-to-metal seal. Provide excellent operational performance in vertical and deviated wells with a low DLS. Higher sealability in reference to standard connections at different operating conditions.

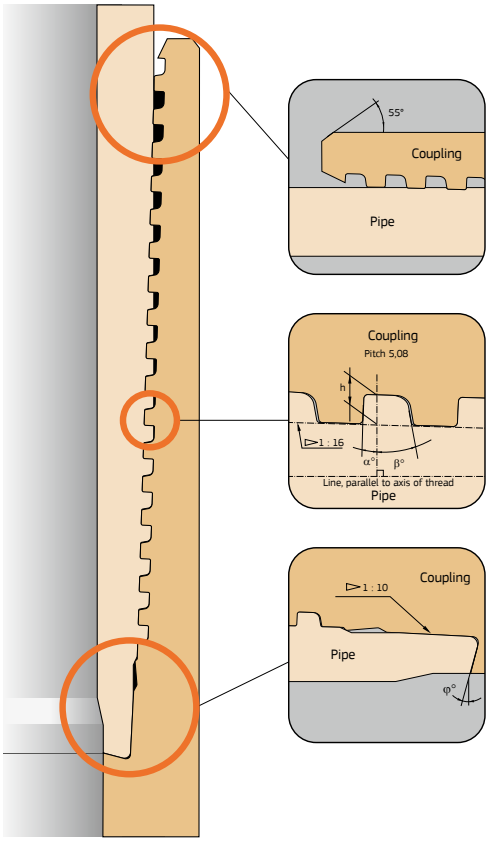
TMK UP FMC

Classic Series

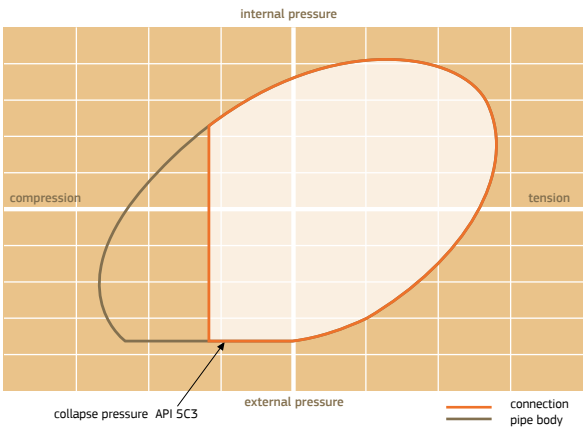
Threaded connection
TMK UP FMC

TMK UP FMC

Certified in accordance
with ISO 13679 CAL II



TMK UP FMC
Performance Envelope



TMK UP FMC for casing

TMK UP FMC is the 1st generation thread connection with metal-to-metal seal for casing in vertical and deviated (with low DLS) wells. Provides higher reliability and operating performance relative to standard connections.

Range:
4 1/2" – 13 3/8" / 114,30 – 339,72 mm

Unique Feature:
- 50% compression efficiency
- 100% tension efficiency
- Gas-tight metal-to-metal seal
- Over-torque protection during make-up
- Robust galling resistance

Application:
- Vertical wells
- Deviated wells
- Oil and gas wells
- RIH and cementing with rotation

TMK UP FMC

Geometrical parameters of pipes with threaded connection TMK UP FMC

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Cou-pling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
4 1/2	114,3	11,60	6,35	16,91	0,56	5,53	4,35	2 154	2761	2135	100,10	127,00	123,82	240,00	98,42	108,10
		13,50	7,37	19,44	0,57	5,54	4,36	2 476	2761	2135	99,70	127,00	123,82	240,00	96,38	108,10
		15,10	8,56	22,32	0,62	5,54	4,36	2 844	2761	2135	99,70	127,00	123,82	240,00	94,00	108,10
		17,94	10,20	26,19	0,66	5,6	4,42	3 336	2761	2135	97,70	127,00	123,82	240,00	90,73	108,10
5	127	15,00	7,52	22,16	0,68	7,06	5,05	2 823	3446	2403	112,20	141,30	136,52	245,00	108,78	108,70
		18,00	9,19	26,70	0,77	7,06	5,05	3 401	3446	2403	112,20	141,30	136,52	245,00	105,44	108,70
		20,63	10,70	30,69	0,79	7,16	5,15	3 909	3446	2403	109,60	141,30	136,52	245,00	102,43	108,70
5 1/2	139,7	15,50	6,98	22,85	0,76	7,55	5,50	2 910	3724	2658	124,80	153,67	149,22	245,00	122,56	110,30
		17,00	7,72	25,13	0,78	7,55	5,50	3 201	3724	2658	124,80	153,67	149,22	245,00	121,08	110,30
		20,00	9,17	29,52	0,87	7,55	5,50	3 760	3724	2658	124,80	153,67	149,22	245,00	118,18	110,30
		23,00	10,54	33,57	0,91	7,63	5,58	4 277	3724	2658	122,70	153,67	149,22	245,00	115,44	110,30
5 3/4	146,05	16,13	7,00	24,00	0,82	10,8	5,93	3 058	5428	2899	131,20	166,00	156,00	245,00	128,87	110,80
		17,61	7,70	26,27	0,82	10,8	5,93	3 347	5428	2899	131,20	166,00	156,00	245,00	127,47	110,80
		19,62	8,50	28,83	0,88	10,8	5,93	3 673	5428	2899	131,20	166,00	156,00	245,00	125,87	110,80
		21,50	9,50	31,99	0,95	10,81	5,94	4 075	5428	2899	131,00	166,00	156,00	245,00	123,87	110,80
		23,99	10,70	35,72	0,97	10,89	6,03	4 550	5428	2899	128,90	166,00	156,00	245,00	121,47	110,80
6 5/8	168,28	20,00	7,32	29,06	1,02	12,26	6,68	3 702	6113	3268	153,10	187,71	177,80	250,00	150,46	115,00
		24,00	8,94	35,13	1,12	12,26	6,68	4 475	6113	3268	153,10	187,71	177,80	250,00	147,22	115,00
		28,00	10,59	41,18	1,21	12,33	6,75	5 246	6113	3268	151,50	187,71	177,80	250,00	143,92	115,00
		32,00	12,06	46,46	1,25	12,43	6,85	5 919	6113	3268	148,90	187,71	177,80	250,00	140,98	115,00

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Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Cou-pling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
7	177,8	23,00	8,05	33,70	1,22	15,68	7,63	4 293	7395	3528	162,20	200,03	187,32	265,00	158,52	120,60
		26,00	9,19	38,21	1,3	15,68	7,63	4 868	7395	3528	162,20	200,03	187,32	265,00	156,24	120,60
		29,00	10,36	42,78	1,39	15,71	7,67	5 450	7395	3528	161,50	200,03	187,32	265,00	153,90	120,60
		32,00	11,51	47,20	1,42	15,81	7,77	6 013	7395	3528	159,50	200,03	187,32	265,00	151,60	120,60
		35,00	12,65	51,52	1,45	15,91	7,87	6 563	7395	3528	157,50	200,03	187,32	265,00	149,32	120,60
		38,00	13,72	55,52	1,49	16,01	7,97	7 072	7395	3528	155,60	200,03	187,32	265,00	147,18	120,60
		41,67	15,00	60,22	1,53	16,13	8,09	7 672	7395	3528	153,30	200,03	187,32	265,00	144,62	120,60
7 5/8	193,68	29,70	9,52	43,24	1,57	17,73	10,91	5 508	8109	4952	177,70	215,90	206,38	275,00	171,46	125,40
		33,70	10,92	49,22	1,67	17,8	10,98	6 270	8109	4952	176,40	215,90	206,38	275,00	168,66	125,40
		39,00	12,70	56,68	1,73	17,98	11,16	7 221	8109	4952	173,30	215,90	206,38	275,00	165,10	125,40
		45,30	15,11	66,54	1,81	18,22	11,41	8 477	8109	4952	169,00	215,90	206,38	275,00	160,28	125,40
8 5/8	219,08	32,00	8,94	46,33	1,8	22,98	12,53	5 902	10405	5655	203,00	244,48	231,78	280,00	198,02	128,50
		36,00	10,16	52,35	1,96	22,98	12,53	6 668	10405	5655	203,00	244,48	231,78	280,00	195,58	128,50
		40,00	11,43	58,53	2,03	23,09	12,65	7 456	10405	5655	201,10	244,48	231,78	280,00	193,04	128,50
		44,00	12,70	64,64	2,07	23,23	12,79	8 234	10405	5655	198,90	244,48	231,78	280,00	190,50	128,50
		49,00	14,15	71,51	2,13	23,38	12,94	9 110	10405	5655	196,40	244,48	231,78	280,00	187,60	128,50
9 5/8	244,48	36,00	8,94	51,93	2,02	27,93	15,55	6 615	11554	6297	228,30	269,88	257,18	300,00	222,63	130,10
		40,00	10,03	57,99	2,17	27,93	15,55	7 388	11554	6297	228,30	269,88	257,18	300,00	220,45	130,10
		43,50	11,05	63,61	2,28	28,04	15,66	8 103	11554	6297	227,30	269,88	257,18	300,00	218,41	130,10
		47,00	11,99	68,75	2,31	28,24	15,86	8 757	11554	6297	225,60	269,88	257,18	300,00	216,53	130,10
		53,50	13,84	78,72	2,4	28,61	16,23	10 028	11554	6297	222,40	269,88	257,18	300,00	212,83	130,10
		58,40	15,11	85,47	2,46	28,87	16,49	10 888	11554	6297	220,20	269,88	257,18	300,00	210,29	130,10
		60,14	15,90	89,63	2,5	29,04	16,65	11 418	11554	6297	218,80	269,88	257,18	300,00	208,71	130,10

TMK UP FMC

Geometrical parameters of pipes with threaded connection TMK UP FMC

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Cou-pling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
9 7/8	250,83	62,80	15,88	92,01	2,57	29,75	-	11 721	11869	-	225,30	276,00	-	300,00	215,10	130,10
		66,40	16,79	96,91	2,63	29,96	-	12 345	11869	-	223,70	276,00	-	300,00	213,28	130,10
		72,10	18,29	104,89	2,71	30,31	-	13 362	11869	-	221,00	276,00	-	300,00	210,28	130,10
10 3/4	273,05	40,50	8,89	57,91	2,26	31,11	17,39	7 378	12823	6618	256,60	298,45	285,75	300,00	251,30	130,10
		45,50	10,16	65,87	2,45	31,11	17,39	8 391	12823	6618	256,60	298,45	285,75	300,00	248,76	130,10
		51,00	11,43	73,75	2,6	31,27	17,54	9 394	12823	6618	255,40	298,45	285,75	300,00	246,22	130,10
		55,50	12,57	80,75	2,67	31,5	17,78	10 286	12823	6618	253,60	298,45	285,75	300,00	243,94	130,10
		60,70	13,84	88,47	2,73	31,8	18,08	11 270	12823	6618	251,30	298,45	285,75	300,00	241,40	130,10
		65,70	15,11	96,12	2,74	32,22	18,50	12 244	12823	6618	248,10	298,45	285,75	300,00	238,86	130,10
		73,20	17,07	107,76	2,87	32,61	18,89	13 727	12823	6618	245,20	298,45	285,75	300,00	234,94	130,10
12 3/4	323,85	50,89	9,50	73,65	2,78	40,53	-	9 382	16097	-	307,40	351,00	-	310,00	300,88	131,70
		58,78	11,00	84,87	3,12	40,53	-	10 811	16097	-	307,40	351,00	-	310,00	297,88	131,70
		65,13	12,40	95,24	3,23	40,94	-	12 133	16097	-	305,10	351,00	-	310,00	295,08	131,70
		72,87	14,00	106,98	3,33	41,46	-	13 628	16097	-	302,30	351,00	-	310,00	291,88	131,70
13 3/8	339,72	54,50	9,65	78,55	2,93	40,19	-	10 007	15853	-	323,30	365,12	-	310,00	316,45	131,70
		61,00	10,92	88,55	3,24	40,19	-	11 280	15853	-	323,30	365,12	-	310,00	313,91	131,70
		68,00	12,19	98,46	3,38	40,56	-	12 543	15853	-	321,50	365,12	-	310,00	311,37	131,70
		72,00	13,06	105,21	3,44	40,86	-	13 403	15853	-	320,00	365,12	-	310,00	309,63	131,70

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Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	мм	lb/ft	мм	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,3	11,60	6,35	816	1189	1337	1411	1632	1856	2005	2080	2229	36,8	53,7	60,4	63,7	73,7	83,8	90,5	93,9	100,6	34,2	43,8	47,0	48,5	52,3	55,2	56,7	57,3	58,1
		13,50	7,37	938	1367	1537	1622	1877	2134	2305	2392	2562	42,8	62,3	70,1	73,9	85,5	97,3	105,1	109,0	116,8	44,3	59,0	64,2	66,7	73,8	80,1	83,9	85,7	88,9
		15,10	8,56	1046	1524	1715	1808	2093	2380	2570	2667	2858	49,7	72,3	81,4	85,8	99,3	113,0	122,0	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
		17,94	10,20	1046	1524	1715	1808	2093	2380	2570	2667	2858	59,2	86,2	97,0	102,3	118,4	134,6	145,4	150,9	161,6	61,7	89,7	52,3	106,6	123,4	140,2	151,4	157,0	168,2
5	127	15,00	7,52	1070	1558	1753	1849	2140	2433	2628	2727	2921	39,3	57,2	64,3	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50,0	54,1	56,0	61,1	65,4	67,8	68,9	70,7
		18,00	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3520	48,0	69,9	78,6	82,9	96,0	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108,0	110,8	116,2
		20,63	10,70	1306	1902	2140	2257	2612	2970	3208	3329	3567	55,9	81,4	91,6	96,6	111,8	127,1	137,3	142,4	152,6	58,6	85,2	95,8	101,1	117,1	133,1	143,7	148,7	157,2
5 1/2	139,7	15,50	6,98	1103	1607	1807	1906	2206	2509	2710	2811	3012	33,1	48,3	54,3	57,3	66,3	75,4	81,4	84,5	90,5	27,9	34,4	36,2	37,0	38,8	40,5	41,9	42,5	43,5
		17,00	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3313	36,7	53,4	60,1	63,3	73,3	83,4	90,0	93,4	100,1	33,9	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20,00	9,17	1411	2056	2313	2439	2823	3210	3467	3597	3854	43,5	63,4	71,3	75,2	87,1	99,0	106,9	111,0	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23,00	10,54	1411	2056	2313	2439	2823	3210	3467	3597	3854	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77,0	85,4	89,2	100,3	110,8	117,4	120,6	126,8
5 3/4	146,05	16,13	7,00	1159	1688	1899	2003	2318	2636	2847	2954	3165	31,8	46,3	52,1	54,9	63,6	72,3	78,1	81,0	86,8	25,5	30,9	32,3	32,8	34,8	36,8	37,9	38,3	38,9
		17,61	7,70	1268	1847	2078	2192	2537	2885	3116	3233	3464	35,0	50,9	57,3	60,4	69,9	79,5	85,9	89,1	95,5	31,0	39,0	41,5	42,7	45,4	47,3	48,0	48,2	49,7
		19,62	8,50	1392	2028	2281	2406	2784	3166	3420	3548	3802	38,6	56,2	63,2	66,7	77,2	87,8	94,8	98,4	105,4	37,2	48,3	52,1	53,9	58,6	62,6	64,7	65,7	67,2
		21,50	9,50	1545	2250	2531	2669	3089	3513	3794	3937	4218	43,1	62,8	70,7	74,6	86,3	98,1	106,0	110,0	117,8	45,0	59,9	65,3	67,9	75,2	81,7	85,7	87,5	90,9
		23,99	10,70	1724	2511	2825	2980	3449	3922	4236	4395	4709	48,6	70,8	79,6	84,0	97,2	110,5	119,4	123,9	132,7	51,5	73,9	81,2	84,7	95,0	104,7	110,7	113,7	119,3
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	3446	3576	3831	28,9	42,0	47,3	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24,0	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		24,00	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28,00	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41,7	60,8	68,4	72,1	83,5	94,9	102,5	106,4	114,0	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		32,00	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6126	47,5	69,2	77,9	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8

TMK UP FMC

Strenght characteristics of pipes with threaded connection TMK UP FMC

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	мм	lb/ft	мм	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
7	177,8	23,00	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4443	30,0	43,7	49,2	51,9	60,1	68,3	73,8	76,5	82,0	22,5	26,4	27,8	28,6	30,6	32,0	32,6	32,8	33,0
		26,00	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5038	34,3	49,9	56,2	59,2	68,6	78,0	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,4	46,1	47,4
		29,00	10,36	2065	3008	3384	3570	4131	4698	5074	5264	5640	38,6	56,3	63,3	66,8	77,3	87,9	94,9	98,5	105,5	37,3	48,4	52,2	54,0	58,8	62,8	65,0	65,9	67,5
		32,00	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6223	42,9	62,5	70,4	74,2	85,9	97,7	105,5	109,4	117,3	45,3	60,4	64,7	68,4	75,8	82,4	86,4	88,3	91,8
		35,00	12,65	2487	3623	4076	4299	4975	5658	6110	6340	6793	47,2	68,7	77,3	81,6	94,4	107,3	115,9	120,3	128,9	50,2	70,3	77,1	80,4	89,9	98,8	104,3	106,9	112,0
		38,00	13,72	2680	3904	4392	4632	5361	6096	6584	6832	7320	51,2	74,5	83,9	88,5	102,4	116,4	125,7	130,4	139,8	54,0	78,6	88,4	92,7	104,4	115,6	122,7	126,1	132,7
		41,67	15,00	2803	4082	4592	4844	5605	6374	6885	7144	7654	56,0	81,5	91,7	96,7	111,9	127,3	137,5	142,6	152,8	58,6	85,3	95,9	101,3	117,3	133,3	143,9	149,0	157,6
7 5/8	193,68	29,70	9,52	2087	3040	3420	3608	4175	4748	5128	5321	5701	32,6	47,5	53,4	56,3	65,2	74,1	80,1	83,1	89,0	26,9	33,0	34,7	35,4	36,8	39,1	40,3	40,8	41,7
		33,70	10,92	2376	3461	3894	4107	4753	5405	5837	6057	6489	37,4	54,5	61,3	64,6	74,8	85,1	91,9	95,3	102,1	35,1	45,2	48,6	50,2	54,3	57,5	59,2	59,9	61,0
		39,00	12,70	2737	3986	4484	4730	5473	6224	6723	6975	7474	43,5	63,3	71,3	75,2	87,0	98,9	106,8	110,8	118,8	45,6	60,8	66,3	69,0	76,4	83,2	87,3	89,2	92,7
		45,30	15,11	3073	4476	5036	5311	6147	6990	7549	7833	8393	51,7	75,4	84,8	89,4	103,5	117,7	127,1	131,9	141,3	54,6	79,4	89,3	94,3	106,5	117,9	125,3	128,8	135,7
8 5/8	219,08	32,00	8,94	2237	3258	3665	3866	4474	5087	5495	5701	6109	27,1	39,4	44,3	46,8	54,1	61,6	66,5	69,0	73,9	17,5	21,0	22,2	22,6	23,6	23,7	23,7	23,8	23,9
		36,00	10,16	2527	3681	4141	4368	5055	5748	6208	6442	6902	30,8	44,8	50,4	53,2	61,5	70,0	75,6	78,4	84,0	23,8	28,3	29,3	30,0	32,3	34,0	34,7	35,0	35,3
		40,00	11,43	2826	4116	4630	4884	5652	6427	6942	7203	7717	34,6	50,4	56,7	59,8	69,2	78,7	85,0	88,2	94,5	30,4	38,1	40,5	41,5	44,1	45,7	46,2	47,0	48,4
		44,00	12,70	3121	4545	5113	5393	6242	7098	7666	7954	8522	38,4	56,0	63,0	66,4	76,9	87,4	94,4	98,0	105,0	36,9	47,9	51,7	53,4	58,1	61,9	63,9	64,8	66,3
		49,00	14,15	3453	5029	5657	5967	6905	7853	8481	8800	9429	42,8	62,4	70,2	74,0	85,7	97,4	105,2	109,2	117,0	44,5	59,1	64,4	67,0	74,1	80,4	84,1	85,8	89,1
9 5/8	244,48	36,00	8,94	2507	3652	4108	4333	5014	5702	6159	6384	6847	24,3	35,3	39,7	41,9	48,5	55,2	59,6	61,8	66,2	14,0	16,4	16,9	17,0	17,1	17,2	17,3	17,3	17,4
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	7129	7646	27,2	39,6	44,6	47,0	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8387	30,0	43,7	49,1	51,8	60,0	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9064	32,5	47,4	53,3	56,2	65,1	74,0	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	9677	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
		58,40	15,11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41,0	59,7	67,2	70,8	82,0	93,2	100,7	104,4	111,9	41,3	54,5	59,1	61,3	67,3	72,7	75,8	77,2	79,7
		60,14	15,90	4327	6303	7090	7479	8655	9842	10630	11018	11817	43,1	62,8	70,7	74,5	86,3	98,1	106,0	109,8	117,8	44,9	59,9	65,3	67,9	79,9	81,7	85,6	87,5	90,9

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Strenght characteristics of pipes with threaded connection TMK UP FMC

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
9 7/8	250,83	62,80	15,88	4442	6470	7279	7677	8885	10104	10913	11323	12132	42,0	61,2	68,8	72,6	84,0	95,5	103,1	107,0	114,7	43,0	57,0	62,0	64,3	71,0	76,9	80,4	82,0	84,9
		66,40	16,79	4498	6552	7371	7774	8997	10231	11050	11465	12284	44,4	64,7	72,7	76,7	88,8	101,0	109,1	113,2	121,2	47,1	63,1	69,0	71,8	79,7	87,0	91,4	93,5	97,4
		72,10	18,29	4498	6552	7371	7774	8997	10231	11050	11465	12284	48,4	70,4	79,2	83,6	96,7	110,0	118,8	123,3	132,1	51,3	73,3	80,5	84,0	94,2	103,7	109,7	112,6	118,1
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	6869	7119	7636	21,6	31,5	35,4	37,3	43,2	49,1	53,0	55,0	59,0	10,9	11,9	12,0	12,0	12,1	12,2	12,3	12,4	12,5
		45,50	10,16	3180	4632	5211	5496	6360	7233	7812	8097	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18,0	17,5	17,6	17,7
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	9066	9723	27,8	40,4	45,5	48,0	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24,0	25,2	25,8	25,9	26,0	26,1
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	9926	10646	30,5	44,5	50,0	52,8	61,1	69,4	75,0	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	10876	11665	33,6	49,0	55,1	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44,0	45,1
		65,70	15,11	4641	6759	7604	8020	9281	10555	11399	11816	12673	36,7	53,5	60,1	63,4	73,4	83,5	90,2	93,5	100,2	34,0	43,5	46,6	48,0	51,7	54,6	56,0	56,6	57,4
		73,20	17,07	4860	7078	7963	8399	9720	11053	11938	12374	13272	41,5	60,4	67,9	71,7	82,9	94,3	101,9	105,6	113,2	42,1	55,6	60,4	62,7	69,1	74,6	77,9	79,4	82,8
12 3/4	323,85	50,89	9,50	3556	5179	5826	6145	7111	8087	8734	9063	9710	19,5	28,3	31,9	33,6	38,9	44,3	47,8	49,6	53,1	8,5	8,6	8,6	8,7	8,8	8,9	9,0	9,1	9,2
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	10444	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12,0	13,5	13,5	13,6	13,7	13,8	13,9	14,0	14,1
		65,13	12,40	4598	6697	7534	7947	9197	10458	11296	11720	12557	25,4	37,0	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19,0	19,3	19,6	19,7	19,8	19,9	20,0
		72,87	14,00	5165	7523	8463	8926	10330	11747	12688	13165	14105	28,7	41,8	47,0	49,6	57,3	65,2	70,4	73,1	78,3	20,2	23,7	25,2	25,8	27,4	28,3	28,5	28,6	28,7
13 3/8	339,72	54,50	9,65	3793	5524	6214	6554	7585	8626	9316	9667	10357	18,8	27,4	30,9	32,6	37,7	42,8	46,3	48,0	51,4	7,8	7,9	7,9	8,0	8,1	8,2	8,3	8,4	8,5
		61,00	10,92	4275	6227	7005	7389	8550	9724	10502	10897	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,7	10,8	10,9	11,0	11,1	11,2	11,3
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	12117	12982	23,8	34,7	39,0	41,1	47,6	54,1	58,5	60,7	65,0	13,4	15,6	16,0	16,1	16,2	16,3	16,4	16,5	16,6
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	12947	13872	25,5	37,1	41,8	44,1	51,0	58,0	62,6	65,0	69,6	15,4	18,4	19,2	19,5	19,9	20,0	20,1	20,2	20,3

LITE SERIES

Series of connections, which have modified standard thread and higher performance characteristics in reference to connections of standard API* 5CT. Connection configuration provides exact and quick assembly, and internal shoulder can take torsion and compression loads.

TMK UP SIMPLEX

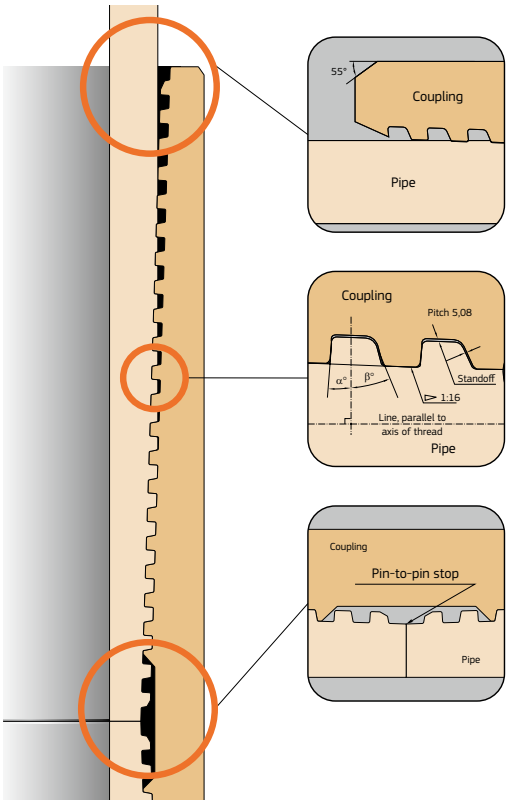
TMK UP CWB

TMK UP CWB II

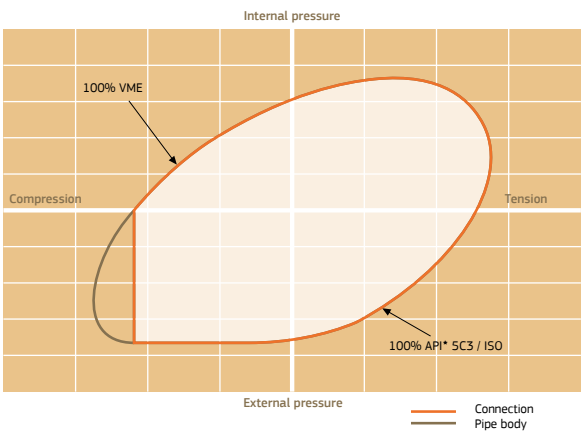
TMK UP MAGNA

Lite Series

Threaded connection
TMK UP SIMPLEX



TMK UP SIMPLEX
Performance Envelope



TMK UP SIMPLEX for Casing

TMK UP Simplex – threaded and coupled connection with increased performance characteristics in reference to Buttress thread. Designed with an internal pin-to-pin stop for 100%** compression efficiency and torsional stability. The connection is designed for casing rotation during run-in-hole operation and cementing.

Range: 4 1/2"–13 3/8 " / 114.30–339.72 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Pin-to-pin shoulder
- Sealability through thread compound
- Over-torque protection during make-up
- Additional sealing barrier
- Compatibility with API Buttress without crossovers
- Prevention from coupling's internal surface erosion

Application:
- Vertical wells
- Deviated wells
- Horizontal oil wells
- RIH with rotation
- Cementing with rotation
- Low GOR wells

Geometrical parameters of pipes with threaded connection TMK UP Simplex

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
4 1/2	114,3	11,60	6,35	16,91	0,34	4,10	-	2 154	2781	-	101,60	127,00	-	200,00	98,42	100,00
		13,50	7,37	19,44	0,34	4,10	-	2 476	2781	-	99,56	127,00	-	200,00	96,38	100,00
		15,10	8,56	22,32	0,36	4,10	-	2 844	2781	-	97,18	127,00	-	200,00	94,00	100,00
5	127	13,00	6,43	19,12	0,40	5,66	-	2 436	3466	-	114,14	141,30	-	206,40	110,96	103,20
		15,00	7,52	22,16	0,41	5,66	4,40	2 823	3466	-	111,96	141,30	139,00	206,40	108,78	103,20
		18,00	9,19	26,70	0,42	5,66	-	3 401	3466	-	108,62	141,30	-	206,40	105,44	103,20
		21,40	11,10	31,73	0,43	5,66	-	4 042	3466	-	104,80	141,30	-	206,40	101,62	103,20
		23,20	12,14	34,39	0,43	5,66	-	4 381	3466	-	102,72	141,30	-	206,40	99,54	103,20
		24,10	12,70	35,80	0,43	5,66	-	4 560	3466	-	101,60	141,30	-	206,40	98,42	103,20
5 1/2	139,7	15,50	6,98	22,85	0,46	6,24	-	2 910	3739	-	125,74	153,67	-	210,00	122,56	104,80
		17,00	7,72	25,13	0,46	6,24	-	3 201	3739	-	124,26	153,67	-	210,00	121,08	104,80
		20,00	9,17	29,52	0,47	6,24	-	3 760	3739	-	121,36	153,67	-	210,00	118,18	104,80
		23,00	10,54	33,57	0,48	6,24	-	4 277	3739	-	118,62	153,67	-	210,00	115,44	104,80
5 3/4	146,05	16,14	7,00	24,00	0,52	8,80	-	3 058	5454	-	132,05	166,00	-	213,00	128,87	106,40
		17,68	7,70	26,27	0,52	8,80	-	3 347	5454	-	130,65	166,00	-	213,00	127,47	106,40
		19,62	8,50	28,83	0,53	8,80	-	3 673	5454	-	129,05	166,00	-	213,00	125,87	106,40
		21,51	9,50	31,99	0,53	8,80	-	4 075	5454	-	127,05	166,00	-	213,00	123,87	106,40
		24,01	10,70	35,72	0,54	8,80	-	4 550	5454	-	124,65	166,00	-	213,00	121,47	106,40
6 5/8	168,28	20,00	7,32	29,06	0,66	10,00	-	3 702	6135	-	153,64	187,71	-	219,20	150,46	109,50
		21,25	8,00	31,62	0,66	10,00	-	4 028	6135	-	152,28	187,71	-	219,20	149,10	109,50
		24,00	8,94	35,13	0,66	10,00	-	4 475	6135	-	150,40	187,71	-	219,20	147,22	109,50
		28,00	10,59	41,18	0,67	10,00	-	5 246	6135	-	147,10	187,71	-	219,20	143,92	109,50
		32,00	12,06	46,46	0,67	10,00	-	5 919	6135	-	144,16	187,71	-	219,20	140,98	109,50

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Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-sec-tion area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
7	177,8	23,00	8,05	33,70	0,79	12,65	-	4 293	7424	-	161,70	200,03	-	229,00	158,52	114,30
		26,00	9,19	38,21	0,79	12,65	-	4 868	7424	-	159,42	200,03	-	229,00	156,24	114,30
		29,00	10,36	42,78	0,79	12,65	-	5 450	7424	-	157,08	200,03	-	229,00	153,90	114,30
		32,00	11,51	47,20	0,79	12,65	-	6 013	7424	-	154,78	200,03	-	229,00	151,60	114,30
		35,00	12,65	51,52	0,80	12,65	-	6 563	7424	-	152,50	200,03	-	229,00	149,32	114,30
		38,00	13,72	55,52	0,80	12,65	-	7 072	7424	-	150,36	200,03	-	229,00	147,18	114,30
7 5/8	193,68	26,40	8,33	38,08	0,96	14,38	-	4 851	8134	-	177,02	215,90	-	238,00	173,84	119,10
		29,70	9,52	43,24	0,96	14,38	-	5 508	8134	-	174,64	215,90	-	238,00	171,46	119,10
		33,70	10,92	49,22	0,98	14,38	-	6 270	8134	-	171,84	215,90	-	238,00	168,66	119,10
		39,00	12,70	56,68	0,98	14,38	-	7 221	8134	-	168,28	215,90	-	238,00	165,10	119,10
9 5/8	244,48	36,00	8,94	51,93	1,32	21,20	-	6 615	11602	-	226,60	269,88	-	245,00	222,63	122,20
		40,00	10,03	57,99	1,32	21,20	-	7 388	11602	-	224,42	269,88	-	245,00	220,45	122,20
		43,50	11,05	63,61	1,32	21,20	-	8 103	11602	-	222,38	269,88	-	245,00	218,41	122,20
		47,00	11,99	68,75	1,32	21,20	-	8 757	11602	-	220,50	269,88	-	245,00	216,53	122,20
		53,50	13,84	78,72	1,33	21,20	-	10 028	11602	-	216,80	269,88	-	245,00	212,83	122,20
10 3/4	273,05	40,50	8,89	57,91	1,46	24,50	-	7 378	12915	-	255,27	298,45	-	245,00	251,30	122,20
		45,50	10,16	65,87	1,46	24,50	-	8 391	12915	-	252,73	298,45	-	245,00	248,76	122,20
		51,00	11,43	73,75	1,48	24,50	-	9 394	12915	-	250,19	298,45	-	245,00	246,22	122,20
		55,50	12,57	80,75	1,48	24,50	-	10 286	12915	-	247,91	298,45	-	245,00	243,94	122,20
		60,70	13,84	88,47	1,48	24,50	-	11 270	12915	-	245,37	298,45	-	245,00	241,40	122,20

TMK UP SIMPLEX

Geometrical parameters of pipes with threaded connection TMK UP Simplex

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Standard API* drift	Length makeup loss
						Standard	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
12 3/4	323,85	45,91	8,50	66,10	1,74	29,10	-	8 421	16150	-	306,85	350,52	-	245,00	302,88	122,20
		50,89	9,50	73,65	1,75	29,10	-	9 382	16150	-	304,85	350,52	-	245,00	300,88	122,20
		58,78	11,00	84,87	1,75	29,10	-	10 811	16150	-	301,85	350,52	-	245,00	297,88	122,20
		65,13	12,40	95,24	1,75	29,10	-	12 133	16150	-	299,05	350,52	-	245,00	295,08	122,20
		72,87	14,00	106,98	1,75	29,10	-	13 628	16150	-	295,85	350,52	-	245,00	291,88	122,20
13 3/8	339,72	54,50	9,65	78,55	1,82	30,24	-	10 007	15899	-	320,42	365,12	-	245,00	316,45	122,20
		61,00	10,92	88,55	1,82	30,24	-	11 280	15899	-	317,88	365,12	-	245,00	313,91	122,20
		68,00	12,19	98,46	1,84	30,24	-	12 543	15899	-	315,34	365,12	-	245,00	311,37	122,20
		72,00	13,06	105,21	1,84	30,24	-	13 403	15899	-	313,60	365,12	-	245,00	309,63	122,20

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Strenght characteristics of pipes with threaded connection TMK UP Simplex

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,3	11,60	6,35	816	1189	1337	1411	1632	1856	-	-	-	36,8	53,7	60,4	63,7	73,7	83,8	-	-	-	34,2	43,8	47,0	48,4	52,3	55,2	-	-	-
		13,50	7,37	938	1367	1537	1622	1877	2134	-	-	-	42,8	62,3	70,1	73,9	85,5	97,3	-	-	-	44,3	59,0	64,2	66,7	73,7	80,1	-	-	-
		15,10	8,56	1054	1535	1727	1822	2108	2397	-	-	-	49,7	72,3	81,4	85,8	99,3	113,0	-	-	-	52,5	76,5	84,3	88,0	98,8	109,2	-	-	-
5	127	13,00	6,43	923	1344	1512	1595	1846	2099	-	-	-	33,6	48,9	55,0	58,0	67,2	76,4	-	-	-	28,6	35,5	37,5	38,4	40,3	41,7	-	-	-
		15,00	7,52	1070	1558	1753	1849	2140	2433	-	-	-	39,3	57,2	64,3	67,9	78,5	89,3	-	-	-	38,3	50,0	54,1	55,9	61,0	65,4	-	-	-
		18,00	9,19	1289	1878	2112	2228	2578	2932	-	-	-	48,0	69,9	78,6	82,9	96,0	109,2	-	-	-	50,9	72,3	79,4	82,8	92,7	102,1	-	-	-
		21,40	11,10	1314	1913	2152	2270	2627	2988	-	-	-	58,0	84,4	95,0	100,2	115,9	131,8	-	-	-	60,5	88,1	99,1	104,5	120,9	137,5	-	-	-
		23,20	12,14	1314	1913	2152	2270	2627	2988	-	-	-	63,4	92,3	103,9	109,6	126,8	144,2	-	-	-	65,5	95,4	107,4	113,3	131,1	149,0	-	-	-
		24,10	12,70	1314	1913	2152	2270	2627	2988	-	-	-	66,3	96,6	108,7	114,6	132,7	150,9	-	-	-	68,2	99,4	111,8	117,9	136,4	155,2	-	-	-
5 1/2	139,7	15,50	6,98	1103	1607	1807	1906	2206	2509	-	-	-	33,1	48,3	54,3	57,3	66,3	75,4	-	-	-	27,8	34,4	36,2	37,0	38,8	40,5	-	-	-
		17,00	7,72	1213	1767	1988	2097	2426	2759	-	-	-	36,7	53,4	60,1	63,3	73,3	83,4	-	-	-	33,8	43,3	46,4	47,9	51,5	54,4	-	-	-
		20,00	9,17	1417	2064	2322	2449	2834	3223	-	-	-	43,5	63,4	71,3	75,2	87,1	99,0	-	-	-	45,6	60,9	66,5	69,1	76,6	83,4	-	-	-
		23,00	10,54	1417	2064	2322	2449	2834	3223	-	-	-	50,0	72,9	82,0	86,5	100,1	113,8	-	-	-	52,9	77,0	85,4	89,2	100,3	110,8	-	-	-
5 3/4	146,05	16,14	7,00	1159	1688	1899	2003	2318	2636	-	-	-	31,8	46,3	52,1	54,9	63,6	72,3	-	-	-	25,5	30,9	32,3	32,8	34,8	36,8	-	-	-
		17,68	7,70	1268	1847	2078	2192	2537	2885	-	-	-	35,0	50,9	57,3	60,4	69,9	79,5	-	-	-	31,0	39,0	41,5	42,7	45,4	47,3	-	-	-
		19,62	8,50	1392	2028	2281	2406	2784	3166	-	-	-	38,6	56,2	63,2	66,7	77,2	87,8	-	-	-	37,2	48,3	52,1	53,9	58,6	62,6	-	-	-
		21,51	9,50	1545	2250	2531	2669	3089	3513	-	-	-	43,1	62,8	70,7	74,6	86,3	98,1	-	-	-	45,0	59,9	65,3	67,9	75,2	81,7	-	-	-
		24,01	10,70	1724	2511	2825	2980	3449	3922	-	-	-	48,6	70,8	79,6	84,0	97,2	110,5	-	-	-	51,5	73,9	81,2	84,7	95,0	104,7	-	-	-

TMK UP SIMPLEX

Strenght characteristics of pipes with threaded connection TMK UP Simplex

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	-	-	-	28,9	42,0	47,3	49,9	57,7	65,6	-	-	-	20,5	24,0	25,5	26,2	27,8	28,8	-	-	-
		21,25	8,00	1527	2224	2502	2639	3053	3472	-	-	-	31,5	45,9	51,7	54,5	63,1	71,7	-	-	-	25,1	30,2	31,6	32,0	34,2	36,1	-	-	-
		24,00	8,94	1696	2470	2779	2931	3392	3858	-	-	-	35,2	51,3	57,7	60,9	70,5	80,1	-	-	-	31,4	39,7	42,3	43,5	46,4	48,4	-	-	-
		28,00	10,59	1988	2896	3258	3436	3977	4522	-	-	-	41,7	60,8	68,4	72,1	83,5	94,9	-	-	-	42,6	56,3	61,2	63,6	70,1	75,8	-	-	-
		32,00	12,06	2243	3267	3676	3877	4486	5102	-	-	-	47,5	69,2	77,9	82,1	95,1	108,1	-	-	-	50,5	71,1	78,1	81,5	91,2	100,2	-	-	-
7	177,8	23,00	8,05	1627	2370	2666	2812	3254	3701	-	-	-	30,0	43,7	49,2	51,9	60,1	68,3	-	-	-	22,5	26,4	27,8	28,6	30,6	32,0	-	-	-
		26,00	9,19	1845	2687	3023	3189	3690	4196	-	-	-	34,3	49,9	56,2	59,2	68,6	78,0	-	-	-	29,8	37,3	39,6	40,5	42,9	44,4	-	-	-
		29,00	10,36	2065	3008	3384	3570	4131	4698	-	-	-	38,6	56,3	63,3	66,8	77,3	87,9	-	-	-	37,2	48,4	52,2	54,0	58,8	62,8	-	-	-
		32,00	11,51	2279	3319	3734	3939	4558	5183	-	-	-	42,9	62,5	70,4	74,2	85,9	97,7	-	-	-	44,6	59,4	64,7	67,2	74,4	80,8	-	-	-
		35,00	12,65	2487	3623	4076	4299	4975	5658	-	-	-	47,2	68,7	77,3	81,6	94,4	107,3	-	-	-	50,1	70,3	77,1	80,4	89,8	98,7	-	-	-
		38,00	13,72	2680	3904	4392	4632	5361	6096	-	-	-	51,2	74,5	83,9	88,5	102,4	116,4	-	-	-	54,0	78,6	88,4	92,7	104,3	115,5	-	-	-
7 5/8	193,68	26,40	8,33	1838	2677	3012	3177	3677	4181	-	-	-	28,5	41,5	46,7	49,3	57,1	64,9	-	-	-	20,0	23,5	24,9	25,6	27,0	27,9	-	-	-
		29,70	9,52	2087	3040	3420	3608	4175	4748	-	-	-	32,6	47,5	53,4	56,3	65,2	74,1	-	-	-	26,9	33,0	34,7	35,4	36,8	39,1	-	-	-
		33,70	10,92	2376	3461	3894	4107	4753	5405	-	-	-	37,4	54,5	61,3	64,6	74,8	85,1	-	-	-	35,1	45,2	48,6	50,2	54,3	57,5	-	-	-
		39,00	12,70	2737	3986	4484	4730	5473	6224	-	-	-	43,5	63,3	71,3	75,2	87,0	98,9	-	-	-	45,6	60,8	66,3	69,0	76,4	83,2	-	-	-
9 5/8	244,48	36,00	8,94	2507	3652	4108	4333	5014	5702	-	-	-	24,3	35,3	39,7	41,9	48,5	55,2	-	-	-	14,0	16,4	16,8	17,0	17,1	17,2	-	-	-
		40,00	10,03	2800	4078	4588	4839	5600	6368	-	-	-	27,2	39,6	44,6	47,0	54,4	61,9	-	-	-	17,7	21,3	22,4	22,9	23,9	24,3	-	-	-
		43,50	11,05	3071	4473	5032	5308	6142	6985	-	-	-	30,0	43,7	49,1	51,8	60,0	68,2	-	-	-	22,4	26,3	27,7	28,5	30,5	31,9	-	-	-
		47,00	11,99	3319	4834	5438	5736	6638	7549	-	-	-	32,5	47,4	53,3	56,2	65,1	74,0	-	-	-	26,8	32,8	34,5	35,1	36,5	38,9	-	-	-
		53,50	13,84	3801	5536	6227	6568	7601	8644	-	-	-	37,5	54,7	61,5	64,9	75,1	85,4	-	-	-	35,4	45,6	49,1	50,6	54,8	58,1	-	-	-

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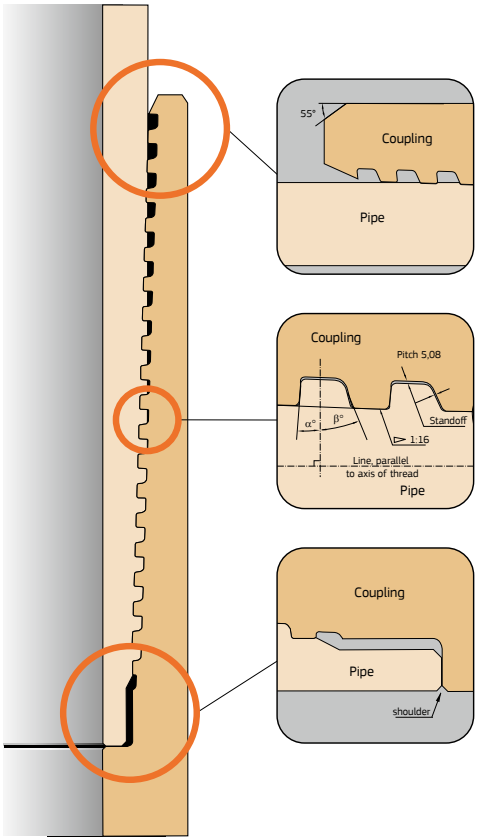
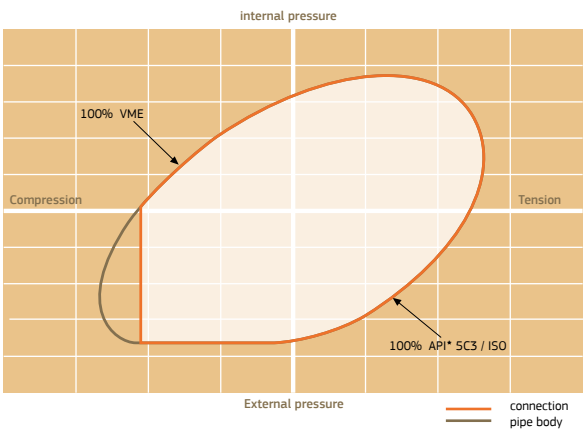
Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	мм	lb/ft	мм	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	-	-	-	21,6	31,5	35,4	37,3	43,2	49,1	-	-	-	10,9	11,9	11,9	12,0	12,1	12,2	-	-	-
		45,50	10,16	3180	4632	5211	5496	6360	7233	-	-	-	24,7	35,9	40,4	42,7	49,4	56,1	-	-	-	14,4	17,1	17,7	17,8	17,9	18,0	-	-	-
		51,00	11,43	3560	5186	5834	6153	7121	8098	-	-	-	27,8	40,4	45,5	48,0	55,5	63,1	-	-	-	18,7	22,2	23,5	24,0	25,2	25,8	-	-	-
		55,50	12,57	3899	5678	6388	6738	7797	8867	-	-	-	30,5	44,5	50,0	52,8	61,1	69,4	-	-	-	23,4	27,7	28,7	29,6	31,8	33,4	-	-	-
		60,70	13,84	4271	6221	6999	7382	8543	9715	-	-	-	33,6	49,0	55,1	58,1	67,2	76,5	-	-	-	28,7	35,6	37,6	38,5	40,5	41,9	-	-	-
12 3/4	323,85	45,91	8,50	3192	4648	5229	5516	6383	7259	-	-	-	17,4	25,4	28,5	30,1	34,8	39,6	-	-	-	8,4	8,6	8,8	8,9	9,0	9,1	-	-	-
		50,89	9,50	3556	5179	5826	6145	7111	8087	-	-	-	19,5	28,3	31,9	33,6	38,9	44,3	-	-	-	8,5	8,7	8,9	9,0	9,0	9,0	-	-	-
		58,78	11,00	4097	5968	6714	7081	8195	9319	-	-	-	22,5	32,8	36,9	38,9	45,1	51,2	-	-	-	12,0	13,5	13,6	13,5	13,5	13,5	-	-	-
		65,13	12,40	4598	6697	7534	7947	9197	10458	-	-	-	25,4	37,0	41,6	43,9	50,8	57,8	-	-	-	15,2	18,2	19,0	19,3	19,6	19,6	-	-	-
		72,87	14,00	5165	7523	8463	8926	10330	11747	-	-	-	28,7	41,8	47,0	49,6	57,3	65,2	-	-	-	20,2	23,7	25,2	25,8	27,4	28,3	-	-	-
13 3/8	339,72	54,50	9,65	3792	5524	6214	6554	7585	8626	-	-	-	18,8	27,4	30,9	32,6	37,7	42,9	-	-	-	7,8	7,9	8,0	8,0	8,1	8,2	-	-	-
		61,00	10,92	4275	6226	7005	7388	8550	9723	-	-	-	21,3	31,1	34,9	36,8	42,6	48,5	-	-	-	10,6	10,7	10,8	10,8	10,9	11,0	-	-	-
		68,00	12,19	4754	6924	7789	8216	9508	10812	-	-	-	23,8	34,7	39,0	41,1	47,6	54,1	-	-	-	13,4	15,6	16,0	16,1	16,2	16,3	-	-	-
		72,00	13,06	5080	7398	8323	8779	10159	11553	-	-	-	25,5	37,1	41,8	44,1	51,0	58,0	-	-	-	15,4	18,4	19,2	19,5	19,9	20,0	-	-	-

Lite Series

Threaded connection
TMK UP CWB



TMK UP CWB
Performance Envelope



TMK UP CWB for Casing

TMK UP CWB – threaded and coupled connection with increased performance characteristics in reference to Buttress thread. Internal shoulder provides resistance to torque loads and 100%** efficiency to compressive loads. The connection has been fatigue tested and successfully used for Casing while Drilling, RIH and cementing operations with rotation. TMK UP CWB is an affordable and effective tool for well constructions in complicated conditions.

Range: 4''–13 3/8 '' / 101.60–339.72 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Box-to-pin shoulder
- Sealability through thread compound
- Over-torque protection during make-up
- Additional sealing barrier
- Compatibility with API* Buttress without crossovers
- Robust galling resistance
- Increased fatigue strength
- Prevention from coupling's internal surface erosion

Application:
- Vertical wells
- Deviated wells
- Horizontal oil wells
- RIH with rotation
- Cementing with rotation
- Low GOR wells
- Casing while Drilling (CwD)

TMK UP CWB

Geometrical parameters of pipes with threaded connection TMK UP CWB

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm^2	mm^2	mm^2	mm	mm	mm	mm	mm	mm
4	101,60	10,70	6,50	15,24	0,85	4,35	3,30	1 942	2686	1983	88,60	114,00	110,00	190,00	85,42	83,00
		13,20	8,38	19,27	0,87	4,4	3,35	2 454	2686	1983	86,40	114,00	110,00	190,00	81,66	83,00
4 1/2	114,30	13,50	7,37	19,44	0,61	5,83	4,60	2 476	2758	2132	101,50	127,00	123,82	250,00	96,38	109,50
		15,10	8,56	22,32	0,62	5,91	4,68	2 844	2758	2132	99,40	127,00	123,82	250,00	94,00	109,50
5	127,00	13,00	6,43	19,12	0,69	7,17	5,13	2 436	3443	2400	114,10	141,30	136,52	250,00	110,96	110,10
		15,00	7,52	22,16	0,73	7,17	5,13	2 823	3443	2400	114,10	141,30	136,52	250,00	108,78	110,10
		18,00	9,19	26,70	0,74	7,3	5,26	3 401	3443	2400	111,00	141,30	136,52	250,00	105,44	110,10
		21,40	11,10	31,73	0,74	7,44	5,40	4 042	3443	2400	107,50	141,30	136,52	250,00	101,62	110,10
		23,20	12,14	34,39	0,74	7,53	5,48	4 381	3443	2400	105,40	141,30	136,52	250,00	99,54	110,10
		24,10	12,70	35,80	0,74	7,56	5,52	4 560	3443	2400	104,40	141,30	136,52	250,00	98,42	110,10
5 1/2	139,70	15,50	6,98	22,85	0,8	7,57	5,49	2 910	3714	2655	126,60	153,67	149,22	250,00	122,56	111,70
		17,00	7,72	25,13	0,84	7,57	5,49	3 201	3714	2655	126,60	153,67	149,22	250,00	121,08	111,70
		20,00	9,17	29,52	0,84	7,66	5,59	3 760	3714	2655	123,90	153,67	149,22	250,00	118,18	111,70
		23,00	10,54	33,57	0,84	7,75	5,67	4 277	3714	2655	121,30	153,67	149,22	250,00	115,44	111,70
5 3/4	146,05	16,14	7,00	24,00	1,13	11,13	6,17	3 058	5429	2900	132,80	166,00	156,00	250,00	128,87	115,60
		17,68	7,70	26,27	1,16	11,13	6,17	3 347	5429	2900	132,80	166,00	156,00	250,00	127,47	115,60
		19,62	8,50	28,83	1,2	11,15	6,19	3 673	5429	2900	132,30	166,00	156,00	250,00	125,87	115,60
		21,51	9,50	31,99	1,2	11,2	6,24	4 075	5429	2900	130,50	166,00	156,00	250,00	123,87	115,60
		24,01	10,70	35,71	1,2	11,27	6,31	4 550	5429	2900	128,30	166,00	156,00	250,00	121,47	115,60
6 5/8	168,28	20,00	7,32	29,06	1,08	12,13	6,55	3 702	6107	3262	154,70	187,71	177,80	250,00	150,46	117,20
		21,25	8,00	31,62	1,12	12,13	6,55	4 028	6107	3262	154,70	187,71	177,80	250,00	149,10	117,20
		24,00	8,94	35,13	1,13	12,18	6,6	4 475	6107	3262	153,20	187,71	177,80	250,00	147,22	117,20
		28,00	10,59	41,18	1,14	12,27	6,69	5 246	6107	3262	150,10	187,71	177,80	250,00	143,92	117,20
		32,00	12,06	46,46	1,14	12,35	6,77	5 919	6107	3262	147,30	187,71	177,80	250,00	140,98	117,20

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Geometrical parameters of pipes with threaded connection TMK UP CWB

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
7	177,8	23,00	8,05	33,70	1,28	15,55	7,50	4 291	7393	3526	164,00	200,03	187,32	265,00	158,52	122,00
		26,00	9,19	38,21	1,3	15,62	7,58	4 866	7393	3526	162,20	200,03	187,32	265,00	156,24	122,00
		29,00	10,36	42,78	1,3	15,71	7,67	5 447	7393	3526	160,00	200,03	187,32	265,00	153,90	122,00
		32,00	11,51	47,20	1,3	15,8	7,76	6 010	7393	3526	157,80	200,03	187,32	265,00	151,60	122,00
		35,00	12,65	51,52	1,31	15,88	7,84	6 560	7393	3526	155,80	200,03	187,32	265,00	149,32	122,00
		38,00	13,72	55,52	1,32	15,97	7,92	7 069	7393	3526	153,80	200,03	187,32	265,00	147,18	122,00
		42,70	15,88	63,41	1,34	16,11	8,07	8 074	7393	3526	150,00	200,03	187,32	265,00	142,86	122,00
		46,40	17,45	69,01	1,33	16,24	8,19	8 786	7393	3526	146,80	200,03	187,32	265,00	139,72	122,00
7 5/8	193,68	29,70	9,52	43,24	1,55	17,57	10,76	5 508	8103	4946	177,40	215,90	206,38	275,00	171,46	128,37
		33,70	10,92	49,22	1,59	17,65	10,84	6 270	8103	4946	175,40	215,90	206,38	275,00	168,66	128,37
		39,00	12,70	56,68	1,57	17,81	10,99	7 221	8103	4946	171,40	215,90	206,38	275,00	165,10	128,37
		45,30	15,11	66,54	1,63	17,94	11,12	8 477	8103	4946	168,00	215,90	206,38	275,00	160,28	128,37
9 5/8	244,48	32,30	7,92	46,20	2,02	27,55	15,17	5 886	11544	6287	230,10	269,88	257,18	300,00	224,67	133,10
		36,00	8,94	51,93	2,13	27,55	15,17	6 615	11544	6287	230,10	269,88	257,18	300,00	222,63	133,10
		40,00	10,03	57,99	2,14	27,74	15,36	7 388	11544	6287	228,10	269,88	257,18	300,00	220,45	133,10
		43,50	11,05	63,61	2,15	27,92	15,54	8 103	11544	6287	226,20	269,88	257,18	300,00	218,41	133,10
		47,00	11,99	68,75	2,15	28,09	15,71	8 757	11544	6287	224,40	269,88	257,18	300,00	216,53	133,10
		53,50	13,84	78,72	2,17	28,4	16,02	10 028	11544	6287	221,00	269,88	257,18	300,00	212,83	133,10
		58,40	15,11	85,47	2,18	28,62	16,24	10 888	11544	6287	218,60	269,88	257,18	300,00	210,29	133,10
		59,40	15,47	87,37	2,18	28,69	16,31	11 130	11544	6287	217,90	269,88	257,18	300,00	209,57	133,10
		64,90	17,07	95,73	2,19	28,96	16,57	12 195	11544	6287	214,90	269,88	257,18	300,00	206,37	133,10

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TMK UP CWB

Geometrical parameters of pipes with threaded connection TMK UP CWB

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossection area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm^2	mm^2	mm^2	mm	mm	mm	mm	mm	mm
10 3/4	273,05	40,50	8,89	57,91	2,25	30,6	16,88	7 378	12857	7029	258,70	298,50	285,80	300,00	251,30	133,10
		45,50	10,16	65,87	2,36	30,73	17,01	8 391	12857	7029	257,50	298,50	285,80	300,00	248,76	133,10
		51,00	11,43	73,75	2,38	30,98	17,25	9 394	12857	7029	255,20	298,50	285,80	300,00	246,22	133,10
		55,50	12,57	80,75	2,35	31,21	17,49	10 286	12857	7029	253,00	298,50	285,80	300,00	243,94	133,10
		60,70	13,84	88,47	2,39	31,43	17,71	11 270	12857	7029	250,90	298,50	285,80	300,00	241,40	133,10
		73,20	17,07	107,76	1,91	33,34	19,16	13 727	12857	7029	246,00	298,50	285,80	300,00	234,94	133,10
12 3/4	323,85	45,91	8,50	66,10	2,76	38,39	-	8 421	16092	-	309,50	351,00	-	310,00	302,88	133,10
		50,89	9,50	73,65	2,92	40,08	-	9 382	16092	-	309,50	351,00	-	310,00	300,88	133,10
		58,78	11,00	84,87	2,94	40,57	-	10 811	16092	-	306,50	351,00	-	310,00	297,88	133,10
		65,13	12,40	95,24	2,94	41,02	-	12 133	16092	-	303,80	351,00	-	310,00	295,08	133,10
		72,87	14,00	106,98	2,96	41,51	-	13 628	16092	-	300,80	351,00	-	310,00	291,88	133,10
13 3/8	339,72	54,50	9,65	78,55	3,08	39,6	-	10 007	15841	-	325,00	365,13	-	310,00	316,45	133,10
		61,00	10,92	88,55	3,1	40,37	-	11 280	15841	-	322,70	365,13	-	310,00	313,91	133,10
		68,00	12,19	98,46	3,12	40,84	-	12 543	15841	-	320,30	365,13	-	310,00	311,37	133,10
		72,00	13,06	105,21	3,08	40,17	-	13 403	15841	-	318,60	365,13	-	310,00	309,63	133,10

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Strenght characteristics of pipes with TMK UP CWB threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4	101,60	10,70	6,50	736	1072	1206	1272	1472	1674	1808	1876	2010	42,4	61,8	69,5	73,3	84,9	96,5	104,2	108,2	115,9	43,7	58,1	63,3	65,7	72,5	78,7	82,4	84,1	87,2
		13,20	8,38	930	1355	1524	1607	1860	2115	2285	2371	2540	54,7	79,7	89,6	94,5	109,4	124,4	134,4	139,4	149,4	57,4	83,5	94,0	99,1	114,7	130,4	138,8	143,0	151,1
4 1/2	114,30	13,50	7,37	938	1367	1537	1622	1877	2134	2305	2392	2562	42,8	62,3	70,1	73,9	85,5	97,3	105,1	109,0	116,8	44,3	59,0	64,2	66,7	73,7	80,1	83,9	85,7	88,9
		15,10	8,56	1045	1522	1713	1806	2091	2377	2568	2664	2855	49,7	72,3	81,4	85,8	99,3	113,0	122,0	126,6	135,6	52,5	76,5	84,3	88,0	98,8	109,2	115,7	118,9	124,9
5	127,00	13,00	6,43	923	1344	1512	1595	1846	2099	2268	2353	2521	33,6	48,9	55,0	58,0	67,2	76,4	82,5	85,6	91,7	28,6	35,5	37,5	38,4	40,3	41,7	43,2	43,9	45,0
		15,00	7,52	1070	1558	1753	1849	2140	2433	2628	2727	2921	39,3	57,2	64,3	67,9	78,5	89,3	96,5	100,1	107,2	38,3	50,0	54,1	55,9	61,0	65,4	67,8	68,9	70,7
		18,00	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3520	48,0	69,9	78,6	82,9	96,0	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,8	92,7	102,1	108,0	110,8	116,2
		21,40	11,10	1305	1901	2138	2255	2610	2968	3205	3326	3564	58,0	84,4	95,0	100,2	115,9	131,8	142,4	147,8	158,3	60,5	88,1	99,1	104,5	120,9	137,5	148,5	154,1	165,1
		23,20	12,14	1305	1901	2138	2255	2610	2968	3205	3326	3564	63,4	92,3	103,9	109,6	126,8	144,2	155,7	161,6	173,1	65,5	95,4	107,4	113,3	131,1	149,0	161,0	167,0	179,0
		24,10	12,70	1305	1901	2138	2255	2610	2968	3205	3326	3564	66,3	96,6	108,7	114,6	132,7	150,9	162,9	169,1	181,1	68,2	99,4	111,8	117,9	136,4	155,2	167,6	173,9	186,3
5 1/2	139,70	15,50	6,98	1103	1607	1807	1906	2206	2509	2710	2811	3012	33,1	48,3	54,3	57,3	66,3	75,4	81,4	84,5	90,5	27,8	34,4	36,2	37,0	38,8	40,5	41,9	42,5	43,5
		17,00	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3313	36,7	53,4	60,1	63,3	73,3	83,4	90,0	93,4	100,1	33,8	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20,00	9,17	1408	2050	2306	2433	2815	3201	3458	3588	3844	43,5	63,4	71,3	75,2	87,1	99,0	106,9	111,0	118,9	45,6	60,9	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		23,00	10,54	1408	2050	2306	2433	2815	3201	3458	3588	3844	50,0	72,9	82,0	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77,0	85,4	89,2	100,3	110,8	117,4	120,6	126,8
5 3/4	146,05	16,14	7,00	1159	1688	1899	2003	2318	2636	2847	2954	3165	31,8	46,3	52,1	54,9	63,6	72,3	78,1	81,0	86,8	25,5	30,9	32,3	32,8	34,8	36,8	37,9	38,3	38,9
		17,68	7,70	1268	1847	2078	2192	2537	2885	3116	3233	3464	35,0	50,9	57,3	60,4	69,9	79,5	85,9	89,1	95,5	31,0	39,0	41,5	42,7	45,4	47,3	48,0	48,2	49,7
		19,62	8,50	1392	2028	2281	2406	2784	3166	3420	3548	3802	38,6	56,2	63,2	66,7	77,2	87,8	94,8	98,4	105,4	37,2	48,3	52,1	53,9	58,6	62,6	64,7	65,7	67,2
		21,51	9,50	1545	2250	2531	2669	3089	3513	3794	3937	4218	43,1	62,8	70,7	74,6	86,3	98,1	106,0	110,0	117,8	45,0	59,9	65,3	67,9	75,2	81,7	85,7	87,5	90,9
		24,01	10,70	1724	2511	2825	2980	3449	3922	4236	4395	4709	48,6	70,8	79,6	84,0	97,2	110,5	119,4	123,9	132,7	51,5	73,9	81,2	84,7	95,0	104,7	110,7	113,7	119,3
6 5/8	168,28	20,00	7,32	1403	2043	2299	2424	2806	3191	3446	3576	3831	28,9	42,0	47,3	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24,0	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		21,25	8,00	1527	2224	2502	2639	3053	3472	3750	3891	4169	31,5	45,9	51,7	54,5	63,1	71,7	77,5	80,4	86,1	25,1	30,2	31,6	32,0	34,2	36,1	37,1	37,5	38,1
		24,00	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28,00	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41,7	60,8	68,4	72,1	83,5	94,9	102,5	106,4	114,0	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		32,00	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6126	47,5	69,2	77,9	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8

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TMK UP CWB

Strenght characteristics of pipes with TMK UP CWB threaded connection

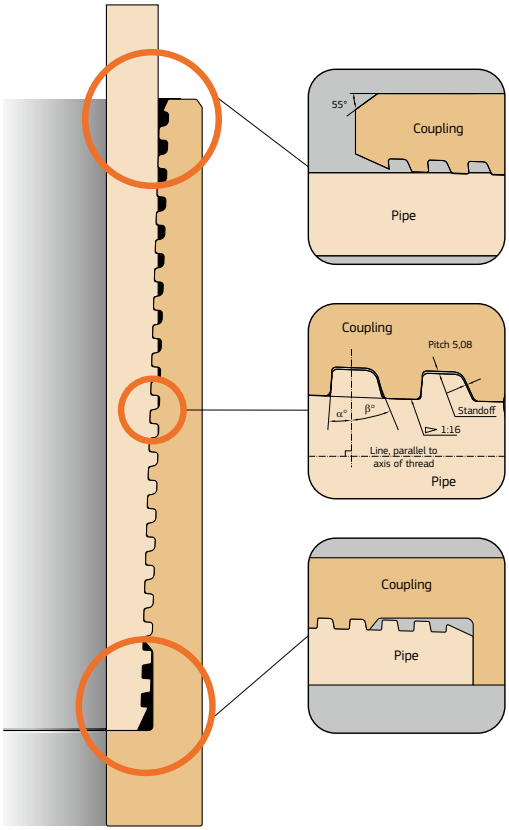
Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
7	177,8	23,00	8,05	1626	2369	2665	2811	3253	3699	3995	4145	4441	30,0	43,7	49,2	51,9	60,1	68,3	73,8	76,5	82,0	22,5	26,4	27,8	28,6	30,6	32,0	32,6	32,8	33,0
		26,00	9,19	1844	2686	3022	3187	3688	4194	4530	4701	5036	34,3	49,9	56,2	59,2	68,6	78,0	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,3	46,1	47,4
		29,00	10,36	2064	3007	3383	3568	4129	4695	5071	5262	5638	38,6	56,3	63,3	66,8	77,3	87,9	94,9	98,5	105,5	37,2	48,4	52,2	54,0	58,8	62,8	64,9	65,9	67,5
		32,00	11,51	2278	3318	3732	3937	4556	5181	5595	5806	6220	42,9	62,5	70,4	74,2	85,9	97,7	105,5	109,4	117,3	44,6	59,4	64,7	67,2	74,4	80,8	84,7	86,5	89,8
		35,00	12,65	2486	3621	4074	4297	4972	5655	6107	6337	6790	47,2	68,7	77,3	81,6	94,4	107,3	115,9	120,3	128,9	50,1	70,3	77,1	80,4	89,8	98,7	104,2	106,9	112,0
		38,00	13,72	2679	3902	4390	4630	5358	6093	6581	6829	7316	51,2	74,5	83,9	88,5	102,4	116,4	125,7	130,4	139,8	54,0	78,6	88,4	92,7	104,3	115,5	122,6	126,1	132,7
		42,70	15,88	2802	4081	4591	4842	5604	6373	6883	7142	7652	59,2	86,3	97,1	102,4	118,5	134,7	145,5	151,0	161,8	61,7	89,8	101,0	106,6	123,3	140,2	151,4	157,1	168,4
		46,40	17,45	2802	4081	4591	4842	5604	6373	6883	7142	7652	65,1	94,8	106,7	112,5	130,2	148,1	159,9	165,9	177,8	67,1	97,7	109,9	116,0	134,2	152,6	164,8	171,0	183,2
7 5/8	193,68	29,70	9,52	2087	3040	3420	3608	4175	4748	5128	5321	5701	32,6	47,5	53,4	56,3	65,2	74,1	80,1	83,1	89,0	26,9	33,0	34,7	35,4	36,8	39,1	40,3	40,8	41,7
		33,70	10,92	2376	3461	3894	4107	4753	5405	5837	6057	6489	37,4	54,5	61,3	64,6	74,8	85,1	91,9	95,3	102,1	35,1	45,2	48,6	50,2	54,3	57,5	59,2	59,9	61,0
		39,00	12,70	2737	3986	4484	4730	5473	6224	6723	6975	7474	43,5	63,3	71,3	75,2	87,0	98,9	106,8	110,8	118,8	45,6	60,8	66,3	69,0	76,4	83,2	87,3	89,2	92,7
		45,30	15,11	3071	4473	5032	5307	6142	6985	7544	7827	8387	51,7	75,4	84,8	89,4	103,5	117,7	127,1	131,9	141,3	54,6	79,4	89,3	94,3	106,5	117,9	125,3	128,8	135,7
9 5/8	244,48	32,30	7,92	2231	3249	3655	3855	4462	5074	5480	5680	6092	21,5	31,3	35,2	37,1	43,0	48,9	52,8	54,7	58,7	10,8	11,8	11,9	12,0	12,1	12,2	12,3	12,4	12,5
		36,00	8,94	2507	3652	4108	4333	5014	5702	6159	6384	6847	24,3	35,3	39,7	41,9	48,5	55,2	59,6	61,8	66,2	14,0	16,4	16,8	17,0	17,1	17,2	17,3	17,3	17,4
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	7129	7646	27,2	39,6	44,6	47,0	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8387	30,0	43,7	49,1	51,8	60,0	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9064	32,5	47,4	53,3	56,2	65,1	74,0	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	9677	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
		58,40	15,11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41,0	59,7	67,2	70,8	82,0	93,2	100,7	104,4	111,9	41,3	54,5	59,1	61,3	67,3	72,7	75,8	77,2	79,7
		59,40	15,47	4218	6144	6912	7290	8437	9594	10362	10740	11520	42,0	61,1	68,8	72,5	83,9	95,5	103,1	106,9	114,6	43,0	56,9	61,9	64,3	70,9	76,8	80,3	81,9	84,8
		64,90	17,07	4375	6372	7169	7561	8750	9951	10747	11140	11948	46,3	67,4	75,9	80,0	92,6	105,3	113,8	117,9	126,5	49,3	68,0	74,6	77,7	86,7	95,1	100,3	102,7	107,4

Strenght characteristics of pipes with TMK UP CWB threaded connection

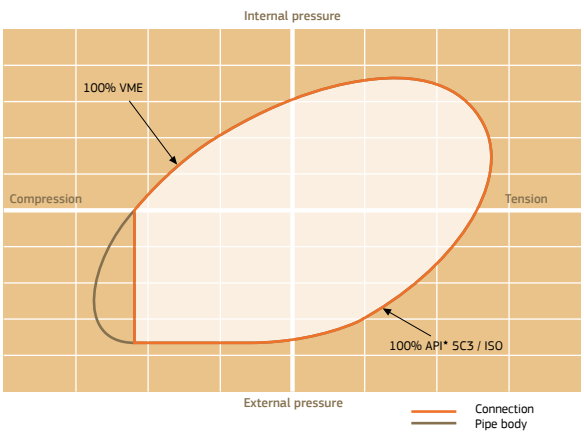
Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
10 3/4	273,05	40,50	8,89	2796	4072	4582	4832	5592	6360	6869	7119	7636	21,6	31,5	35,4	37,3	43,2	49,1	53,0	55,0	59,0	10,9	11,9	11,9	12,0	12,1	12,2	12,3	12,4	12,5
		45,50	10,16	3180	4632	5211	5496	6360	7233	7812	8097	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18,0	17,5	17,6	17,7
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	9066	9723	27,8	40,4	45,5	48,0	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24,0	25,2	25,8	25,9	26,0	26,1
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	9926	10646	30,5	44,5	50,0	52,8	61,1	69,4	75,0	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	10876	11665	33,6	49,0	55,1	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44,0	45,1
		73,20	17,07	4873	7097	7984	8421	9746	11083	11970	12407	13307	41,5	60,4	67,9	71,7	82,9	94,3	101,9	105,6	113,2	42,1	55,6	60,4	62,7	69,1	74,6	77,9	79,4	82,8
12 3/4	323,85	45,91	8,50	3192	4648	5229	5516	6383	7259	7840	8135	8716	17,4	25,4	28,5	30,1	34,8	39,6	42,8	44,4	47,5	8,4	8,6	8,8	8,9	9,0	9,1	9,0	9,0	9,0
		50,89	9,50	3556	5179	5826	6145	7111	8087	8734	9063	9710	19,5	28,3	31,9	33,6	38,9	44,3	47,8	49,6	53,1	8,5	8,7	8,9	9,0	9,0	9,0	9,0	9,1	9,0
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	10444	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12,0	13,5	13,6	13,5	13,5	13,5	13,9	14,0	14,1
		65,13	12,40	4598	6697	7534	7947	9197	10458	11296	11720	12557	25,4	37,0	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19,0	19,3	19,6	19,6	19,8	19,9	20,0
		72,87	14,00	5165	7523	8463	8926	10330	11747	12688	13165	14105	28,7	41,8	47,0	49,6	57,3	65,2	70,4	73,1	78,3	20,2	23,7	25,2	25,8	27,4	28,3	28,5	28,6	28,7
13 3/8	339,72	54,50	9,65	3792	5524	6214	6554	7585	8626	9316	9666	10357	18,8	27,4	30,9	32,6	37,7	42,9	46,3	48,0	51,4	7,8	7,9	8,0	8,0	8,1	8,2	8,3	8,4	8,5
		61,00	10,92	4275	6226	7005	7388	8550	9723	10502	10896	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,8	10,8	10,9	11,0	11,1	11,2	11,3
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	12117	12982	23,8	34,7	39,0	41,1	47,6	54,1	58,5	60,7	65,0	13,4	15,6	16,0	16,1	16,2	16,3	16,4	16,5	16,6
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	12947	13872	25,5	37,1	41,8	44,1	51,0	58,0	62,6	65,0	69,6	15,4	18,4	19,2	19,5	19,9	20,0	20,1	20,2	20,3

Lite Series

Threaded connection
TMK UP CWB II



TMK UP CWB II
Performance Envelope



TMK UP CWB II

TMK UP CWB II – threaded and coupled connection with increased performance characteristics in reference to Buttress thread. Connection is an excellent alternative to Buttress connection with a wide range of application: string rotation during run-in-hole operation, cementing operations and also drilling while casing. The key difference from TMK UP CWB is the increased thickness of the torque shoulder, which provides higher resistance to torsional loads and increases compression performance.

Range: 4-1/2"–13-3/8" / 114,3 mm–339,72 mm

Unique Feature:
- 100%** compression efficiency
- 100%** tension efficiency
- Box-to-pin shoulder
- Enlarged torque shoulder for high torsional capacity and increased compression performance
- Sealability through thread compound
- Over-torque protection during make-up
- Additional sealing barrier
- Compatibility with API* Buttress without crossovers
- Robust galling resistance
- Increased fatigue strength
- Prevention from coupling's internal surface erosion

Application:
- Vertical wells
- Deviated wells
- Horizontal oil wells
- RIH with rotation
- Cementing with rotation
- Low GOR wells
- Casing while drilling (CwD)

Geometrical parameters of pipes with threaded connection TMK UP CWB II

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
4 1/2	114,3	11,51	6,35	16,61	0,33	4,64	4,26	2154	2154	2012	101,6	127	123,82	217	98,42	98,5
		12,39	6,88	18,23	0,35	4,66	4,28	2322	2322	2012	100,5	127	123,82	217	97,36	98,5
		13,19	7,37	19,44	0,37	4,68	4,32	2476	2476	2012	99,6	127	123,82	217	96,38	98,5
		15,11	8,56	22,32	0,38	4,74	4,36	2844	2639	2012	97,2	127	123,82	217	94	98,5
5	127	13,2	6,43	19,12	0,74	8,42	4,29	2436	2436	2268	114,1	141,3	136,52	220	110,96	100,1
		15,22	7,52	22,16	0,8	8,46	4,33	2823	2823	2268	112	141,3	136,52	220	108,78	100,1
		18,25	9,19	26,7	0,86	8,54	4,41	3401	3311	2268	108,6	141,3	136,52	220	105,44	100,1
		21,59	11,1	31,73	0,94	8,64	4,51	4042	3311	2268	104,8	141,3	136,52	220	101,62	100,1
		23,36	12,14	34,39	0,98	8,7	4,57	4381	3311	2268	102,7	141,3	136,52	220	99,54	100,1
		24,3	12,7	35,8	1,02	8,72	4,59	4560	3311	2268	101,6	141,3	136,52	220	98,42	100,1
5 1/2	139,7	15,73	6,98	22,85	0,86	9,38	4,8	2910	2910	2509	125,7	153,67	149,22	224	122,56	101,7
		17,25	7,72	25,13	0,88	9,44	4,86	3201	3201	2509	124,3	153,67	149,22	224	121,08	101,7
		20,17	9,17	29,52	0,94	9,52	4,94	3760	3568	2509	121,4	153,67	149,22	224	118,18	101,7
		22,86	10,54	33,57	1	9,62	5,04	4277	3568	2509	118,6	153,67	149,22	224	115,44	101,7
5 3/4	146,05	16,52	7	24	0,9	9,76	5,29	3058	3058	2760	132,1	166	156	227	128,87	103,2
		18,03	7,7	26,27	0,94	9,8	5,33	3347	3347	2760	130,7	166	156	227	127,47	103,2
		19,73	8,5	28,83	0,98	9,86	5,39	3673	3673	2760	129,1	166	156	227	125,87	103,2
		21,83	9,5	31,99	1,02	9,92	5,45	4075	4075	2760	127,1	166	156	227	123,87	103,2
		24,31	10,7	35,72	1,08	10	5,53	4550	4550	2760	124,7	166	156	227	121,47	103,2

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Geometrical parameters of pipes with threaded connection TMK UP CWB II

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
6 5/8	168,28	19,96	7,32	29,06	1,08	11,18	6,02	3702	3702	3082	153,6	187,71	177,8	233	150,46	106,4
		24	8,94	35,13	1,16	11,32	6,16	4475	4475	3082	150,4	187,71	177,8	233	147,22	106,4
		28,02	10,59	41,18	1,24	11,44	6,28	5246	5246	3082	147,1	187,71	177,8	233	143,92	106,4
		31,53	12,06	46,46	1,3	11,54	6,38	5919	5919	3082	144,2	187,71	177,8	233	140,98	106,4
7	177,8	23,18	8,05	33,7	0,98	13,88	7,25	4293	4293	3341	161,7	200,03	187,32	243	158,52	111,1
		26,18	9,19	38,21	1	13,98	7,34	4868	4868	3341	159,4	200,03	187,32	243	156,24	111,1
		29,22	10,36	42,78	1,04	14,08	7,42	5450	5450	3341	157,1	200,03	187,32	243	153,9	111,1
		32,16	11,51	47,2	1,06	14,16	7,52	6013	6013	3341	154,8	200,03	187,32	243	151,6	111,1
		34,62	12,65	51,52	1,12	14,26	7,6	6563	6563	3341	152,5	200,03	187,32	243	149,32	111,1
7 5/8	193,68	26,2	8,33	38,08	0,96	15,9	9,6	4851	4851	4740	177	215,9	206,38	252	173,84	115,9
		29,63	9,52	43,24	0,96	16,02	9,72	5508	5508	4740	174,6	215,9	206,38	252	171,46	115,9
		33,6	10,92	49,22	0,98	16,14	9,84	6270	6270	4740	171,8	215,9	206,38	252	168,66	115,9
		38,56	12,7	56,68	0,98	16,28	9,98	7221	7221	4740	168,3	215,9	206,38	252	165,1	115,9
		42,85	14,27	63,14	1,1	16,42	12,12	8043	7897	4740	165,1	215,9	206,38	252	161,96	115,9
9 5/8	244,48	35,81	8,94	51,93	-	-	-	6615	6615	6027	226,6	269,88	257,18	258	222,63	119,1
		39,83	10,03	57,99	-	-	-	7388	7388	6027	224,4	269,88	257,18	258	220,45	119,1
		43,57	11,05	63,61	-	-	-	8103	8103	6027	222,4	269,88	257,18	258	218,41	119,1
		46,97	11,99	68,75	-	-	-	8757	8757	6027	220,5	269,88	257,18	258	216,53	119,1
		53,6	13,84	78,72	-	-	-	10028	10028	6027	216,8	269,88	257,18	258	212,83	119,1

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Geometrical parameters of pipes with threaded connection TMK UP CWB II

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
10 3/4	273,05	39,91	8,89	57,91	1,46	25,68	14,01	7378	7378	6770	255,3	298,45	298,45	258	241,3	119,1
		45,2	10,16	65,87	1,46	25,84	14,17	8391	8391	6770	252,7	298,45	298,45	258	248,76	119,1
		50,43	11,43	73,75	1,48	26	14,33	9394	9394	6770	250,2	298,45	298,45	258	246,22	119,1
12 3/4	323,85	45,72	8,5	66,1	1,74	32,07	-	8421	8421	-	306,9	351	-	258	302,88	119,1
		50,73	9,5	73,65	1,75	32,14	-	9382	9382	-	304,9	351	-	258	300,88	119,1
		58,18	11	84,87	1,75	32,36	-	10811	10811	-	301,9	351	-	258	297,88	119,1
		65,07	12,4	95,24	1,75	32,56	-	12133	12133	-	299,1	351	-	258	295,08	119,1
13 3/8	339,72	53,96	9,65	78,55	9,65	1,82	31,78	10007	10007	-	320,4	365,12	-	258	316,45	119,1
		60,6	10,92	88,55	10,92	1,82	31,98	11280	11280	-	317,9	365,12	-	258	313,91	119,1
		67,19	12,19	98,46	12,19	1,84	32,18	12543	12543	-	315,3	365,12	-	258	311,37	119,1

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Strenght characteristics of pipes with TMK UP CWB II threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
4 1/2	114,3	11,51	6,35	816	1189	1337	1411	1632	1856	2005	2080	2377	36,8	53,7	60,4	63,7	73,7	83,8	90,5	93,9	100,6	34,2	43,8	47	48,4	52,3	55,2	56,7	57,3	58,1
		12,39	6,88	880	1282	1442	1521	1760	2001	2162	2243	2563	39,9	58,1	65	69	79,8	90,8	98,1	101,8	109	39,5	51,7	56	58	63,5	68,2	70,8	72	74,1
		13,19	7,37	938	1367	1537	1622	1877	2134	2305	2392	2733	42,8	62,3	70	73,9	85,5	97,3	105,1	109	116,8	44,3	59	64,2	66,7	73,8	80,1	83,9	85,7	88,9
		15,11	8,56	1078	1570	1766	1863	2155	2451	2647	2747	3139	49,7	72,3	81	85,8	99,3	113	122	126,6	135,6	52,6	76,5	84,3	88,1	98,9	109,2	115,7	118,9	124,9
5	127	13,2	6,43	923	1344	1512	1595	1846	2099	2268	2353	2521	33,6	48,9	55	58	67,2	76,4	82,5	85,6	91,7	28,6	35,5	37,5	38,4	40,3	41,7	43,2	43,9	45
		15,22	7,52	1070	1558	1753	1849	2140	2433	2628	2727	3116	39,3	57,2	64	67,9	78,5	89,3	96,5	100,1	107,2	38,4	50	54,1	56	61,1	65,4	67,8	68,9	70,7
		18,25	9,19	1289	1878	2112	2228	2578	2932	3167	3286	3755	48	69,9	79	82,9	96	109,2	117,9	122,3	131,1	50,9	72,3	79,4	82,9	92,8	102,2	108	110,8	116,2
		21,59	11,1	1255	1828	-	2169	2510	2854	3082	3198	3427	58	84,4	-	100,2	115,9	131,8	142,4	147,8	158,3	60,5	88,1	-	104,5	120,9	137,5	148,5	154,1	165,1
		23,36	12,14	1255	1828	2056	2169	2510	2854	3082	3198	3427	63,4	92,3	103,9	109,6	126,8	144,2	155,7	161,6	173,1	65,5	95,4	107,4	113,3	131,1	149	161	167	179
		24,3	12,7	1255	1828	2056	2169	2510	2854	3082	3198	3427	66,3	96,6	108,7	114,6	132,7	150,9	162,9	169,1	181,1	68,2	99,4	111,8	117,9	136,4	155,2	167,6	173,9	186,3
5 1/2	139,7	15,73	6,98	1103	1607	1807	1906	2206	2509	2710	2811	3012	33,1	48,3	54,3	57,3	66,3	75,4	81,4	84,5	90,5	27,8	34,4	36,2	37	38,8	40,5	41,9	42,5	43,5
		17,25	7,72	1213	1767	1988	2097	2426	2759	2980	3092	3201	36,7	53,4	60,1	63,3	73,3	83,4	90	93,4	100,1	33,8	43,3	46,4	47,9	51,5	54,4	55,8	56,3	57,1
		20,17	9,17	1352	1970	2216	2337	2705	3076	3322	3447	3693	43,5	63,4	71,3	75,2	87,1	99	106,9	111	118,9	45,6	60,4	66,5	69,1	76,6	83,4	87,5	89,4	92,9
		22,86	10,54	1352	1970	2216	2337	2705	3076	3322	3447	3693	50	72,9	82	86,5	100,1	113,8	122,9	127,5	136,7	52,9	77	85,4	89,2	100,3	110,8	117,4	120,6	126,8

TMK UP CWB II

Strenght characteristics of pipes with TMK UP CWB II threaded connection

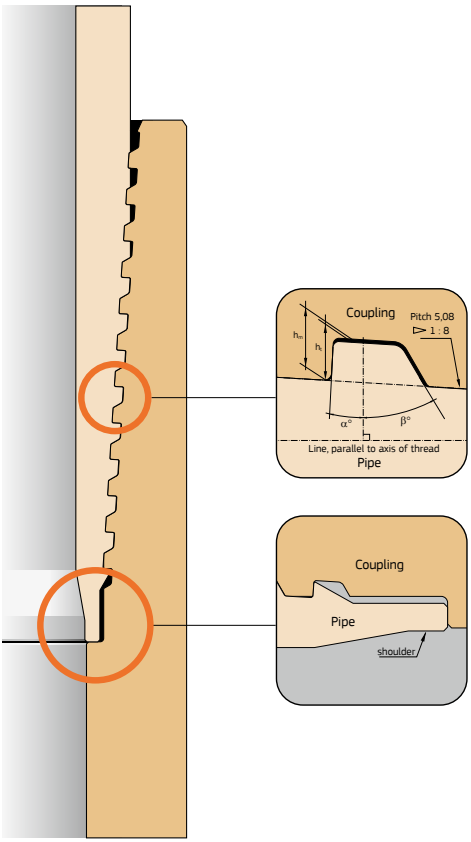
Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
5 3/4	146.05	16,52	7	1159	1688	1899	2003	2318	2636	2847	2954	3165	31,8	46,3	52,1	54,9	63,6	72,3	78,1	81	86,8	25,5	30,9	32,3	32,8	34,8	36,8	37,9	38,3	38,9
		18,03	7,7	1268	1847	2078	2192	2537	2885	3116	3233	3464	35	50,9	57,3	60,4	69,9	79,5	85,9	89,1	95,5	31	39	41,5	42,7	45,4	47,3	48	48,2	49,7
		19,73	8,5	1392	2028	2281	2406	2784	3166	3420	3548	3802	38,6	56,2	63,2	66,7	58,6	87,8	94,8	98,4	105,4	37,2	48,3	52,1	53,9	85	62,6	64,7	65,7	67,2
		21,83	9,5	1545	2250	2531	2669	3089	3513	3794	3937	4218	43,1	62,8	70,7	74,6	86,3	98,1	106	110	117,8	45	59,9	65,3	67,9	75,2	81,7	85,7	87,5	90,9
		24,31	10,7	1724	2511	2825	2980	3449	3922	4236	4395	4709	48,6	70,8	79,6	84	97,2	110,5	119,4	123,9	132,7	51,5	73,9	81,2	84,7	95	104,7	110,7	113,7	119,3
6 5/8	168.28	19,96	7,32	1168	2043	2299	2424	2806	3191	3446	3576	3831	28,9	42	47,3	49,9	57,7	65,6	70,9	73,5	78,8	20,5	24	25,5	26,2	27,8	28,8	29,1	29,2	29,3
		24	8,94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	89,8	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6
		28,02	10,59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41,7	60,8	68,4	72,1	83,5	94,9	102,5	106,4	114	42,6	56,3	61,2	63,6	70,1	75,8	79,2	80,8	83,6
		31,53	12,06	2243	3267	3676	3877	4486	5102	5510	5718	6126	47,5	69,2	77,9	82,1	95,1	108,1	116,8	121,2	129,8	50,5	71,1	78,1	81,5	91,2	100,2	105,9	108,6	113,8
7	177.8	23,18	8,05	1627	2370	2666	2812	3254	3701	3997	4147	4443	30	43,7	49,2	51,9	60,1	68,3	73,8	76,5	82	22,5	26,4	27,8	28,6	30,6	32	32,6	32,8	33
		26,18	9,19	1845	2687	3023	3189	3690	4196	4532	4702	5038	34,3	49,9	56,2	59,2	68,6	78	84,2	87,4	93,6	29,8	37,3	39,6	40,5	42,9	44,4	45,3	46,1	47,4
		29,22	10,36	2065	3008	3384	3570	4131	4698	5074	5264	5640	38,6	56,3	63,3	66,8	77,3	87,9	94,9	98,5	105,5	37,2	48,4	52,2	54	58,8	62,8	64,9	65,9	67,5
		32,16	11,51	2279	3319	3734	3939	4558	5183	5598	5809	6223	42,9	62,5	70,4	74,2	85,9	97,7	105,5	109,4	117,3	44,6	59,4	64,7	67,2	74,4	80,8	84,7	86,5	89,8
		34,62	12,65	2487	3623	4076	4299	4975	5658	6110	6340	6793	47,2	68,7	77,3	81,6	94,4	98,7	115,9	120,3	128,9	50,1	70,3	77,1	80,4	89,8	79,4	104,2	106,9	112
7 5/8	193.68	26,2	8,33	1838	2677	3012	3177	3677	4181	4516	4686	5020	28,5	41,5	46,7	49,3	57,1	64,9	70,1	72,7	77,9	20	23,5	24,9	25,6	27	27,9	28,1	28,2	28,3
		29,63	9,52	2087	3040	3420	3608	4175	4748	5128	5321	5701	32,6	47,5	53,4	56,3	65,2	74,1	80,1	83,1	89	26,9	33	34,7	35,4	36,8	39,1	40,3	40,8	41,7
		33,6	10,92	2376	3461	3894	4107	4753	5405	5837	6057	6489	37,4	54,5	61,3	64,6	74,8	85,1	91,9	95,3	102,1	35,1	45,2	48,6	50,2	54,3	57,5	59,2	59,9	61
		38,56	12,7	2737	3986	4484	4730	5473	6224	6723	6975	7474	43,5	63,3	71,3	75,2	87	98,9	106,8	110,8	118,8	45,6	60,8	66,3	69	76,4	83,2	87,3	89,2	92,7
		42,85	14,27	2993	4359	4904	5173	5986	6808	7353	7629	8174	48,9	71,2	80,1	84,5	97,7	111,1	120	124,6	133,4	51,8	74,6	82	85,6	96	105,8	112	115	120,7

Strenght characteristics of pipes with TMK UP CWB II threaded connection

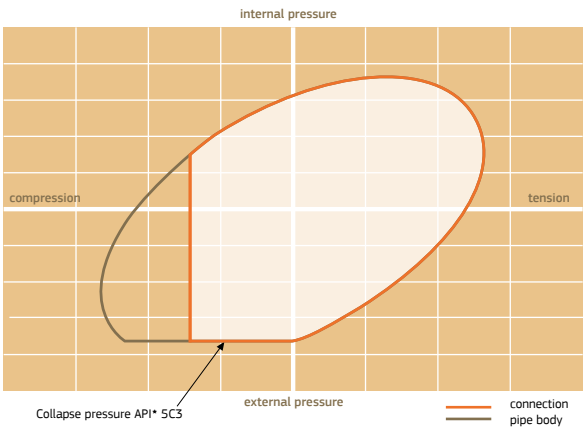
Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
9 5/8	244.48	35,81	8,94	2507	3652	4108	4333	5014	5702	6159	6390	6847	24,3	35,3	39,7	41,9	48,5	55,2	59,6	61,8	66,2	14	16,4	16,8	17	17,1	17,2	17,3	17,3	17,4
		39,83	10,03	2800	4078	4588	4839	5600	6368	6878	7136	7646	27,2	39,6	44,6	47	54,4	61,9	66,8	69,4	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,57	11,05	3071	4473	5032	5308	6142	6985	7544	7828	8387	30	43,7	49,1	51,8	60	68,2	73,6	76,4	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		46,97	11,99	3319	4834	5438	5736	6638	7549	8153	8460	9064	32,5	47,4	53,3	56,2	65,1	74	79,9	82,9	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,6	13,84	3801	5536	6227	6568	7601	8644	9336	9687	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,7	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
10 3/4	273.05	39,91	8,89	2796	4072	4582	4832	5592	6360	6869	7127	7636	21,6	31,5	35,4	37,3	43,2	49,1	53	55	59	10,9	11,9	11,9	12	12,1	12,2	12,3	12,4	12,5
		45,2	10,16	3180	4632	5211	5496	6360	7233	7812	8106	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,9	67,4	14,4	17,7	17,7	17,8	17,9	18	17,5	17,6	17,7
		50,43	11,43	3560	5186	5834	6153	7121	8098	8746	9075	9723	27,8	40,4	45,5	48	55,5	63,1	68,2	70,8	75,8	18,7	22,2	23,5	24	25,2	25,8	25,9	26	26,1
12 3/4	323.85	45,72	8,5	3192	4648	5229	5516	6383	7259	7840	8135	8716	17,4	25,4	28,5	30,1	34,8	39,6	42,8	44,4	47,5	8,5	8,6	8,8	8,9	9	9,1	9	9	9
		50,73	9,5	3556	5179	5826	6145	7111	9382	8734	9063	9710	19,5	28,3	31,9	33,6	38,9	44,3	47,8	49,6	53,1	8,5	8,7	8,9	9	9	9	9	9,1	9
		58,18	11	4097	5968	6714	7081	8195	9319	10065	10444	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12	13,5	13,6	13,5	13,5	13,5	13,9	14	14,1
		65,07	12,4	4598	6697	7534	7947	9197	10458	11296	11720	12557	25,4	37	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19	19,3	19,6	19,6	19,8	19,9	20
13 3/8	339.72	53,96	9,65	3792	5524	6214	6554	7585	8626	9316	9666	10357	78,8	27,4	30,9	32,6	37,7	42,9	46,3	48	51,4	7,8	7,9	8	8	8,1	8,2	8,3	8,4	8,5
		60,6	10,92	4275	6226	7005	7388	8550	9723	10502	10896	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,8	10,8	10,9	11	11,1	11,2	11,3
		67,19	12,19	4754	6924	7789	8216	9508	10812	11678	12117	12982	23,8	34,7	39	41,1	47,6	54,1	58,5	60,7	65	13,4	15,6	16	16,1	16,2	16,3	16,4	16,5	16,6

Lite Series

Threaded connection
TMK UP MAGNA



TMK UP MAGNA
Performance Envelope



TMK UP MAGNA for Casing

TMK UP MAGNA – quick-assembly connection for large diameter pipes is used for conductor and technical strings in oil and gas wells. The modified taper and increased thread pitch provide an easy fit and quick assembly of the connection, achieving a significant effect in reducing the make-up time of the connection in comparison with Buttress thread. Leak tightness is attained due to thread compound.

Range: 8-5/8''–20'' / 219,08 mm–508 mm

Unique Feature:
- 60%** compression efficiency
- 100%** tension efficiency
- Box-to-pin shoulder
- Sealability through thread compound
- Fast make-up
- Deep and easy stabbing
- Over-torque protection during make-up
- Reduces cross threading and prevents thread jump out
- Robust galling resistance
- Prevention from coupling's internal surface erosion

Application:
- Large diameter vertical sections
- Low GOR wells
- Offshore wells
- Deviated wells
- RIH with rotation

TMK UP MAGNA

Geometrical parameters of pipes with threaded connection TMK UP MAGNA

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
8 5/8	219,08	36,00	10,16	52,35	2,55	24,65	14,21	6 668	10976	6225	202,40	244,48	231,78	280,00	194,79	117,80
		40,00	11,43	58,53	2,64	24,78	14,34	7 456	10976	6225	201,20	244,48	231,78	280,00	192,25	117,80
		44,00	12,70	64,64	2,75	24,89	14,45	8 234	10976	6225	200,20	244,48	231,78	280,00	189,71	117,80
9 5/8	244,48	32,30	7,92	46,20	2,82	27,41	15,86	5 886	12184	6926	227,60	269,88	257,18	280,00	224,67	117,80
		40,00	10,03	57,99	2,82	27,41	15,86	7 388	12184	6926	227,60	269,88	257,18	280,00	220,45	117,80
		43,50	11,05	63,61	2,91	27,49	15,93	8 103	12184	6926	227,00	269,88	257,18	280,00	218,41	117,80
		47,00	11,99	68,75	2,98	27,61	16,05	8 757	12184	6926	226,00	269,88	257,18	280,00	216,53	117,80
		53,50	13,84	78,72	3,24	27,73	16,18	10 028	12184	6926	225,00	269,88	257,18	280,00	212,83	117,80
		58,40	15,11	85,47	3,42	27,86	16,30	10 888	12184	6926	224,00	269,88	257,18	280,00	210,29	117,80
9 7/8	250,83	62,80	15,88	92,01	3,36	28,71	-	11 721	12395	-	227,50	276,00	-	280,00	215,10	117,80
		66,40	16,79	96,91	3,45	28,83	-	12 345	12395	-	226,50	276,00	-	280,00	213,28	117,80
		72,10	18,29	104,89	3,71	28,95	-	13 362	12395	-	225,50	276,00	-	280,00	210,28	117,80
10 3/4	273,05	45,50	10,16	65,87	3,2	30,48	17,67	8 391	13560	7733	256,40	298,45	285,75	280,00	248,76	117,80
		51,00	11,43	73,75	3,32	30,62	17,81	9 394	13560	7733	255,40	298,45	285,75	280,00	246,22	117,80
		55,50	12,57	80,75	3,47	30,73	17,92	10 286	13560	7733	254,60	298,45	285,75	280,00	243,94	117,80
		60,70	13,84	88,47	3,65	30,87	18,06	11 270	13560	7733	253,60	298,45	285,75	280,00	241,40	117,80
		65,70	15,11	96,12	3,85	31,01	18,20	12 244	13560	7733	252,60	298,45	285,75	280,00	238,86	117,80
12 3/4	323,85	45,91	8,50	66,10	3,87	38,08	-	8 421	16955	-	306,20	351,00	-	280,00	302,88	119,00
		58,78	11,00	84,87	3,87	38,08	-	10 811	16955	-	306,20	351,00	-	280,00	297,88	119,00
		65,13	12,40	95,24	4,07	38,24	-	12 133	16955	-	305,20	351,00	-	280,00	295,08	119,00
		72,87	14,00	106,98	4,33	38,43	-	13 628	16955	-	304,00	351,00	-	280,00	291,88	119,00

We draw your attention to the fact that technical characteristics are for reference only, and any person who uses this information should check its relevance, by contacting the technical department: techsales@tmk-group.com

Geometrical parameters of pipes with threaded connection TMK UP MAGNA

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight		Pipe crossec-tion area	Critical C/S area of coupling	Criticial C/S area of special coupling	Inside diameter of coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
						Regular	Special									
in	mm	lb/ft	mm	kg/m	kg	kg	kg	mm²	mm²	mm²	mm	mm	mm	mm	mm	mm
13 3/8	339,72	61,00	10,92	88,55	4,06	37,71	-	11 280	16761	-	322,00	365,12	-	280,00	313,91	119,00
		68,00	12,19	98,46	4,23	37,88	-	12 543	16761	-	321,00	365,12	-	280,00	311,37	119,00
		72,00	13,06	105,21	4,38	37,98	-	13 403	16761	-	320,40	365,12	-	280,00	309,63	119,00
14	355,6	82,50	14,27	120,12	6,42	47,7	-	15 302	19345	-	332,00	381,00	-	300,00	322,30	119,80
		94,80	16,66	139,26	7,87	48,1	-	17 740	19345	-	330,40	381,00	-	300,00	317,52	119,80
16	406,4	75,00	11,13	108,49	5,57	59,88	-	13 821	21168	-	386,30	431,80	-	300,00	379,38	108,60
		84,00	12,57	122,09	6,93	52,78	-	15 552	22045	-	383,80	431,80	-	300,00	376,50	119,80
		109,00	16,66	160,13	7,69	53,52	-	20 399	22045	-	381,20	431,80	-	300,00	368,32	119,80
16 7/9	426	72,94	10,00	102,59	5,68	54,77	-	13 069	21890	-	405,90	451,00	-	300,00	401,24	108,60
		79,63	11,00	112,58	5,81	54,77	-	14 341	21890	-	405,90	451,00	-	300,00	399,24	108,60
		86,29	12,00	122,52	5,9	55,23	-	15 607	21890	-	404,80	451,00	-	300,00	397,24	108,60
18 5/8	473,08	87,50	11,05	125,91	6,49	78,83	-	16 039	32091	-	453,00	508,00	-	300,00	446,22	108,60
		96,50	12,32	140,63	6,66	79,27	-	17 833	32091	-	452,00	508,00	-	300,00	443,68	108,60
20	508	94,00	11,13	136,38	6,97	65,66	-	17 374	26343	-	487,70	533,40	-	300,00	480,98	110,20
		106,50	12,70	155,13	8,72	65,5	-	19 762	27418	-	485,00	533,40	-	300,00	477,84	121,40
		133,00	16,13	195,66	9,48	66,25	-	24 925	27418	-	482,80	533,40	-	300,00	470,98	121,40

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Strenght characteristics of pipes with TMK UP MAGNA threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
8 5/8	219,08	36,00	10,16	2527	3681	4141	4368	5055	5748	6208	6435	6902	30,8	44,8	50,4	53,2	61,5	70,0	75,6	78,3	84,0	23,8	28,3	29,3	30,0	32,3	34,0	34,7	35,0	35,3
		40,00	11,43	2826	4116	4630	4884	5652	6427	6942	7195	7717	34,6	50,4	56,7	59,8	69,2	78,7	85,0	88,1	94,5	30,4	38,1	40,5	41,5	44,1	45,7	46,2	47,0	48,4
		44,00	12,70	3121	4545	5113	5393	6242	7098	7666	7946	8522	38,4	56,0	63,0	66,4	76,9	87,4	94,4	97,9	105,0	36,9	47,9	51,7	53,4	58,1	61,9	63,9	64,8	66,3
9 5/8	244,48	32,30	7,92	2231	3249	3655	3855	4462	5074	5480	5680	6092	21,5	31,3	35,2	37,1	43,0	48,9	52,8	54,7	58,7	10,8	11,8	11,9	12,0	12,1	12,2	12,3	12,4	12,5
		40,00	10,03	2800	4078	4588	4839	5600	6368	6878	7129	7646	27,2	39,6	44,6	47,0	54,4	61,9	66,8	69,3	74,3	17,7	21,3	22,4	22,9	23,9	24,3	24,4	24,4	24,5
		43,50	11,05	3071	4473	5032	5308	6142	6985	7544	7820	8387	30,0	43,7	49,1	51,8	60,0	68,2	73,6	76,3	81,9	22,4	26,3	27,7	28,5	30,5	31,9	32,5	32,6	32,7
		47,00	11,99	3319	4834	5438	5736	6638	7549	8153	8451	9064	32,5	47,4	53,3	56,2	65,1	74,0	79,9	82,8	88,8	26,8	32,8	34,5	35,1	36,5	38,9	40,1	40,6	41,4
		53,50	13,84	3801	5536	6227	6568	7601	8644	9336	9677	10379	37,5	54,7	61,5	64,9	75,1	85,4	92,2	95,6	102,5	35,4	45,6	49,1	50,6	54,8	58,1	59,9	60,6	61,8
		58,40	15,11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41,0	59,7	67,2	70,8	82,0	93,2	100,7	104,4	111,9	41,3	54,5	59,1	61,3	67,3	72,7	75,8	77,2	79,7
9 7/8	250,83	62,80	15,88	4442	6470	7279	7677	8885	10104	10913	11311	12132	42,0	61,2	68,8	72,6	84,0	95,5	103,1	106,9	114,7	43,0	57,0	62,0	64,3	70,9	76,9	80,3	82,0	84,9
		66,40	16,79	4679	6814	7666	8086	9358	10641	11493	11913	12777	44,4	64,7	72,7	76,7	88,8	101,0	109,1	113,0	121,2	47,1	63,1	69,0	71,7	79,7	87,0	91,4	93,5	97,4
		72,10	18,29	4698	6842	7697	8119	9395	10684	11540	11961	12829	48,4	70,4	79,2	83,6	96,7	110,0	118,8	123,1	132,1	51,2	73,3	80,5	84,0	94,1	103,7	109,7	112,6	118,1
10 3/4	273,05	45,50	10,16	3180	4632	5211	5496	6360	7233	7812	8097	8685	24,7	35,9	40,4	42,7	49,4	56,1	60,6	62,8	67,4	14,4	17,1	17,7	17,8	17,9	18,0	17,5	17,6	17,7
		51,00	11,43	3560	5186	5834	6153	7121	8098	8746	9066	9723	27,8	40,4	45,5	48,0	55,5	63,1	68,2	70,7	75,8	18,7	22,2	23,5	24,0	25,2	25,8	25,9	26,0	26,1
		55,50	12,57	3899	5678	6388	6738	7797	8867	9577	9926	10646	30,5	44,5	50,0	52,8	61,1	69,4	75,0	77,7	83,4	23,4	27,7	28,7	29,6	31,8	33,4	34,1	34,4	34,7
		60,70	13,84	4271	6221	6999	7382	8543	9715	10493	10876	11665	33,6	49,0	55,1	58,1	67,2	76,5	82,6	85,6	91,8	28,7	35,6	37,6	38,5	40,5	41,9	43,4	44,0	45,1
		65,70	15,11	4641	6759	7604	8020	9281	10555	11399	11816	12673	36,7	53,5	60,1	63,4	73,4	83,5	90,2	93,5	100,2	34,0	43,5	46,6	48,0	51,7	54,6	56,0	56,6	57,4
12 3/4	323,85	45,91	8,50	3192	4648	5229	5516	6383	7259	7840	8126	8716	17,4	25,4	28,5	30,1	34,8	39,6	42,8	44,3	47,5	6,2	6,3	6,4	6,5	6,6	6,7	6,8	6,9	7,0
		58,78	11,00	4097	5968	6714	7081	8195	9319	10065	10433	11190	22,5	32,8	36,9	38,9	45,1	51,2	55,3	57,4	61,5	12,0	13,5	13,6	13,6	13,7	13,8	13,9	14,0	14,1
		65,13	12,40	4598	6697	7534	7947	9197	10458	11296	11708	12557	25,4	37,0	41,6	43,9	50,8	57,8	62,4	64,7	69,4	15,2	18,2	19,0	19,3	19,6	19,7	19,8	19,9	20,0
		72,87	14,00	5165	7523	8463	8926	10330	11747	12688	13151	14105	28,7	41,8	47,0	49,6	57,3	65,2	70,4	73,0	78,3	20,2	23,7	25,2	25,8	27,4	28,3	28,5	28,6	28,7

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Strenght characteristics of pipes with TMK UP MAGNA threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thick-ness	Yield Strength in Tension, kN									Minimum Internal Yield Pressure, MPa									Collapse Pressure, MPa								
				Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi									Minimum yield strength MPa/ksi								
in	mm	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
				55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
13 3/8	339,72	61,00	10,92	4275	6226	7005	7388	8550	9723	10502	10885	11675	21,3	31,1	34,9	36,8	42,6	48,5	52,4	54,3	58,2	10,6	10,7	10,8	10,8	10,9	11,0	11,1	11,2	11,3
		68,00	12,19	4754	6924	7789	8216	9508	10812	11678	12104	12982	23,8	34,7	39,0	41,1	47,6	54,1	58,5	60,6	65,0	13,4	15,6	16,0	16,1	16,2	16,3	16,4	16,5	16,6
		72,00	13,06	5080	7398	8323	8779	10159	11553	12478	12934	13872	25,5	37,1	41,8	44,1	51,0	58,0	62,6	64,9	69,6	15,4	18,4	19,2	19,5	19,9	20,0	20,1	20,2	20,3
14	355,6	82,50	14,27	5799	8447	9503	10023	11599	13190	14246	14766	15838	26,6	38,8	43,6	46,0	53,2	60,5	65,4	67,8	72,7	16,7	20,3	21,3	21,7	22,5	22,7	22,8	22,9	23,0
		94,80	16,66	6723	9792	11016	11620	13447	15292	16516	17119	18361	31,1	45,3	50,9	53,7	62,1	70,7	76,3	79,1	84,9	24,3	29,1	30,2	30,6	33,0	34,9	35,7	36,1	36,5
16	406,4	75,00	11,13	5238	7629	8583	9053	10476	11914	12867	13337	14305	18,2	26,5	29,8	31,4	36,3	41,3	44,6	46,2	49,6	7,0	7,0	7,1	7,2	7,3	7,4	7,5	7,6	7,7
		84,00	12,57	5894	8585	9658	10187	11789	13406	14479	15008	16097	20,5	29,9	33,6	35,5	41,0	46,7	50,4	52,2	56,0	9,7	9,8	9,9	10,0	10,1	10,2	10,3	10,4	10,5
		109,00	16,66	7731	11260	12668	13361	13334	17584	18991	19685	21113	27,2	39,6	44,6	47,0	46,6	61,8	66,8	69,2	74,3	17,7	21,2	22,4	22,9	15,0	24,2	24,3	24,4	24,5
16 7/9	426	72,94	10,00	4953	7214	8116	8560	9906	11265	12167	12612	13526	15,6	22,7	25,5	26,9	31,1	35,4	38,2	39,6	42,5	4,5	4,6	4,7	4,7	4,8	4,9	5,0	5,0	5,1
		79,63	11,00	5435	7916	8906	9394	10871	12362	13352	13839	14843	17,1	24,9	28,1	29,6	34,3	39,0	42,1	43,6	46,8	5,9	6,0	6,1	6,1	6,2	6,3	6,4	6,4	6,5
		86,29	12,00	5915	8615	9692	10223	11830	13454	14531	15061	16154	18,7	27,2	30,6	32,3	37,4	42,5	45,9	47,6	51,0	7,6	7,7	7,8	7,8	7,9	8,0	8,1	8,1	8,2
18 5/8	473,08	87,50	11,05	6079	8854	9960	10506	12158	13826	14932	15478	16601	15,5	22,6	25,4	26,8	31,0	35,2	38,1	39,4	42,3	4,4	4,5	4,6	4,6	4,7	4,8	4,9	4,9	5,0
		96,50	12,32	6759	9844	11075	11681	13518	15372	16603	17209	18458	17,3	25,2	28,3	29,9	34,5	39,3	42,4	44,0	47,2	6,0	6,1	6,2	6,2	6,3	6,4	6,5	6,5	6,6
20	508	94,00	11,13	6585	9590	10789	11380	13169	14976	16175	16765	17982	14,5	21,2	23,8	25,1	29,1	33,1	35,7	37,0	39,7	3,8	3,9	4,0	4,0	4,1	4,2	4,3	4,3	4,4
		106,50	12,70	7490	10908	12272	12944	14979	17034	18398	19070	20453	16,6	24,2	27,2	28,7	33,2	37,7	40,7	42,2	45,3	5,3	5,4	5,5	5,5	5,6	5,7	5,8	5,8	5,9
		133,00	16,13	9447	13759	15478	16326	18893	21485	23205	24053	25797	21,1	30,7	34,5	36,4	42,1	47,9	51,7	53,6	57,5	10,3	10,4	10,5	10,5	10,6	10,7	10,8	10,8	10,9

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CONNECTORS SERIES

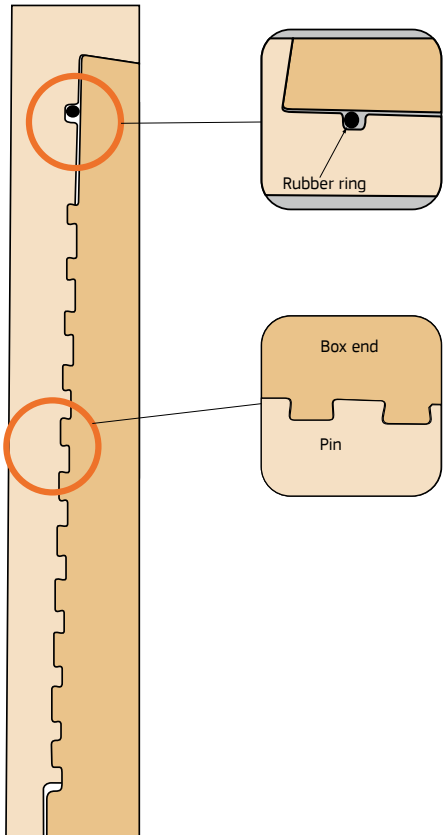
CONNECTORS Series includes premium welded quick-assembly and threaded connectors. They could be used at offshore and onshore projects.

TMK UP MOLOT

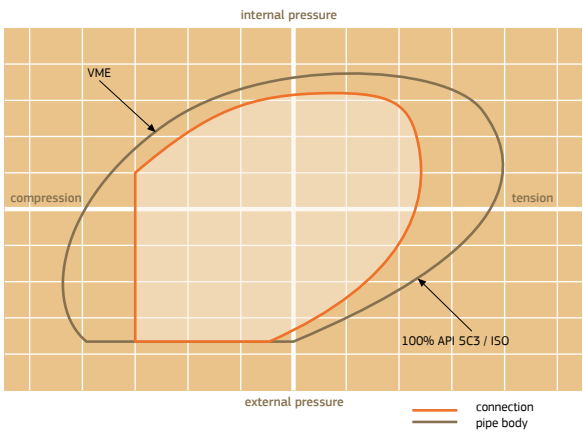
TMK UP KATRAN HD

Connectors Series

Threaded connection
TMK UP MOLOT



TMK UP MOLOT
Performance Envelope



Threaded connector TMK UP MOLOT

Threaded connector used for water separating conductor risers. Supplied with lifting pup joint and crossover of own production. The system is able to withstand shock loads from hydraulic hammer used to RIH of such conductors.

Range:
30”/ 762,00 mm

Unique Feature:
- Dynamic shock tested
- Increased bending capacity
- Reliability and ease of make-up due to large thread pitch
- Breakout resistance without installing special tools
- Tightness due to thrust and rubber seal
- Outer and inner diameters are equal to the pipe body diameter

Application:
- Large diameter vertical sections
- Sections with low GOR
- Offshore wells
- RIH from offshore platforms

Geometrical parameters of pipes with threaded connection TMK UP MOLOT

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Pipe crossection area	Box ID	Box OD	Drift diameter	Length makeup loss
in	mm	lb/ft	mm	kg/m	mm²	mm	mm	mm	mm
1	2	3	4	5	6	7	8	9	10
30	762	309,70	25,4	461,33	58778	711,2	762,00	707,23	204,00

Strenght characteristics of pipes with TMK UP MOLOT threaded connection

Nominal pipe diameter		Pipe specific weight	Pipe wall thickness	Yield Strength in Tension, kN			Minimum Internal Yield Pressure, MPa			Collapse Pressure, MPa		
				Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi		
in	mm	lb/ft	mm	390	415	450	390	415	450	390	415	450
				56	60	65	56	60	65	56	60	65
30	762	309,70	25,4	10328	10971	11903	24,5	26,0	28,2	10,6	10,9	11,3

Connector Series

Quick-assembly connection
TMK UP KATRAN HD

Quick-assembly connection TMK UP KATRAN HD

A quick-assembly connector designed for running conductor pipes into a drilled well with complicated conditions where exceptional resistance to high compressive and torsional loads is required.

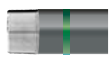
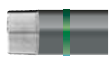
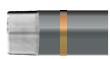
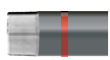
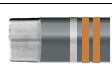
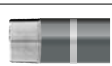
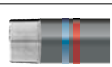
Range:
30 x 1" / 762,00 x 25,4 mm
20 x 0,625" / 508,00 x 15,9 mm

Unique Feature:
- Under the pipe's own weight make-up without the use of special equipment
- Breakout through pressure bolts
- Liquid tightness due to O-rings
- Teeth on the pipe and grooves on the coupling ensure high torque resistance
- Double the number of engagement elements increase load-bearing capacity
- 100% development and production in Russia

Application:
- Large diameter vertical sections
- Sections with low GOR
- Offshore wells

Reference data

Color coding of steel grades

Steel grade	Pipe type	Color identification			
		Coupling		Pipe	Image
		Paint of external surface	Ring stripes (special coupling plus one black stripe)	Ring stripes	Coupling / Pipe
J55	Tubing	Light green	-	One light green	 
J55	Casing	Light green	One white	One light green	 
K55	Casing	Light green	One white	Two light green	 
R95, C95	Tubing	Brown	-	One brown	 
N80 1 type	Tubing	Red	-	One red	 
N80 Q type	Tubing	Red	One green	One red, onelight green	 
L80 1 type	Tubing	Red	One brown	One red, one brown	 
L80 9Cr type	Tubing	No	Two yellow	One red, one brown, two yellow	 
L80 13Cr type	Tubing	No	One yellow	One red, one brown, one yellow	 
C90	Tubing	Purple	-	One purple	 
T95	Tubing	Silver	-	One silver	 
C110	Casing	White	One brown	One white, two brown	 
P110	Tubing	White	-	One white	 
Q125	Casing	Orange	-	One orange	 
TMK140	Casing	Yellow	One brown	One yellow, one brown	 
TMK150	Casing	Blue	One red	One blue, one red	 

Units of American system USC and international system SI

Value	Units				Ratio
	USC		SI		
	Name	Notation	Name	Notation	
Mass	pounds	pound (lb)	kilogram	kg	1 pound = 0.454 kg 1 kg = 2.205 pound
Mass, length units	pound per feet	pound/foot (lb/ft)	kilograms per one meter	kg/m	1lb/ft = 1.488 kg/m 1 kg/m = 0.672lb/ft
Diameter, wall thickness	inch	inch (in)	millimeter	mm	1 in = 25.4 mm 1 mm = 0.039 in 1 m = 1000 mm 1 ft = 12 in 1 ft = 0.305 m 1 m = 3.279 ft
Length	feet	Foot (ft)	meter	m	
Area	square inch	sq. inch (sq. in.)	square millimeters	mm^2	1 sq. in. = 645.16 mm^2 1 mm^2 = 0.00155 sq. in.
Volume	cubic inch	cub. inch. (cub. in.)	cubic centimeters	cm^3	1 cub. in. = 16.387064 cm^3 1 ft = 1728 cub. in. = 0.028317 dm^3 1 cm^3 = 0.061024 cub. in. 1 m^3 = 35.31467 cub. ft.
Force	pound-force	pound-force (lb(f))	Newton	N	1lb(f) = 4,448 N 1 N = 0.225lb(f)
Pressure, strain	pound on square inch	pound per square inch (psi)	Pascal	Pa	1 Pa = 1 N/m^2 1 mPa = 106 Pa = 1N/mm^2 1 ksi = 103 psi 1 psi = 0.0069 mPa 1 mPa = 145.03 psi
Force moment	foot-pound force	pound force-foot (ft-lb)	Newton-meter	Nm	1 ft-lb = 1.356 Nm 1 Nm = 0.738 ft-lb 1 kgm = 0.102 Nm

** Results obtained by mathematical modeling and data analysis

★ Effective March 17, 2022, the API Monogram/APIQR Program has ceased offering certification services within the Russian Federation in response to restrictions on financial and business activities imposed by the U.S. and Russian governments. As a result, now all TMK facilities are not authorized to apply the API Monogram on their products.

TMK facilities were holding API license continuously for over 25 years. They have vast experience of manufacturing material in accordance with API standards to the clients worldwide. Since 2003, the TMK facilities have produced more than 3 million metric tons of casing, tubing, drilling and linepipes as per API Standards and marked with the API monogram. TMK product's quality and reliability are demonstrated by years of supply and service customers.

However, now the TMK facilities are still permitted to state that their products meet or comply with an API standard or specification provided that they do meet the requirements in the API standard or specification. As previously, the TMK facilities guarantee full compliance with the requirements of the API Standards and the quality of supplied products.
To provide additional confidence to our clients, in the summer of 2022 the TMK facilities have been audited by AJA Registrars CIS ltd. and found to be in accordance with requirements API Spec. 5CT, API Spec. 5L, API Spec. 5DP & API Spec. Q1.

During a manufacturing of customer orders a third part inspection can be involved to re-assure that all material is produced in strict accordance with API Standards and customer specifications. A utilization of third part testing laboratories can be provided as well.

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