



PRODUCT
TYPES

Maintenance
and Operation
Guidelines

GREENWELL

TORQUE SERIES

PRO SERIES

LITE SERIES

REFERENCE
DATA

TECHNICAL GUIDEBOOK 2023



PREMIUM
Connections
TMK UP Series

Premium Connections
TMK UP Series
Technical Guidebook

Moscow,
2023

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 H₂S and CO₂, 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
Product Lines

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 core shells, but also pressure-tight strings.

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, 13Cr5)

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 CO₂ and H₂S, these pipes can be produced with two levels of resistance:

- for standard pressures, temperatures and environment, containing CO₂;
- for high pressures, temperatures and environment, containing CO₂, and also small quantities of H₂S.

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 ksi	379	552	621	655	758	862	965	1035
Low temperature	TMK 55LT	TMK 80LT	TMK 90LT	TMK 95LT	TMK 110LT	TMK 125LT	TMK 140LT	TMK 150LT	
H ₂ S 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				
Pipes with a high resistance to collapse		TMK 80HC	TMK 90HC	TMK 95HC	TMK 110HC	TMK 125HC			
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 protecting devices
- bell guide
- chain slider
- lifting cap or chain slider (for streamlined joints)
- hydraulic tongs for making up joints with automated torque control system
- thread-sealing grease.

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 interested 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	Diameter, 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 grease using a solvent with following threaded connection blow-down with compressed air.

It is forbidden to use diesel fuel, kerosene, brine water, barite and metallic brush for grease removal!

Use of diesel fuel and kerosene lead to formation of a film on the connection surface, thus impeding the grease 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-tight ness.

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 grease.

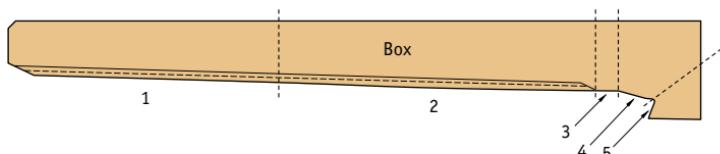
Determination of depth of corrosion, barbs, scabs, scratches shall be performed as follows:

- visually.

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

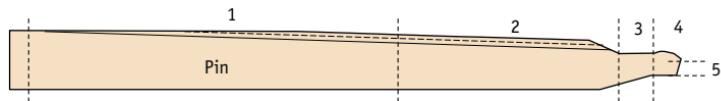
Damage of threaded connection surface and repair

Threaded connection surface site	Damages	Damage repair
1, 2, 5	Pit corrosion less 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
	Burrs less than 0.0118 inch wide. Tears and scratches less 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 corrosion less 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
	Burrs less than 0.0118 inch wide. Tears and scratches less 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
- 4 — Cone section of coupling seal
- 5 — Torque shoulder



Pin External thread surface

- 1 — Runout of thread
- 2 — Thread
- 3 — Cylindrical section of coupling
- 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 below 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.

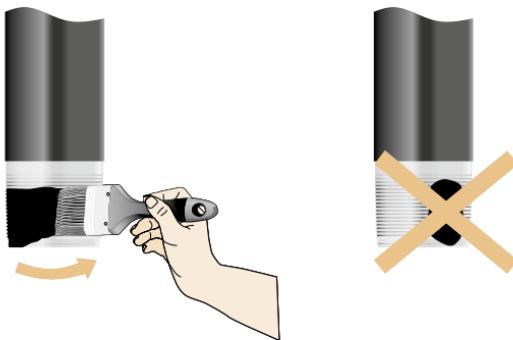
Thread compound shall be applied on the entire thread surface, as well as on the surface of sealing and shoulder elements of pin and box connections.

Carefully dry the threaded connection surface before applying thread compound.

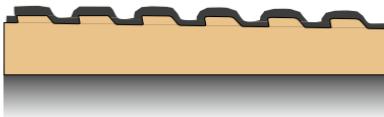
Check the threaded connection for any damage before applying the lubricant.

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 grease across the thread profile



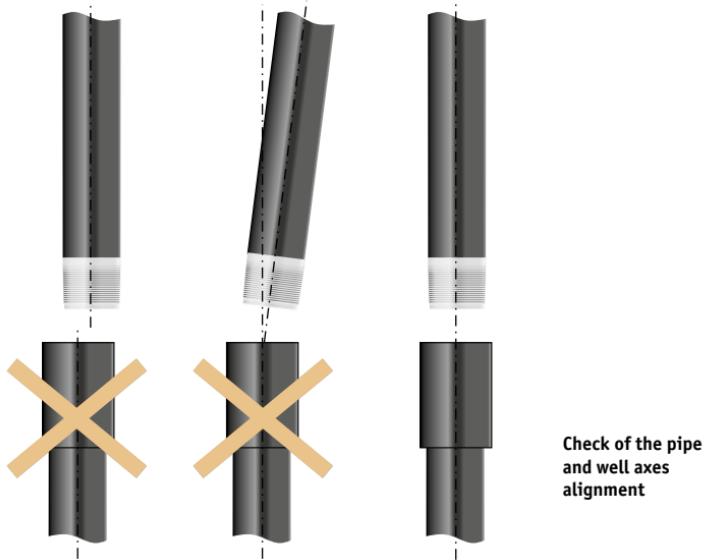
It is recommended to apply grease using flat nylon brushes, and a textured brush – for applying grease on the box end.

It is forbidden to use metal brushes for applying grease!

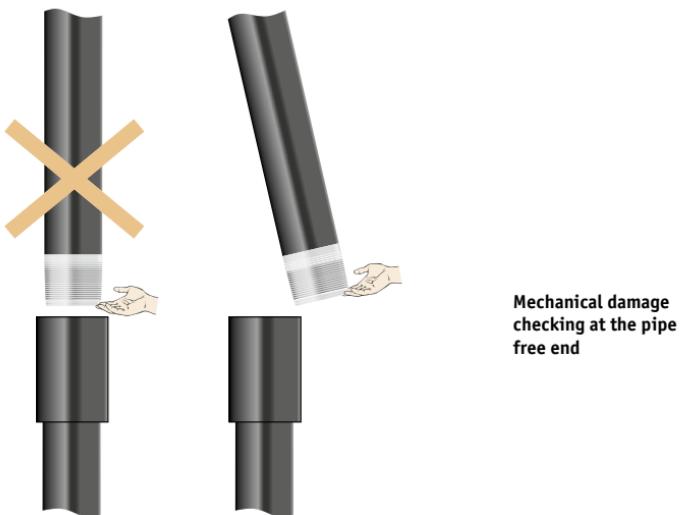
- Before running the pipes into the well make sure that the amount of the thread compound available is sufficient.
- If a friction coefficient, specified on the thread compound container, is different from 1.0, contact technical specialist of TMK to determine the corrected makeup torque at techsales@tmk-group.com.
- 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 grease to the sealing and thrust elements of the threaded connection and to the first two thread strings of the pipe and the coupling.

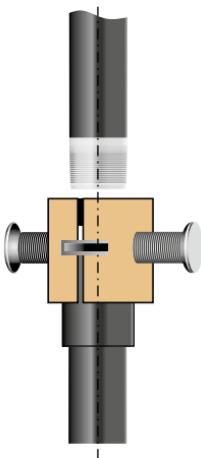
String assembly

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



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





**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 continue making-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.

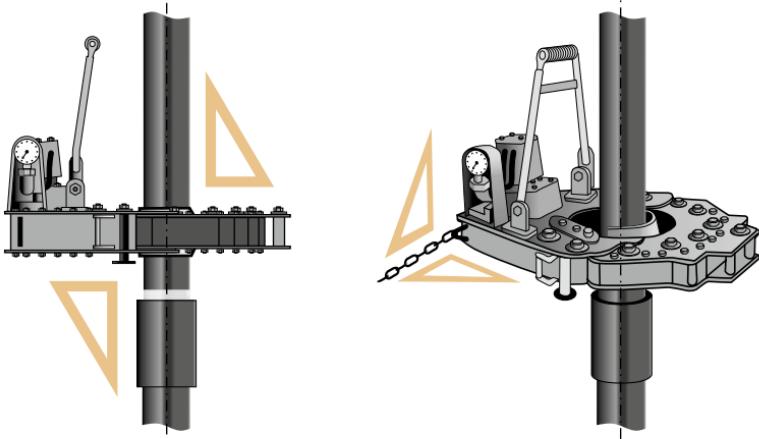


**Making first two turns of assembly
with special wrench with belt**

- 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 than 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% (\pm).

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.

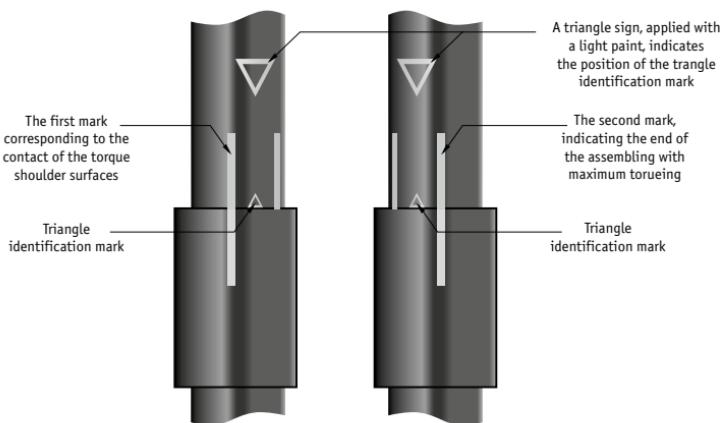
The corrected makeup torque shall be defined based on mean shoulder torques of the first ten making-ups and shall be calculated according to the formula below:

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

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 grease, 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.

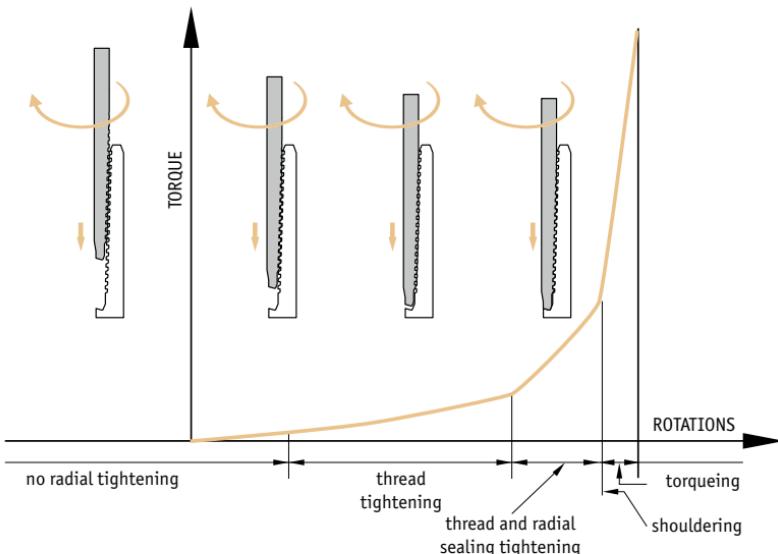
Makeup diagram for correct making-up

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.



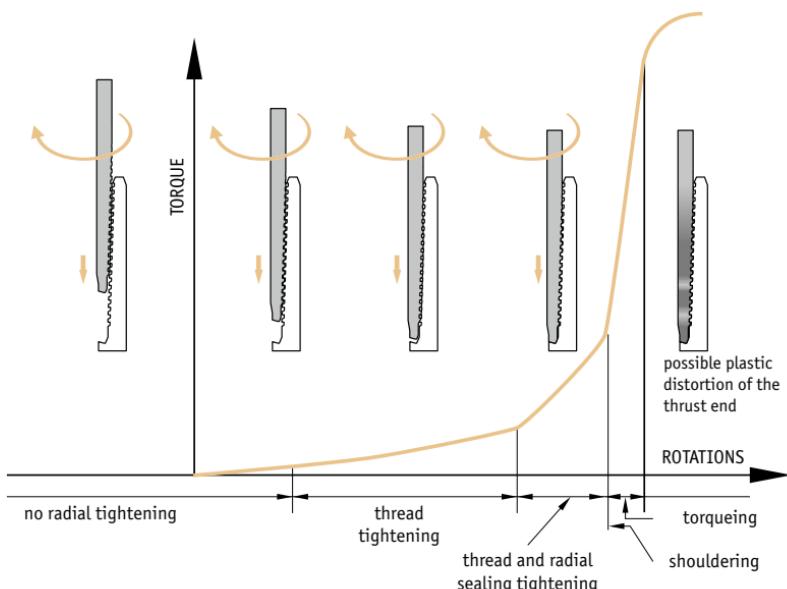
Threaded connection makeup diagram in case of correct making-up

Makeup diagram for incorrect making-up

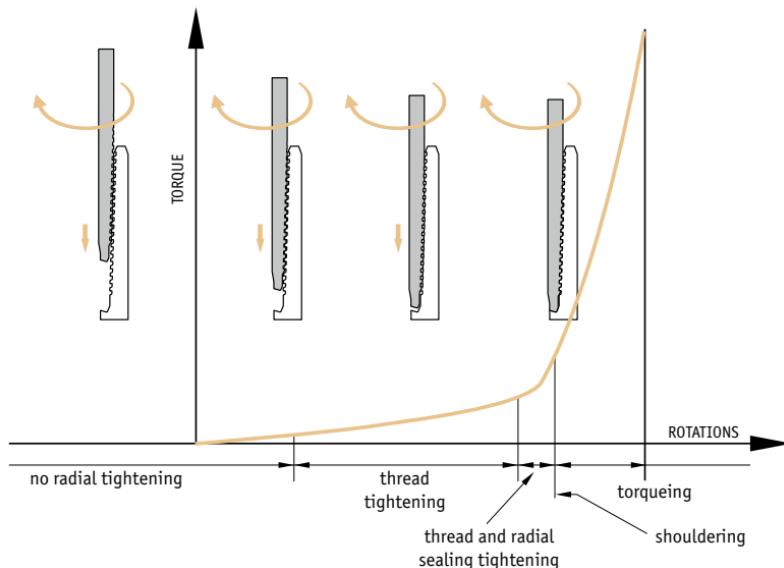
If there is an area, corresponding to possible plastic distortion of the torque shoulder, on the makeup diagram, disassemble the connection and check the pipe and the coupling ends. If upon the results of the inspection and by-hand and drift tests on the thrust and mating surfaces of the connection no 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 sealing 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

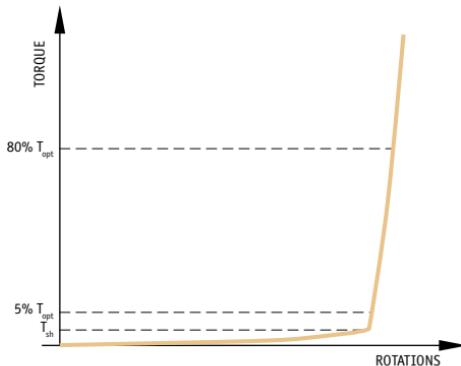


Makeup diagram with low torque gain from the radial sealing

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.

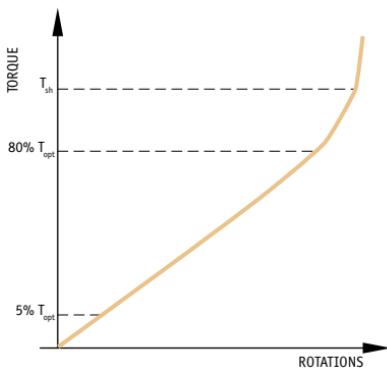


Makeup diagram with low T_{sh}

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 grease type;
- grease contamination or high density of the grease (for example, at low temperatures);
- unfavorable combination of process parameters of the matched connection.

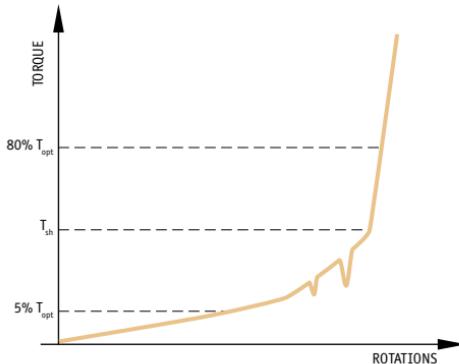


Makeup diagram with high T_{sh}

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.

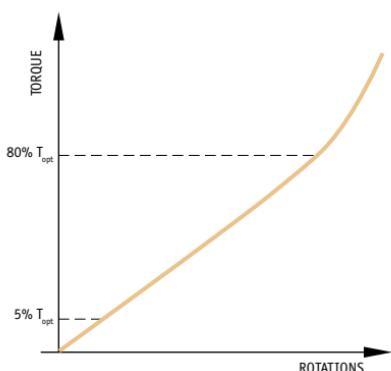
Torque skipping on the makeup diagram may be caused by:

- improper removal of preservation grease 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.

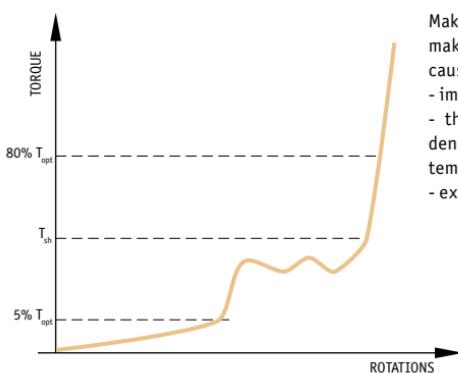


Makeup diagram without distinctive T_{sh}

Makeup curve on the makeup diagram without clear T_{sh} may be caused 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 grease 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 grease (for example, at low temperatures);
- excessive amount of grease.

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

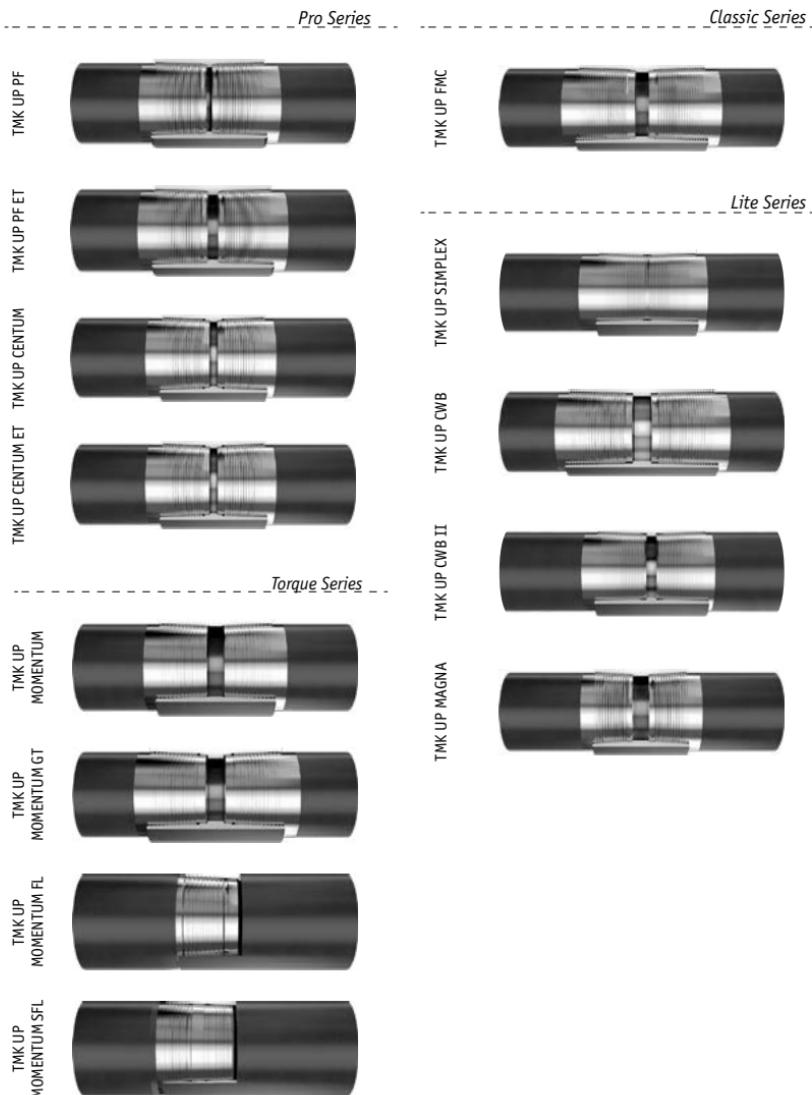
When making-up pipes with different wall thickness and/or belonging to different strength groups, it is possible to use the makeup torques determined as follows (provided that the threaded connection of A type has smaller makeup torque compared to threaded connection of B type):

- 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, controlled directional, horizontal wells of oil, gas and gas condensate fields in difficult operation conditions (high tensile, compressive, bending loads, excessive torque; aggressive media, containing H₂S and CO₂; low and high temperatures).



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

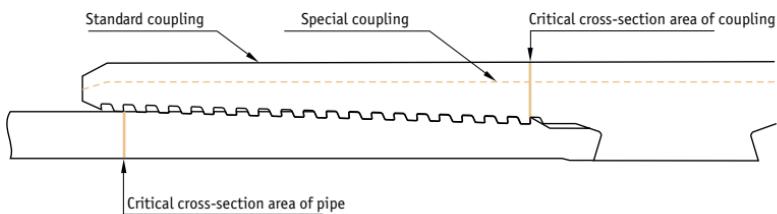
TMK UP Series

Outside diameter of pipe	in	mm	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
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														

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	P110	-	-	-
	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	-	-	-	-

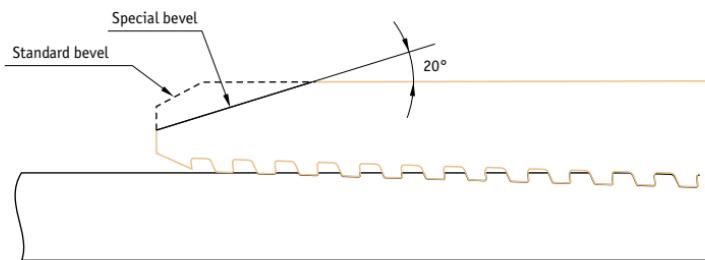
Notes:

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;
- Provides corrosion resistance;
- Pipes are immediately ready for running. No need to remove rust-preventing grease and apply operating compound:
 - Saving time for casing preparing and running operations.
 - Creates the necessary friction coefficient to provide multiple assembly;
 - 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.

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

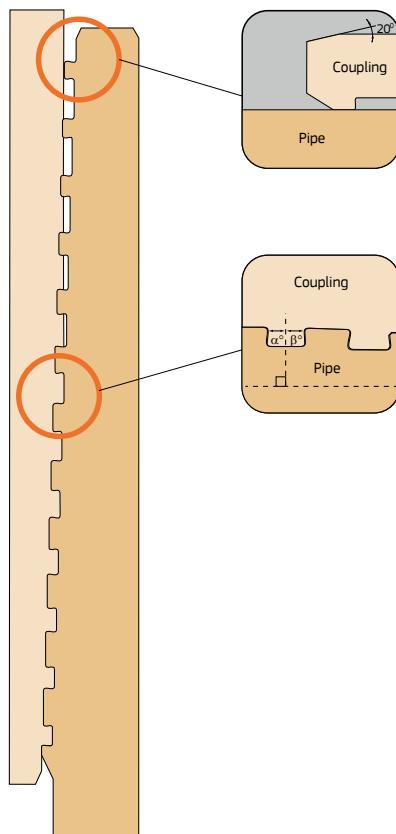
Torque series

■ Threaded connection

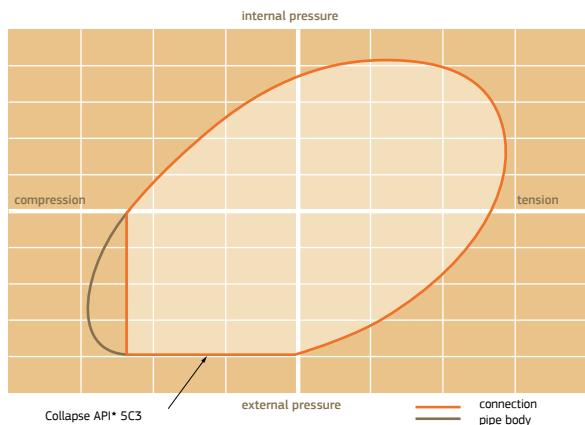
TMK UP MOMENTUM



TMK UP
MOMENTUM



TMK UP MOMENTUM
Performance Envelope



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)

Nominal pipe diameter in / mm	Pipe wall specific weight lb/ft / kg/m	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
4 1/2 114,3	15,1	8,56	22,32	0,66	5,06	4,12	2844	3199	2686	97,18	127
	17	9,65	24,9	0,67	6,92	4,12	3173	4327	2686	95	132,1
5 127	18,9	10,92	27,84	0,58	6,92	4,12	3547	4327	2686	92,46	132,1
	21,5	12,7	31,82	0,69	6,92	4,12	4054	4237	2686	88,9	132,1
7 17,8	15	7,52	22,16	0,94	6,82	4,84	2823	4068	3025	123,6	141,3
	18	9,19	26,7	0,95	6,82	4,84	3401	4068	3025	122	141,3
9 5/8 244,48	20,3	10,36	29,81	0,96	6,82	4,84	3196	4068	3025	119	141,3
	17	7,72	25,13	1,16	7,46	5,4	3201	4381	3322	123,6	153,67
10 23	20	9,17	29,52	1,2	7,46	5,4	3160	4381	3322	122	153,67
	23	10,54	33,57	1,22	7,46	5,1	4277	4381	3322	119	153,67
11 32	23	8,05	33,7	1,1	13,56	7,76	4293	7946	4874	161,68	200,03
	35	12,65	51,52	1,1	13,56	7,76	4868	7946	4874	159,4	200,03
12 36	26	9,19	38,21	1,1	13,56	7,76	5450	7946	4874	157,06	200,03
	40	10,36	42,78	1,1	13,56	7,76	6013	7946	4874	154,76	200,03
13 47	32	11,51	47,2	1,1	13,56	7,76	6563	7946	4874	152,48	200,03
	53,5	13,84	78,72	1,3	21	11,1	10028	12154	6897	216,8	269,88

Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM

Nominal pipe diameter in	Pipe wall specific weight lb/ft	Pipe wall thickness mm	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											
4 1/2	114.3	55	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035		
	15.1	8.56	1078	1570	1766	1863	2155	2451	2647	2747	3139	49.7	72.3	81	85.8	99.3	110	125	135	140	150	
	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	164.3	
	21.5	12.7	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	
	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	138.4	
5	127	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	150.9
	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	166.9	
	17	7.72	12.13	1767	1988	2097	2426	2759	2980	3092	3534	36.7	53.4	60	63.3	73	83.4	90	93.4	100.1	133.9	
	20	9.17	14.25	2076	2335	2463	2850	3241	3501	3633	4151	43.5	63.4	71	75.2	87.1	99	106.9	111	118.9	145.6	
	23	10.64	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	152.9	
	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	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	105.5	
7	177.8	29	10.36	2065	3008	3384	3570	4131	4698	5074	5264	60.16	38.6	56.3	63	66.8	77.3	87.9	94.9	98.5	105.5	
	32	11.51	2279	3319	3754	3939	4558	5183	5598	5809	6638	42.9	62.5	70	74.2	85.9	97.7	105.5	109.4	117.3	144.8	
	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	150.2	
	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	
	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	17.1	
	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	104.3	
	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	102.5	
	53.5	13.84	3801	5536	6227	6668	7601	8644	9336	9677	11071	37.5	54.7	62	64.9	75.1	85.4	92.2	95.6	102.5	138.4	

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

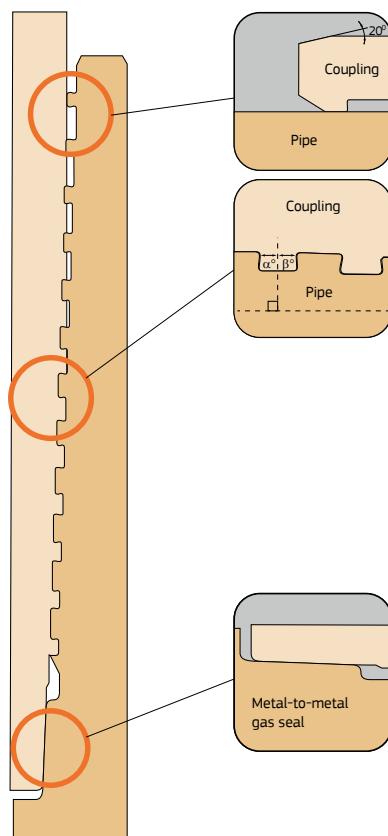
Torque series

■ Threaded connection

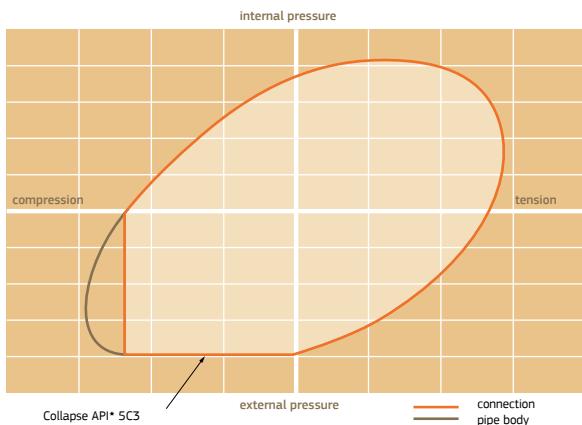
TMK UP MOMENTUM GT



TMK UP
MOMENTUM
GT



TMK UP MOMENTUM GT Performance Envelope



TMK UP MOMENTUM GT

TMK UP Momentum GT is a T&C 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)

Nominal pipe diameter in / mm	Pipe specific weight lb/ft / kg/m	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm		
4 1/2	11.6	6.35	16.91	-	-	2154	2657	2143	101,6	127	124,4	220	98,42		
	12.6	6.88	18.23	-	-	2322	2657	2143	100,54	127	124,4	220	97,36		
	13.5	7.37	19.44	-	-	2476	2657	2143	99,56	127	124,4	220	96,38		
	15.1	8.56	22.32	1.18	6.56	2844	3092	2578	97,2	127	124,4	270	94		
	17	9.65	24.9	1.2	8.82	5,52	3173	4129	2578	95	132,1	270	91,82		
	18.9	10.92	27.84	1.22	8.88	5,58	3547	4129	2578	92,5	132,1	270	89,28		
21.5	12.7	31.82	1.24	8.98	5,68	4054	4129	2578	88,9	132,1	124,4	270	87,72		
	15	7.52	22.16	1.44	8.59	6,28	2823	3953	2910	123,6	141,3	136,52	280	108,78	
5	12.7	18	9.19	26.7	1.48	8.64	6,36	3401	3953	2910	122	141,3	136,52	280	105,44
	20.3	10.36	29.81	1.5	8.72	6,44	3796	3953	2910	119	141,3	136,52	280	103,1	
5 1/2	17	7.72	25.13	1.64	9.21	6,82	3201	4339	3280	123,6	153,7	143,22	290	121,08	
	20	9.17	29.52	1.68	9.32	6,92	3760	4339	3280	122	153,7	149,22	290	118,18	
6 5/8	23	10.54	33.57	1.7	9.4	7	4277	4339	3280	119	153,7	149,22	290	115,44	
	20	7.32	29.06	1.44	13.16	7,38	3702	6340	3498	153,6	187,71	177,8	260	150,46	
6 5/8	24	8.94	35.13	1.44	13.32	7,54	4475	6340	3498	150,4	187,71	177,8	260	147,22	
	28	10.59	41.18	1.44	13.48	7,7	5246	6340	3498	147,1	187,71	177,8	260	143,92	
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		

Geometrical parameters of pipes with threaded connection TMK UP MOMENTUM GT

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Critical C/S area of coupling mm ²	Critical C/S area of coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
7	177.8	23	8.05	33.7	1.22	17.1	10.4	4293	7647	4574	161.7	200.03
		26	9.19	38.21	1.24	17.26	10.56	4868	7647	4574	159.4	200.03
9 5/8	244.48	29	10.36	42.78	1.26	17.42	10.7	5450	7647	4574	157.1	200.03
		32	11.51	47.2	1.28	17.56	10.86	6013	7647	4574	154.8	200.03
43.5	47	35	12.65	51.52	1.3	17.72	11	6563	7647	4574	152.5	200.03
		36	8.94	51.93	1.62	26.36	14.88	6615	11739	6482	226.6	269.88
40	10.03	40	10.03	57.99	1.64	26.58	15.1	7388	11739	6482	224.42	269.88
		43.5	11.05	63.61	1.66	26.76	15.28	8103	11739	6482	222.38	269.88
47	53.5	47	11.99	68.75	1.68	26.94	15.46	8757	11739	6482	220.5	269.88
		53.5	13.84	78.72	1.7	27.28	15.8	10028	11739	6482	216.8	269.88
40.5	45.5	40.5	8.89	51.91	-	-	-	7378	12973	7146	255.27	298.45
		45.5	10.16	65.87	-	-	-	8391	12973	7146	252.13	298.45
51	103/05	51	11.43	73.75	-	-	-	9394	12973	7146	250.19	298.45
		55.5	12.57	80.75	-	-	-	10286	13041	7213	247.91	298.45
60.7	65.7	60.7	13.84	88.47	-	-	-	11270	13041	7213	245.37	298.45
		65.7	15.11	96.12	-	-	-	12244	13041	7213	242.83	298.45

Nominal pipe diameter in	Pipe wall specific weight lb/ft	mm	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							
			379	552	621	655	758	802	931	966	1035	379	552	621	655	758	862	931	966	1035		
4 1/2	11.6	55	80	90	95	110	125	135	140	150	155	80	90	95	110	125	135	140	150	150		
		816	1189	1337	1411	1632	1856	2005	2080	2377	368	53.7	60	63.7	73.7	83.8	90.5	93.9	100.6	34.2	43.8	
		12.6	688	880	1282	1442	1521	1760	2001	2162	2243	2563	39.9	58.1	65	69	79.8	90.8	98.1	101.8	109	
		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	
		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	
	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	163.7	
		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	
		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	
		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	
		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	150.9
5	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	156.9	
		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	133.9
		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	145.6
		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	152.9
		20	7.32	1403	2043	2229	2424	2806	3191	3446	3576	4086	28.9	42	47	49.9	57.7	65.6	70.9	73.5	78.8	20.5
6 5/8	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
		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
		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

Strength characteristics of pipes with TMK UP MOMENTUM GT threaded connection

Nominal pipe diameter in	Pipe wall specific weight lb/ft	Pipe wall thickness mm	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																			
7	8.05	621	655	758	802	931	966	1035	379	552	621	655	758	862	931	966	1035													
	23	55	80	95	110	125	140	150	55	80	95	110	125	135	140	150														
7	9.19	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	32.8	33			
	26	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	47.4			
7	177.8	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	3839	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	
7	12.65	35	4247	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	
	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	
9 5/8	43.5	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
	47	11.90	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
9 5/8	244.48	53.5	13.64	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
	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	
10 3/4	273.05	65.7	15.11	4641	6759	7604	8020	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	

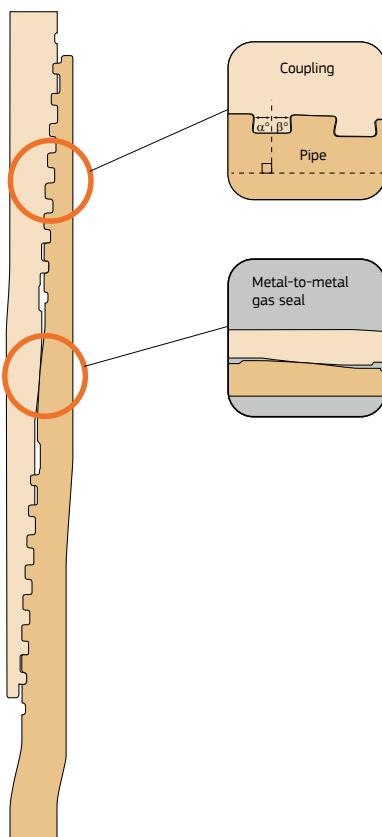
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Torque series

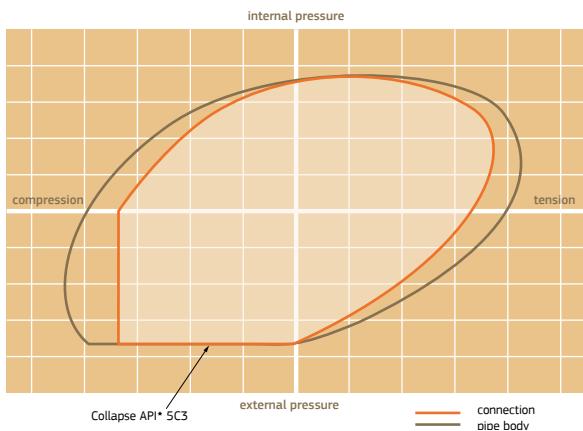
■ Threaded connection

TMK UP MOMENTUM SFL





TMK UP MOMENTUM SFL
Performance Envelope



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 T&C 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

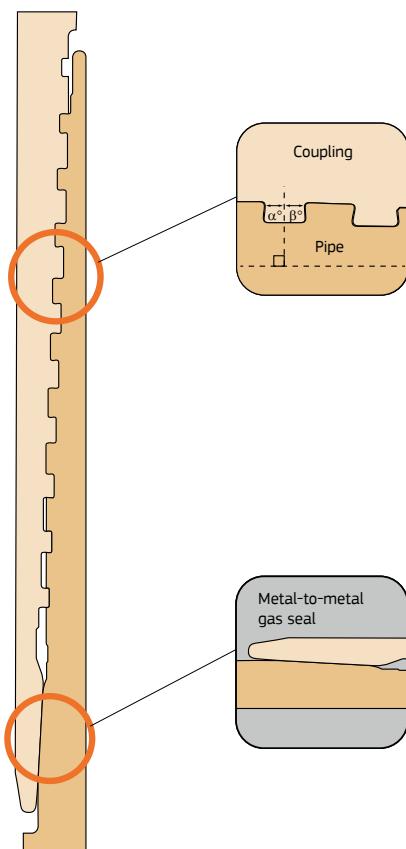
Torque series

■ Threaded connection

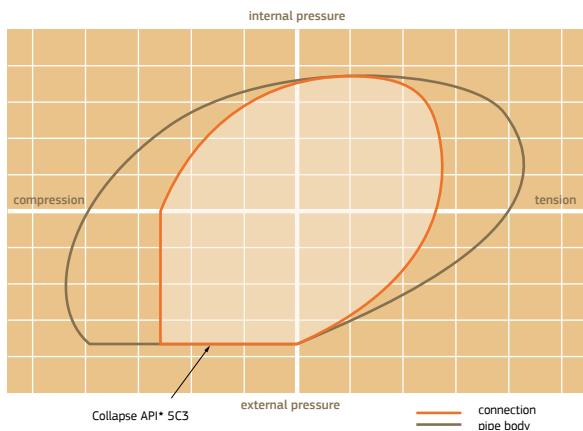
TMK UP MOMENTUM FL



TMK UP
MOMENTUM
FL



TMK UP MOMENTUM FL Performance Envelope



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:

- 60%** compression efficiency
- 60%** 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



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 efficiencies 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.***

PRO
SERIES

TMK UP PF



TMK UP PF ET



TMK UP CENTUM



TMK UP CENTUM ET



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

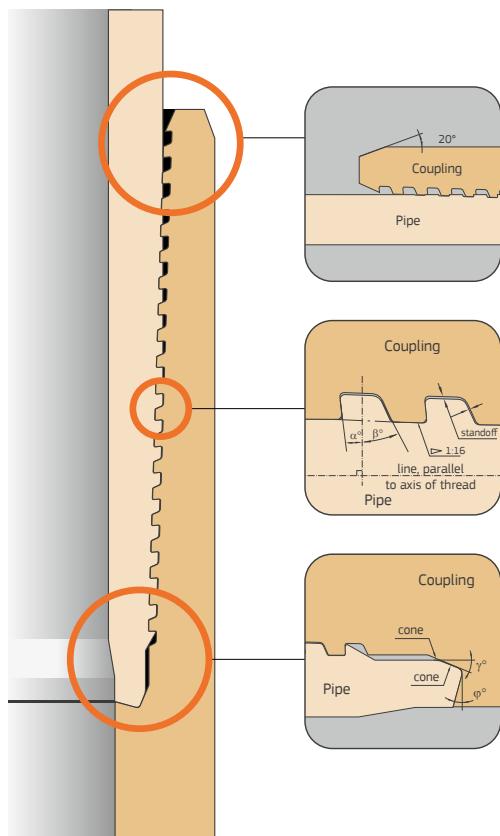
Pro Series

■ Threaded connection
TMK UP PF

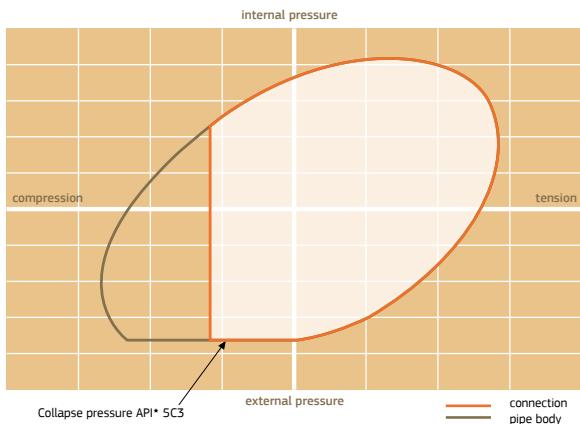


TMK
UP

Certificated at the level
of ISO 13679 CAL IV



TMK UP PF casing and tubing Performance Envelope



TMK UP PF for Casing

TMK UP PF is a premium threaded and coupled casing and tubing connection for highly deviated directional wells. Provides high performance in complex drilling environments (significant bending, compressive, tensile loads, torque, aggressive applications), and ensures gas tightness. The high reliability of this connection is confirmed by ISO 13679 CAL IV qualification.

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
- 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

Nominal pipe diameter	Pipe wall specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight	Pipe crosssection area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
in	lb/ft	mm	kg/m	kg	kg	mm ²	mm ²	mm ²	mm	mm	mm	mm	mm
2 3/8	60,32	4,60	4,83	0,13	2,00	-	842	1313	689	49,70	73,02	66,20	165,00
		5,80	6,45	0,13	2,03	-	1,092	1313	689	46,50	73,02	66,20	165,00
2 7/8	73,02	6,60	7,49	0,13	2,05	-	1,243	1313	689	45,20	73,02	66,20	165,00
		7,35	8,53	0,14	2,06	-	1,388	1313	689	44,20	73,02	66,20	165,00
3 1/2	88,90	6,40	5,51	0,17	3,33	2,25	1,169	2058	1288	61,20	88,90	83,20	180,00
		7,80	7,01	0,17	3,39	2,30	1,454	2058	1288	58,00	88,90	83,20	180,00
4	101,60	8,60	7,82	0,18	3,41	2,32	1,602	2058	1288	57,50	88,90	83,20	180,00
		9,35	8,64	0,19	3,42	2,34	1,747	2058	1288	56,70	88,90	83,20	180,00
10,50	11,50	9,96	15,49	0,21	3,45	2,36	1,973	2058	1288	55,40	88,90	83,20	180,00
		11,18	17,05	0,23	3,49	2,40	2,172	2058	1288	53,60	88,90	83,20	180,00
14,30	16,10	7,70	5,49	0,25	5,33	2,82	1,439	3058	1435	77,00	108,00	98,10	200,00
		9,20	6,45	0,25	5,40	2,88	1,671	3058	1435	75,00	108,00	98,10	200,00
17,00	18,20	7,34	14,76	0,25	5,42	2,91	1,881	3058	1435	73,80	108,00	98,10	200,00
		9,52	18,64	0,29	5,49	2,98	2,374	3058	1435	71,70	108,00	98,10	200,00
20,00	21,00	10,92	10,92	0,32	5,55	3,04	2,675	3058	1435	69,90	108,00	98,10	200,00
		12,09	22,90	0,33	5,62	3,10	2,917	3058	1435	67,80	108,00	98,10	200,00
25,04	35,33	13,46	25,04	0,34	5,69	3,17	3,190	3058	1435	65,40	108,00	98,10	200,00
		5,74	13,57	0,35	5,88	3,11	1,729	3533	1768	89,70	120,70	111,00	200,00
35,33	35,33	6,50	15,24	0,35	5,92	3,15	1,942	3533	1768	87,70	120,70	111,00	200,00
		6,65	15,57	0,35	5,92	3,15	1,984	3533	1768	87,70	120,70	111,00	200,00
35,33	35,33	8,38	19,27	0,37	5,96	3,19	2,454	3533	1768	85,00	120,70	111,00	200,00
		13,20	23,67	0,42	6,01	3,24	3,015	3533	1768	82,90	120,70	111,00	200,00

Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm		
4 1/2	114.30	8.56 HKT (lubing)	22.32	0.55	7.81	4.85	2 844	3 780	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	2 743	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	3 780	2210	94.00	132.10	124.30	240.00	91.82	103.60
	18.80	10.92	27.84	0.58	7.90	4.94	3 547	3 780	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	3 780	2210	91.60	132.10	124.30	240.00	85.72	103.60
	15.00	7.52	22.16	0.65	7.40	5.36	2 823	3 426	2378	111.10	141.30	136.52	250.00	108.78	106.70
	18.80	9.19	26.70	0.69	7.45	5.41	3 401	3 426	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	3 426	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	3 426	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	3 426	2378	105.50	141.30	136.52	250.00	98.42	106.70
5	127	6.98	22.85	0.75	8.51	6.31	2 910	3 701	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	3 701	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	3 701	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	3 701	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	3 701	2631	118.40	153.67	149.22	265.00	112.34	108.30
5 3/4	16.14	7	24	0.8	11.88	6.66	3 058	5 387	2858	130.4	166	156	265	128.87	108.3
	17.68	7.7	26.27	0.8	11.98	6.76	3 347	5 387	2858	130.4	166	156	265	127.47	108.3
	19.62	8.5	28.83	0.82	12.1	6.88	3 673	5 387	2858	128.8	166	156	265	125.87	108.3
	21.51	9.5	31.99	0.82	12.26	7.02	4 075	5 387	2858	126.8	166	156	265	123.87	108.3
	24.01	10.7	35.71	0.84	12.42	7.2	4 550	5 387	2858	124.4	166	156	265	121.47	108.3

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Geometrical parameters of pipes with threaded connection TMK UP PF

TMK UP PF

Nominal pipe diameter	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	Inside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
in	mm	lb/ft	kg/m	kg	mm ²	mm ²	mm	mm	mm	mm	mm
6 5/8	20.00	7.32	29.06	0.99	14.20	8.06	3702	6082	3240	152.30	187.71
	21.25	8.00	31.62	0.99	14.32	8.18	4.028	6082	3240	150.90	187.71
	24.00	8.94	35.13	1.00	14.41	8.27	4.475	6082	3240	149.90	187.71
	28.00	10.59	41.18	1.08	14.50	8.36	5.246	6082	3240	148.90	187.71
	32.00	12.06	46.46	1.20	14.55	8.41	5.919	6082	3240	148.30	187.71
	23.00	8.05	33.70	1.15	16.71	8.36	4.293	7356	3493	160.90	200.03
	26.00	9.19	38.21	1.19	16.79	8.44	4.868	7356	3493	159.90	200.03
	29.00	10.36	42.78	1.25	16.86	8.52	5.450	7356	3493	158.90	200.03
	32.00	11.51	47.20	1.32	16.94	8.59	6.013	7356	3493	157.90	200.03
	35.00	12.65	51.52	1.39	17.03	8.69	6.563	7356	3493	156.70	200.03
7	38.00	13.72	55.52	1.39	17.21	8.86	7.072	7356	3493	154.40	200.03
	42.70	15.88	63.41	1.46	17.51	9.16	8.078	7356	3493	150.60	200.03
	46.40	17.45	69.01	1.51	17.72	9.38	8.791	7356	3493	147.80	200.03
	26.40	8.33	38.08	1.39	19.91	12.55	4.851	8077	4919	176.30	215.90
	29.70	9.52	43.24	1.44	20.01	12.65	5.508	8077	4919	175.30	215.90
	33.70	10.92	49.22	1.53	20.12	12.76	6.270	8077	4919	174.30	215.90
	39.00	12.70	56.68	1.65	20.32	12.96	7.221	8077	4919	172.40	215.90
	42.80	14.27	63.14	1.69	20.62	13.26	8.043	8077	4919	169.50	215.90
	45.30	15.11	66.54	1.71	20.79	13.43	8.477	8077	4919	167.90	215.90
	51.20	17.45	75.84	3.84	22.40	19.30	9.661	8077	4919	158.78	215.90
7 5/8	55.30	19.05	82.04	3.88	22.60	19.48	10.451	8077	4919	155.58	215.90
	55.30	19.05	82.04	3.88	22.60	19.48	10.451	8077	4919	212.09	297.00

Geometrical parameters of pipes with threaded connection TMK UP PF

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
					Regular	Special								
8 5/8	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
	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
	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
	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
	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
	36.00	8.94	51.93	1.91	27.69	15.44	6 615	11510	6233	226.90	269.88	257.18	297.00	222.63
9 5/8	40.00	10.03	57.99	1.98	27.80	15.55	7 388	11510	6233	225.90	269.88	257.18	297.00	220.45
	43.50	11.05	63.61	2.06	27.91	15.65	8 103	11510	6233	224.90	269.88	257.18	297.00	218.41
	47.00	11.99	68.75	2.13	28.02	15.76	8 757	11510	6233	223.90	269.88	257.18	297.00	216.53
	53.50	13.84	78.72	2.29	28.27	16.02	10 028	11510	6233	221.60	269.88	257.18	297.00	212.83
	58.40	15.11	85.47	2.33	28.54	16.28	10 888	11510	6233	219.20	269.88	257.18	297.00	210.29
	62.80	15.88	92.01	2.52	30.27	-	11 721	12433	-	225.50	276.00	-	297.00	215.10
9 7/8	66.40	16.79	96.91	2.55	30.48	-	12 345	12433	-	224.60	276.00	-	297.00	213.28
	72.10	18.29	104.89	2.60	30.83	-	13 362	12433	-	223.10	276.00	-	297.00	210.28
	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
	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
	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
	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
10 3/4	60.70	13.84	88.47	2.56	31.02	17.44	11 270	12795	6968	255.80	298.45	285.75	297.00	241.40
	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
	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

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Nominal pipe diameter	in	Pipe wall thickness	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight Regular kg	Coupling weight Special kg	Pipe crosssection area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
11 3/4	42	8.46	60.5	2.28	33.35	-	7 707	13941	-	281	323.85	-	297	277.55	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	267.35	129
	71	14.78	103.4	2.92	34.19	-	13 172	13941	-	274.5	323.85	-	297	264.92	129
11 7/8	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
	50.89	9.5	73.65	2.62	38.45	-	9 382	16048	-	306.2	351	-	297	300.88	129
12 3/4	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	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
339.72	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

Strength characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	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			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi												
4.60	4.83	319	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035											
5.80	6.45	414	603	678	715	827	941	1016	1054	1130	709	103.3	116.2	122.6	141.8	161.3	174.2	180.8	193.7	111.5	123.7	131.5	135.4	142.8						
6.60	7.49	471	686	772	814	942	1072	1157	1201	1287	824	119.9	134.9	142.3	164.7	187.3	202.3	229.9	244.9	82.5	120.1	135.1	142.6	155.1	164.7	177.9	184.5	197.7		
7.35	8.53	498	725	815	850	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		
6.40	5.51	443	645	726	765	886	1007	1088	1129	1210	500	72.9	82.0	86.5	100.1	113.8	122.9	142.7	163.7	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	1668	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	11445	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		
7.70	5.49	545	793	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	69.0	71.2	72.7	75.6	77.0	79.5				
9.20	6.45	633	922	1038	1266	1440	1555	1614	1729	1811	48.1	70.1	78.8	83.2	96.2	109.4	118.2	122.7	131.4	51.1	72.7	83.6	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		
3.1/2	8.80	1270	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		
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	54.4	48.8	50.4	54.5	57.8	59.5	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	65.1	72.5	78.7	82.4	84.1	87.2		
4	10.160	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	3211	68.8	100.2	112.7	118.9	137.6	160.9	175.4	187.9	20.6	102.6	115.5	121.9	141.1	160.4	173.2	179.6	192.5		

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Nominal pipe diameter	Pipe wall specific weight	in	lb/ft	mm	Yield Strength in Tension, kN				Minimum Internal Yield Pressure, kN				Collapse Pressure, MPa								
					Minimum yield strength MPa/ksi				Minimum yield strength MPa/ksi				Minimum yield strength MPa/ksi								
4 1/2	856 HKT (tubing)	3.79	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035		
		5.5	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150		
		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	
		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	
		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	116.8	
		15.20	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	135.6	
		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	135.6	
		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	
		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	173.0	
		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	
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	
		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	
		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	158.3	
		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	171.3	
		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	179.1	
		15.50	6.98	1103	1607	1807	1906	2206	2509	2710	3012	3311	48.3	54.3	57.3	66.3	75.4	81.4	84.5	90.5	
		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	100.1	
		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	118.9	
		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	136.7	
		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	
5 1/2	139.7	16.14	7	1159	1688	1899	2003	2318	2636	2847	3165	318.4	46.3	52.1	54.9	63.6	72.3	78.1	81	86.8	
		17.68	7.7	1268	1847	2078	2192	2537	2885	3116	3233	3464	35	50.9	57.3	60.4	69.9	75.5	89.1	95.5	103.5
		23.00	10.54	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	
		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	
		29.00	13.62	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	
5 3/4	146.05	17.68	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	105.4	127.2
		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	117.8	145
		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

Strength characteristics of pipes with TMK UP PF threaded connection

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Yield Strength in Tension, kN						Minimum Internal Yield Pressure, kN						Collapse Pressure, MPa														
			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi														
20,00	7.32	14,03	2,043	2,299	24,24	2,806	3,191	3,446	3,576	3,831	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	15,27	2,224	2,502	2,639	3,043	3,472	3,750	3,891	4,169	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	16,96	2,470	2,779	2,931	3,392	3,858	4,166	4,323	4,632	35,2	51,3	57,7	60,9	70,5	80,1	86,6	90,2	96,2	31,4	39,7	42,3	43,5	46,4	48,4	49,3	49,5	50,6	
28,00	10,59	19,88	2,896	3,258	3,436	3,977	4,422	4,884	5,068	5,330	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	22,43	3,267	3,676	3,877	4,486	5,102	5,510	5,718	6,126	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	
23,00	8,05	16,27	2,370	2,666	2,812	3,254	3,701	3,997	4,147	4,443	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	18,45	2,687	3,023	3,189	3,690	4,196	4,532	4,702	5,038	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	20,65	3,008	3,384	3,570	4,131	4,698	5,074	5,264	5,640	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	22,79	3,319	3,734	3,939	4,558	5,183	5,598	5,809	6,223	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	24,87	3,623	4,076	4,299	4,975	5,558	6,110	6,340	6,793	47,2	68,7	77,3	81,6	94,4	102,3	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	26,80	3,904	4,392	4,632	5,361	6,096	6,584	6,832	7,320	51,2	74,5	83,9	88,5	102,9	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	27,88	4,061	4,568	4,818	5,576	6,341	6,848	7,106	7,613	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	27,88	4,061	4,568	4,818	5,576	6,341	6,848	7,106	7,613	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	
26,40	8,33	18,38	2,677	3,012	3,177	3,677	4,181	4,516	4,686	5,020	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	20,87	3,040	3,420	3,608	4,175	4,748	5,128	5,321	5,701	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	23,76	3,461	3,894	4,107	4,753	5,405	5,837	6,057	6,489	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	27,37	3,986	4,484	5,070	5,473	6,224	6,723	6,975	7,474	43,5	63,3	71,3	75,2	87,0	98,9	106,8	118,8	131,6	50,8	66,3	69,0	76,4	83,2	87,3	89,2	92,7		
42,80	14,27	30,48	4,440	4,995	5,268	6,097	6,633	7,035	7,488	7,770	8,235	48,9	71,2	80,1	84,5	97,1	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	30,61	4,459	5,016	5,290	6,122	6,662	7,520	7,802	8,360	51,7	75,4	84,8	89,4	103,5	111,7	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	30,61	4,459	5,016	5,290	6,122	6,662	7,520	7,802	8,360	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	30,61	4,459	5,016	5,290	6,122	6,662	7,520	7,802	8,360	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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Nominal pipe diameter	Pipe wall specific weight	Pipe wall thickness	Yield Strength in Tension, kN						Minimum Internal Yield Pressure, kN						Collapse Pressure, MPa					
			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi		
in	lb/ft	mm	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
8 5/8	40,00	8.94	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
9 5/8	43,50	11,43	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
9 7/8	62,80	15,88	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
10 3/4	65,70	15,11	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150
10 3/4	73,20	17,07	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150

Strength characteristics of pipes with TMK UP PF threaded connection

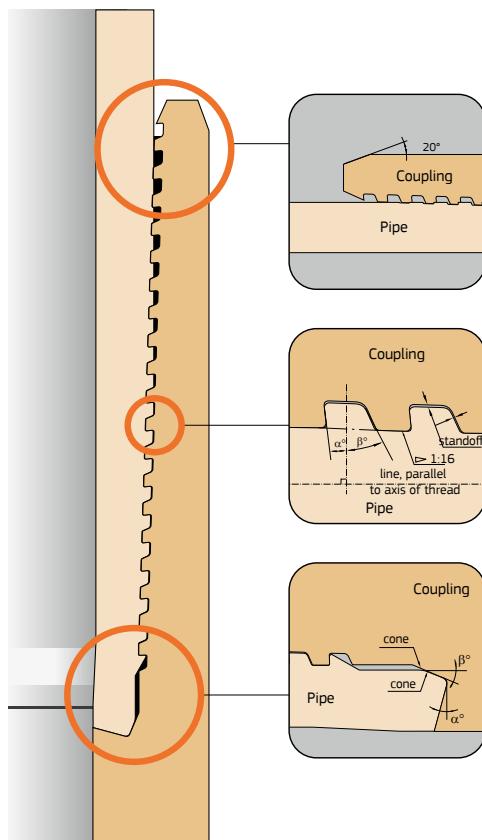
Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Yield Strength in Tension, kN						Minimum Internal Yield Pressure, kN						Collapse Pressure, MPa															
			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi												
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	7.9	8.0	8.1	8.2	8.3	8.4	8.5			
47.00	9.52	3275	4770	5366	5660	6550	7449	8046	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	9884	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		
67.90	13.97	4785	6369	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		
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	8.8	8.9	9.0	9.1	9.2			
12 3/4	323.85	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	13.7	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		
54.50	9.65	3792	5524	6214	6554	7585	8826	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	8.1	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	10.9	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	8729	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	21.3	39.8	44.8	47.2	54.7	62.2	67.1	69.7	74.6	17.9	21.5	22.7	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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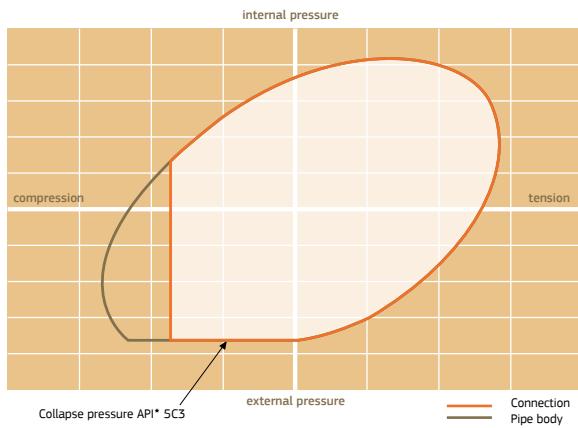
Pro Series

■ Threaded connection
TMK UP PF ET





TMK UP PF ET Performance Envelope



TMK UP PF ET

TMK UP PF ET – threaded and coupled premium connection of casing pipes for deep directional wells with large step out and extended horizontal areas. 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 with negative load flank
- 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

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Coupling weight		Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Drift diameter mm	Coupling length mm	Length makeup loss mm		
				Regular	Special										
4 1/2	114,30	6,35	16,91	0,54	5,82	4,62	2 154	2 743	2 112	100,10	127,00	123,82	245,00	98,42	103,60
		13,50	19,44	0,54	5,97	4,76	2 476	2 743	2 112	98,10	127,00	123,82	245,00	96,38	103,60
5	127,00	8,56	22,32	0,55	6,08	4,87	2 844	3 760	2 210	95,70	127,00	123,82	245,00	94,00	103,60
		15,00	7,52	22,16	0,65	7,44	5,39	2 823	3 426	2 378	110,50	141,30	136,32	250,00	108,78
5 1/2	139,70	9,19	26,70	0,66	7,61	5,56	3 401	3 426	2 378	107,10	141,30	136,32	250,00	105,44	106,70
		11,10	31,73	0,67	7,81	5,76	4 042	3 426	2 378	103,30	141,30	136,32	250,00	101,62	106,70
6 5/8	168,28	12,14	34,39	0,68	7,91	5,86	4 381	3 426	2 378	101,20	141,30	136,32	250,00	99,54	106,70
		12,70	35,80	0,69	7,97	5,92	4 560	3 426	2 378	100,10	141,30	136,32	250,00	98,42	106,70
7	177,00	6,98	22,85	0,74	8,64	6,44	2 910	3 701	2 631	124,20	153,67	149,22	265,00	122,56	108,30
		9,17	25,13	0,74	8,75	6,55	3 201	3 701	2 631	122,80	153,67	149,22	265,00	121,08	108,30
8	200,00	10,54	33,57	0,76	9,17	6,97	4 277	3 701	2 631	119,90	153,67	149,22	265,00	118,18	108,30
		12,09	38,05	0,78	9,4	7,20	4 847	3 701	2 631	117,10	153,67	149,22	265,00	115,44	108,30
9	212,25	7,32	29,06	0,99	14,22	8,08	3 702	6 082	3 240	151,90	187,71	177,80	265,00	150,46	113,90
		8,00	31,62	0,99	14,35	8,21	4 028	6 082	3 240	150,60	187,71	177,80	265,00	149,10	113,90
10	230,00	8,94	35,13	1	14,52	8,38	4 475	6 082	3 240	148,70	187,71	177,80	265,00	147,22	113,90
		10,59	41,18	1,02	14,82	8,67	5 246	6 082	3 240	145,40	187,71	177,80	265,00	143,92	113,90
11	240,00	46,46	10,04	15,08	8,94	5 919	6 082	3 240	142,50	187,71	177,80	265,00	140,98	113,90	

Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter	in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Pipe crosssection area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
						Regular	Special								
7	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
	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
7 5/8	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
	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
8 5/8	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	6.688	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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Nominal pipe diameter	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends)		Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm		
				Regular	Special											
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	222.83	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
		43.30	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
		53.30	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
		80.50	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
10 3/4	273.05	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	13 277	12795	6968	236.90	298.45	285.75	297.00	234.94	129.00

Geometric parameters of pipes with threaded connection TMK UP PF ET

Nominal pipe diameter	in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Special Regular	Pipe crossover area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
11 3/4	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
11 7/8	71,00	14,78	103,40	2,43	35,27	-	13 172	13941	-	266,90	323,85	-	297,00	264,92	129,00
	67,90	13,97	99,10	2,43	34,48	-	12 825	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	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
13 3/8	72,87	14,00	106,98	2,63	40,22	-	13 628	16048	-	293,90	351,00	-	297,00	291,88	129,00
	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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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	lb/ft	mm	379	552	621	655	758	882	931	966	1035
			55	80	90	95	110	125	140	150	155
4 1/2	11.60	6.35	816	1189	1337	1411	1632	1856	2005	2080	2229
11.50	7.37	938	1367	1537	1622	1877	2134	2305	2392	2562	42.8
15.10	8.56	1078	1750	1766	1863	2155	2451	2647	2943	49.7	72.3
5	127.00	15.00	7.52	1070	1558	1753	1849	2140	2433	2628	2727
		18.00	9.19	1289	1878	2112	2228	2578	3167	3286	3520
5 1/2	139.70	21.40	11.10	1298	1891	2128	2244	2597	2953	3190	3310
		23.20	12.14	1298	1891	2128	2244	2597	2953	3190	3310
		24.10	12.70	1298	1891	2128	2244	2597	2953	3190	3310
		15.50	6.98	1103	1607	1807	1906	2206	2509	2710	3012
		17.00	7.72	1213	1767	1988	2097	2426	2759	2980	3092
		20.00	9.17	1403	2043	2298	2424	2805	3190	3446	3575
		23.00	10.54	1403	2043	2298	2424	2805	3190	3446	3575
		26.00	12.09	1403	2043	2298	2424	2805	3190	3446	3575
		20.00	7.32	1403	2043	2299	2424	2806	3191	3446	3576
		21.25	8.00	1527	2224	2502	2639	3053	3472	3750	3891
6 5/8	168.28	24.00	8.94	1696	2470	2779	2931	3392	3858	4166	4233
		28.00	10.59	1988	2896	3258	3436	3977	4522	4884	5068
		32.00	12.06	2243	3267	3676	3877	4486	5102	5510	5718

Strength 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/kpsi						Collapse Pressure, MPa/ksi														
			Minimum yield strength MPa/kpsi			Minimum yield strength MPa/kpsi			Minimum yield strength MPa/kpsi			Minimum yield strength MPa/kpsi			Minimum yield strength MPa/kpsi			Minimum yield strength MPa/kpsi											
in	lb/ft	mm	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	155	80	90	110	125	135	140	150	155	160									
20.00	6.91	1406	2048	2304	2430	2812	3198	3454	3584	3840	3875	422	445	516	586	633	657	704	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	300	43.7	49.2	56.2	68.3	73.8	82.0	22.5	26.4	34.7	28.6	30.6	32.0	32.6	32.8	33.0			
7	17.78	9.19	1845	2887	3023	3189	3690	4196	4532	4702	5038	34.3	49.1	56.2	68.6	78.0	84.2	87.4	93.6	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	105.6	37.3	48.4	66.3	54.0	58.8	62.8	65.0	67.5		
33.00	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	50.4	82.0	67.6	74.4	81.3	85.2	87.0		
35.00	12.65	2487	3423	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	
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	21.7		
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	24.9	27.0	27.9	28.1	28.2		
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		
7 5/8	193.68	33.70	10.92	2376	3461	3894	4107	4753	5405	5837	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	59.6	
		39.00	12.70	2737	3886	4484	4730	5473	6224	6723	6975	74.7	43.5	63.3	71.3	75.2	87.0	98.9	106.8	110.8	118.8	55.6	60.8	66.3	69.0	76.4	83.2	87.3	89.2
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	131.9	141.3	154.6	79.4	89.3	106.5	117.9	125.3	128.8	135.7			
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	14.9	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	23.7	23.8	23.9			
36.00	10.16	2527	3881	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	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		
44.00	12.70	3121	4445	5113	5333	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	56.1	61.9	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	117.0	144.5	59.1	64.4	67.0	74.1	80.4	84.1	85.8	89.1		

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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	802	931	966	1035	379	552	621	655	758	802	931	966	1035						
244,48	36.00	8.94	55	379	552	621	655	758	802	931	966	1035	379	552	621	655	758	802	931	966	1035						
	40.00	10.03	3652	4108	4333	5014	5702	6159	6384	6847	743.3	39.7	41.9	48.5	55.2	59.6	61.8	66.2	14.0	16.4	17.0	17.1	17.2	17.3	17.4		
	43.50	11.05	3071	4473	5032	5308	6142	6995	7544	7820	8387	30.0	43.7	49.1	51.8	60.0	68.2	73.6	76.3	81.9	22.3	22.4	23.9	24.3	24.4	24.5	
	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	37.7	
	53.50	13.84	3801	5336	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	
	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	
	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	
	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	84.7	95.1	
	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	
	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
9 / 8	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
	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	93.5
	72.10	18.29	4712	6863	7721	8144	9424	10717	11575	11998	12868	48.4	70.4	83.6	96.7	110.0	118.8	123.1	132.1	151.2	73.3	80.5	84.0	94.1	103.7	109.7	112.6
	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	12.1	12.2	12.3	12.4
	45.50	10.16	3180	4432	5211	5406	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	17.5	17.7
10 3 / 4	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	22.3	24.0	25.2	25.8	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	34.7
	60.70	13.84	4271	6521	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	37.6	38.5	40.5	41.9	43.4	44.0
	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	24.0	43.5	46.6	48.0	51.7	54.6	56.0
	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	79.4

Strength 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/ksi						Collapse Pressure, MPa/ksi														
			379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035									
in	lb/ft	mm	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150									
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	51.3	77	7.9	8.0	8.2	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	42.8	48.1	52.0	53.9	57.8	10.4	10.5	10.6	10.7	10.8	11.0	11.1	11.2		
54.00	11.05	3781	5071	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	17.7	17.8	17.9	18.0	18.1		
60.00	12.42	4230	6161	6931	7310	8400	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		
65.00	13.56	4600	6699	7537	7949	9199	10622	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	9884	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	
76.90	13.97	4785	6669	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	
80.63	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
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	9.0	9.1	9.2		
123/4	58.78	11.00	4097	5568	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	13.7	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	7823	8463	8926	10330	11747	12688	13165	14105	28.7	41.8	47.0	49.6	57.3	55.2	70.4	73.1	78.3	20.2	23.7	25.2	25.8	27.4	28.3	28.5	28.6	28.7	
54.50	9.65	3793	5824	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	8.1	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	56.3	58.2	10.6	16.7	10.8	10.9	11.0	11.1	11.2	11.3		
68.00	12.19	4754	6824	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	16.0	16.1	16.2	16.3	16.4	16.5	16.6		
73.3/8	72.00	13.06	5080	7398	8323	8779	10159	11553	12478	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

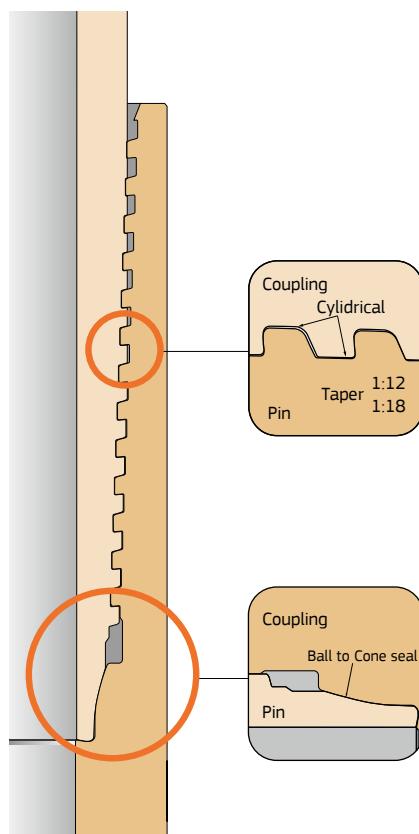
■ Threaded connection

TMK UP CENTUM

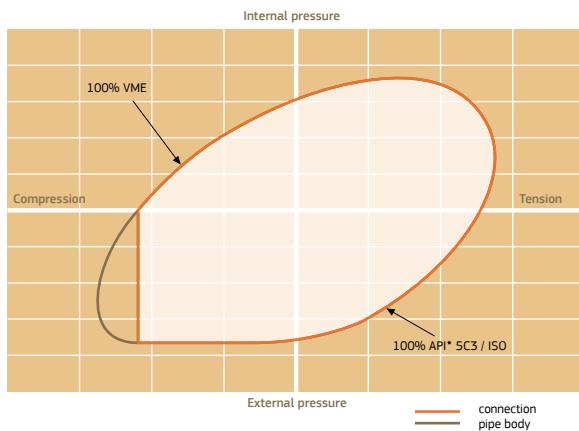


TMK UP
CENTUM

Tested and validated under
ISO 13679 CAL IV



TMK UP CENTUM Performance Envelope



TMK UP Centum

TMK UP CENTUM is a recently developed threaded and coupled quick-assembly premium connection of casing and tubing strings for ultradeep controlled directional wells with large step out and extended horizontal areas. It provides high gas tightness under particularly difficult operating conditions (extreme bending, compressive, tensile loads and high torque). 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 with negative load flank
- 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

TMK UP CENTUM

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Length makeup loss mm
					Standard	Special						
2 3/8	4,60	4,83	6,61	0,13	2,06	-	842	1348	-	49,7	73	-
	5,80	6,45	8,57	0,13	2,10	-	1 092	1348	-	47,9	73	-
	6,60	7,49	9,76	0,14	2,12	-	1 243	1348	-	46,8	73	-
	7,35	8,53	10,89	0,14	2,14	-	1 388	1348	-	45,7	73	-
	6,40	5,51	9,17	0,18	3,30	2,20	1 169	2 095	1 325	61,5	88,9	83,2
2 7/8	7,80	7,01	11,41	0,18	3,34	2,26	1 454	2 095	1 325	59,8	88,9	83,2
	8,60	7,82	12,57	0,18	3,36	2,28	1 602	2 095	1 325	58,9	88,9	83,2
	9,35	8,64	13,72	0,18	3,38	2,30	1 747	2 095	1 325	58	88,9	83,2
	10,50	9,96	15,49	0,18	3,42	2,32	1 973	2 095	1 325	56,7	88,9	83,2
	11,50	11,18	17,05	0,18	3,44	2,36	2 172	2 095	1 325	55,5	88,9	83,2
3 1/2	7,70	5,49	11,29	0,36	5,46	3,80	1 439	3 142	1 540	76,6	108	98,1
	9,20	6,45	13,12	0,37	5,50	3,82	1 671	3 142	1 540	75,1	108	98,1
	10,20	7,34	14,76	0,37	5,52	3,84	1 881	3 142	1 540	74,1	108	98,1
	12,70	9,52	18,64	0,47	5,58	3,90	2 374	3 142	1 540	71,7	108	98,1
	14,30	10,92	21,00	0,47	5,60	3,92	2 675	3 142	1 540	70,2	108	98,1
4	15,50	12,09	22,90	0,38	5,64	3,96	2 917	3 142	1 540	69	108	98,1
	17,00	13,46	25,04	0,38	5,66	4,00	3 190	3 142	1 540	67,5	108	98,1
	9,50	5,74	13,57	0,42	6,12	3,22	1 729	3 557	1 792	88,8	120,7	111
	10,70	6,65	15,57	0,43	6,14	3,26	1 984	3 557	1 792	87,6	120,7	111
	13,20	8,38	19,27	0,44	6,20	3,30	2 454	3 557	1 792	85,7	120,7	111
16,10	10,54	23,67	0,44	6,24	3,36	3 015	3 557	1 792	83,3	120,7	111	95

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter	Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Coupling weight		Critical C/S area of coupling	Critical C/S area of special coupling	Outside diameter of coupling	Outside diameter of special coupling	Coupling length	Length makeup loss
				Standard	Special						
in	lb/ft	mm	kg/m	kg	kg	kg	kg	mm	mm	mm	mm
4 1/2	114,3	11,60	6,35	16,91	0,30	5,39	4,21	2,154	2,696	2,069	100,4
		12,60	6,88	18,23	0,61	7,62	4,66	2,322	3,875	2,304	99,3
		13,50	7,37	19,44	0,31	5,47	4,29	2,476	2,696	2,069	98,4
		13,50	7,37 HKT	19,44	0,61	7,60	4,66	2,476	3,875	2,304	98,4
		15,10	8,56	22,32	0,31	5,57	4,39	2,844	2,696	2,069	96
		15,20	8,56 HKT	22,32	0,61	7,70	4,76	2,844	3,875	2,304	96
		17,00	9,65	24,90	0,61	7,70	4,76	3,173	3,875	2,304	96
		18,90	10,92	27,84	0,62	7,80	4,84	3,547	3,875	2,304	94,8
5 1/2	139,7	21,50	12,70	31,82	0,62	7,88	4,92	4,054	3,875	2,304	92,9
		17,00	7,72	25,13	0,88	10,36	5,24	3,201	5,089	2,466	122,2
		20,00	9,17	29,52	1,29	13,42	6,88	3,760	5,370	2,747	119,2
		23,00	10,54	33,57	1,29	13,60	7,06	4,277	5,370	2,747	116,4
		26,00	12,09	38,05	1,30	13,82	7,26	4,847	5,370	2,747	113,3
		26,80	12,70	39,78	1,31	13,88	7,34	5,067	5,370	2,747	112,1
		28,40	13,46	41,90	1,38	14,04	7,46	5,338	5,370	2,747	110,8
		20,00	7,32	29,06	1,02	11,94	6,38	3,702	5,796	2,951	151,5
6 5/8	168,28	24,00	8,94	35,13	1,53	15,80	8,70	4,475	5,979	3,134	148,2
		28,00	10,59	41,18	1,54	15,92	8,82	5,246	5,979	3,134	144,9
		32,00	12,06	46,46	1,55	16,04	8,94	5,919	5,979	3,134	142

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

TMK UP CENTUM

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Length makeup loss mm			
					Standard	Special									
7	177.8	32.00	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	4.888	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	33.70	10.92	49.22	1.98	20.32	12.44	6.270	7807	4650	172.5	215.9	206.38	320	152.5
		39.00	12.70	56.88	1.98	20.44	15.56	7.221	7807	4650	166.1	215.9	206.38	320	152.5
		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
		36.00	8.94	51.93	2.28	29.00	15.88	6.615	10904	5647	224.1	269.88	237.18	320	147
9 5/8	244.48	40.00	10.03	57.99	2.65	29.14	16.02	7.388	10904	5647	222	269.88	237.18	320	147
		43.50	11.05	63.61	3.59	30.24	17.12	8.103	12342	7085	219.9	269.88	237.18	320	155
		47.00	11.99	68.75	3.60	30.30	17.18	8.757	12342	7085	218	269.88	237.18	320	155
9 7/8	250.83	53.50	13.84	78.72	3.61	30.42	17.28	10.028	12342	7085	214.3	269.88	237.18	320	155
		62.80	15.88	92.01	5.77	32.30	26.10	11.721	14098	11525	216.6	276	269.88	310	149.4

Geometrical parameters of pipes with threaded connection TMK UP CENTUM

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Length makeup loss mm	
					Standard	Special									
10 3/4	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	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	54,50	9,65	78,35	3,43	38,40	-	10 007	15189	-	318	365,12	-	310	147,9	
	61,00	10,92	88,35	3,45	38,60	-	11 280	15189	-	315,4	365,12	-	310	147,9	
13 5/8	339,72	68,00	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

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Nominal pipe diameter	Pipe wall specific weight	Pipe wall thickness	Yield Strength in Tension, kN												Minimum Internal Yield Pressure, MPa															
			Minimum yield strength MPa/ksi												Minimum yield strength MPa/ksi															
			in	mm	lb/ft	mm	379	532	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035						
2 3/8	60.32	6.60	55	80	90	95	110	125	135	140	150	55	80	95	110	125	135	140	150	55	80	95	110	125	135	140	150			
2 7/8	73.02	6.60	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	-	135.5	135.4	142.8	
3 1/2	88.90	14.30	414	603	678	715	827	-	1016	1054	1130	70.9	103.3	111.6	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	
4	101.60	16.10	471	686	772	814	942	-	1157	1201	1287	82.4	119.9	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	853	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		
6.40	5.51	443	645	726	765	886	1007	1088	1129	1210	1500	72.9	82.0	86.5	100.1	113.8	122.9	136.7	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	149.1	1547	1658	71.0	103.5	116.4	128.8	142.1	161.6	174.5	181.0	194.0	72.6	105.6	125.4	145.2	165.0	178.1	184.7	197.9			
9.35	8.64	662	1085	1145	1235	1506	1688	1809	1875	194.5	178.5	192.8	200.0	214.3	292.4	315.2	329.6	349.2	129.6	155.2	178.4	180.0	194.4	201.6	215.9	215.9				
10.50	9.96	748	1089	1225	1292	1496	1701	1837	1905	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	214.3			
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	258.3	277.3	98.4	143.2	161.0	170.0	196.8	223.7	241.6	250.5			
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	56.8	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		
3 1/2	88.90	12.70	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	
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	224.6	229.9	246.3	89.2	129.7	145.9	154.0	178.4	202.7	217.0	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		
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		
4	101.60	13.20	838	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	93.5	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	-	160.0	176.4	187.9	70.6	102.6	115.5	121.9	141.1	-	173.2	179.6	192.5		

Strength 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		
4 1/2	11.60	6.35	784	1142	1285	1355	1568	1783	1926	-	36.8	53.7	63.7	73.7	83.8	90.5	-	34.2	43.8	47.0	48.4	52.3	55.2	56.7	-	
	12.60	6.98	838	1220	1372	1448	1675	-	2058	2135	2287	30.9	56.1	65.4	69.0	97.8	-	98.1	101.8	109.0	39.5	51.7	56.0	63.5	-	
	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
	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
	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	
	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	
	21.50	12.70	838	1220	1372	1448	1675	-	2058	2135	2287	75.7	107.3	120.0	127.4	147.4	-	181.0	187.8	201.3	75.0	109.0	122.7	149.9	-	
	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	-
5 1/2	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	3667	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	-
6 5/8	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	-
	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	4106	-	38.2	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	68.6	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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Nominal pipe diameter in	Pipe wall specific weight lb/ft	mm	Yield Strength in Tension, kN												Minimum Internal Yield Pressure, MPa	Collapse Pressure, MPa											
			Minimum yield strength MPa/ksi						Minimum yield strength MPa/ksi																		
			379	532	621	655	758	862	931	966	1035	379	552	621	655	758	862	931									
7	177.80	55	80	90	95	110	125	135	140	150	155	80	90	95	110	125	135	140	150								
		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	30.6	32.0	32.6	-	-
		26.00	9.19	1845	2687	30223	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	6534	-	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	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	-	
7 5/8	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	-	
7 5/8	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	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	-	
8 5/8	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	-	
8 5/8	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	36.00	8.94	2507	3652	4108	4333	5014	5702	6159	-	24.3	35.3	38.7	41.9	48.5	55.2	59.6	-	14.0	16.4	16.8	17.0	17.1	17.3	-	-	
9 5/8	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	-	
9 5/8	43.50	11.05	3071	4473	5032	5208	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	-	
9 7/8	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	-	
9 7/8	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	46.6	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	-

Strength 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		
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	12.0	12.1	12.2	-	-		
45.50	10.16	3180	4632	5211	5496	6233	7812	-	-	24.7	35.9	40.4	42.7	49.4	56.1	60.6	-	14.4	17.1	17.7	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	25.9	-		
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	9781	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		
72 3/4	50.89	5556	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	8.8	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		
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	8.1	8.2	8.3	-		
13 3/8	33.972	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	10.9	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	11533	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	
	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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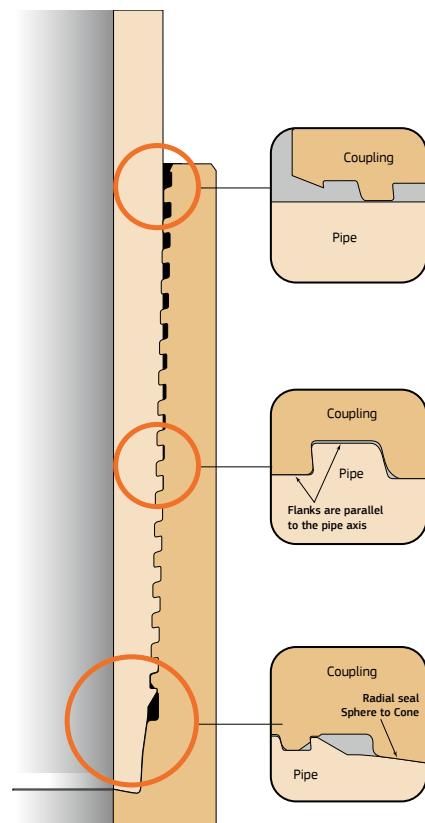
Pro Series

■ Threaded connection

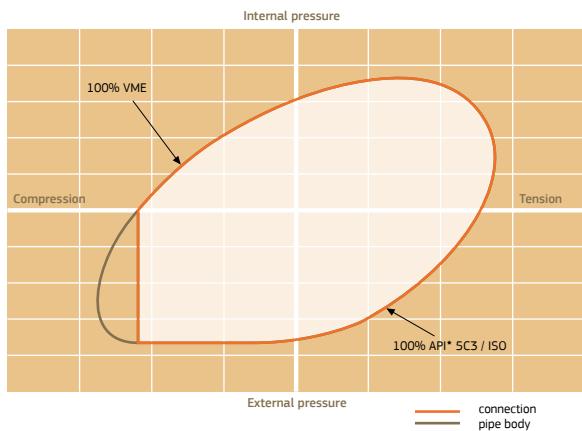
TMK UP CENTUM ET



TMK UP
CENTUM ET



TMK UP CENTUM ET Performance Envelope



TMK UP CENTUM ET

New generation premium gas-tight connection with increased torque. The performance characteristics of the TMK UP CENTUM ET connection, in addition to increased torque resistance relative to TMK UP CENTUM and gas tightness, provide 100% efficiency in both compression and tension. Tested and validated under API* 5C5 CAL IV.

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

Application:

- Casing and tubing
- Deviated and horizontal wells
- Gas and oil wells
- RIH with rotation
- Cementing with rotation



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 high loads.***

TMK UP SIMPLEX



TMK UP CWB



TMK UP CWB II



TMK UP MAGNA



LITE
SERIES

*** AII Characteristics are based on the results of connection tests in an accredited laboratory and mathematical modeling

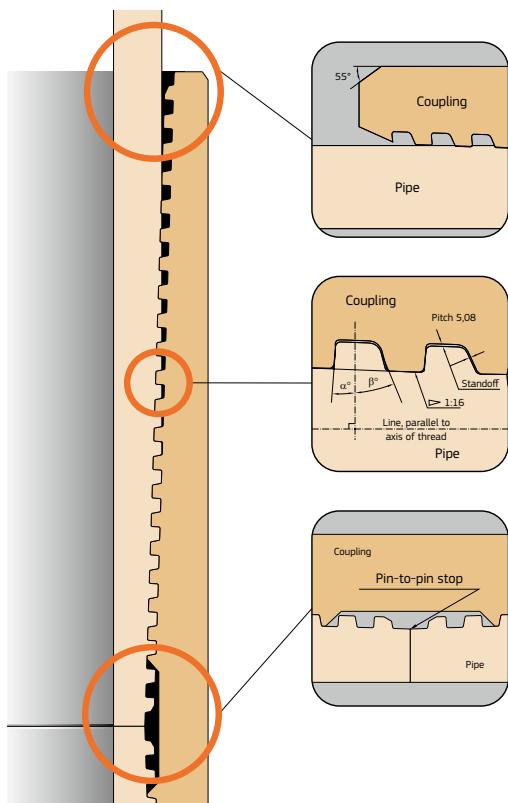
Lite Series

■ Threaded connection

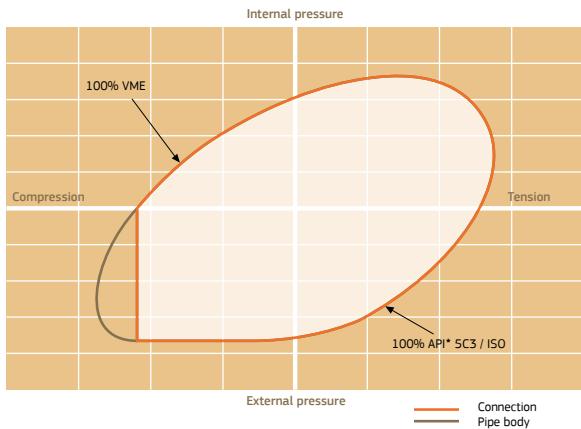
TMK UP SIMPLEX



TMK UP
SIMPLEX



TMK UP SIMPLEX Performance Envelope



TMK UP SIMPLEX

TMK UP Simplex – threaded and coupled connection with increased performance characteristics in reference to Buttress threads. 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
- Protection against overtorque
- Additional sealing barrier
- Compatibility with API Buttress without crossovers

Application:

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

Nominal pipe diameter	Pipe specific weight	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight	Pipe critical cross-section area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of special coupling	Coupling length	Standard API* drift	Length makeup loss	
in	lb/ft	mm	kg/m	kg	kg	mm ²	mm ²	mm ²	mm	mm	mm	mm	mm	
4 1/2	114,3	6,35	16,91	0,34	4,10	-	2 154	2 781	-	101,60	127,00	-	200,00	
		7,37	19,44	0,34	4,10	-	2 476	2 781	-	99,56	127,00	-	200,00	
		8,56	22,32	0,36	4,10	-	2 844	2 781	-	97,18	127,00	-	200,00	
		13,00	19,12	0,40	5,66	-	2 436	3 466	-	114,14	141,30	-	206,40	
		15,00	7,52	22,16	0,41	5,66	4,40	2 823	3 466	-	111,96	141,30	139,00	
		18,00	9,19	26,70	0,42	5,66	-	3 401	3 466	-	108,62	141,30	-	206,40
5	127	21,40	11,10	31,73	0,43	5,66	-	4 042	3 466	-	104,80	141,30	-	206,40
		23,20	12,14	34,39	0,43	5,66	-	4 381	3 466	-	102,72	141,30	-	206,40
		24,10	12,70	35,80	0,43	5,66	-	4 560	3 466	-	101,60	141,30	-	206,40
		15,50	6,98	22,85	0,46	6,24	-	2 910	3 739	-	125,74	153,67	-	210,00
		17,00	7,72	25,13	0,46	6,24	-	3 201	3 739	-	124,26	153,67	-	210,00
		20,00	9,17	29,52	0,47	6,24	-	3 760	3 739	-	121,36	153,67	-	210,00
5 1/2	139,7	23,00	10,54	33,57	0,48	6,24	-	4 277	3 739	-	118,62	153,67	-	210,00
		16,14	7,00	24,00	0,52	8,80	-	3 058	5 454	-	132,05	166,00	-	213,00
		17,68	7,70	26,27	0,52	8,80	-	3 347	5 454	-	130,65	166,00	-	213,00
		19,62	8,50	28,83	0,53	8,80	-	3 673	5 454	-	129,05	166,00	-	213,00
		21,51	9,50	31,99	0,53	8,80	-	4 075	5 454	-	127,05	166,00	-	213,00
		24,01	10,70	35,72	0,54	8,80	-	4 550	5 454	-	124,65	166,00	-	213,00
6 5/8	168,28	20,00	7,32	29,06	0,66	10,00	-	3 702	6 135	-	153,64	187,71	-	219,20
		21,25	8,00	31,62	0,66	10,00	-	4 028	6 135	-	152,28	187,71	-	219,20
		24,00	8,94	35,13	0,66	10,00	-	4 475	6 135	-	150,40	187,71	-	219,20
		28,00	10,59	41,18	0,67	10,00	-	5 246	6 135	-	147,10	187,71	-	219,20
		32,00	12,06	46,46	0,67	10,00	-	5 919	6 135	-	144,16	187,71	-	219,20

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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	Standard API* drift	Length makeup loss
in	lb/ft	mm	kg/m	kg	kg	mm ²	mm ²	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	-
		26.00	9.19	38.21	0.79	12.65	-	4.868	7424	-	159.03	200.03	-
		29.00	10.36	42.78	0.79	12.65	-	5.450	7424	-	157.08	200.03	-
		32.00	11.51	47.20	0.79	12.65	-	6.013	7424	-	154.78	200.03	-
7 5/8	193.68	35.00	12.65	51.52	0.80	12.65	-	6.563	7424	-	152.50	200.03	-
		38.00	13.72	55.52	0.80	12.65	-	7.072	7424	-	150.36	200.03	-
		26.40	8.33	38.08	0.96	14.38	-	4.851	8134	-	177.02	215.90	-
		29.70	9.52	43.24	0.96	14.38	-	5.508	8134	-	174.64	215.90	-
9 5/8	244.48	33.70	10.92	49.22	0.98	14.38	-	6.270	8134	-	171.84	215.90	-
		39.00	12.70	56.68	0.98	14.38	-	7.221	8134	-	168.28	215.90	-
		36.00	8.94	51.93	1.32	21.20	-	6.615	11602	-	226.60	269.88	-
		40.00	10.03	57.99	1.32	21.20	-	7.388	11602	-	224.42	269.88	-
10 3/4	273.05	43.50	11.05	63.61	1.32	21.20	-	8.103	11602	-	222.38	269.88	-
		47.00	11.99	68.75	1.32	21.20	-	8.757	11602	-	220.50	269.88	-
		53.50	13.84	78.72	1.33	21.20	-	10.028	11602	-	216.80	269.88	-
		40.50	8.89	57.91	1.46	24.50	-	7.378	12915	-	255.27	298.45	-
		45.50	10.16	65.87	1.46	24.50	-	8.391	12915	-	252.73	298.45	-
		51.00	11.43	73.75	1.48	24.50	-	9.394	12915	-	250.19	298.45	-
		55.50	12.57	80.75	1.48	24.50	-	10.286	12915	-	247.91	298.45	-
		60.70	13.84	88.47	1.48	24.50	-	11.270	12915	-	245.37	298.45	-

Geometrical parameters of pipes with threaded connection TMK UP Simplex

TMK UP SIMPLEX

Nominal pipe diameter	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
in	mm	kg/m	kg	kg	mm ²	mm ²	mm ²	mm	mm	mm	mm	mm	mm
12 3/4	45.91	8.50	66.10	1.74	29.10	-	8 421	16150	-	306.85	350.52	-	245,00
	50.89	9.50	73.65	1.75	29.10	-	9 382	16150	-	304.85	350.52	-	245,00
	58.78	11.00	84.87	1.75	29.10	-	10 811	16150	-	301.85	350.52	-	245,00
	65.13	12.40	95.24	1.75	29.10	-	12 133	16150	-	299.05	350.52	-	245,00
	72.87	14.00	106.98	1.75	29.10	-	13 628	16150	-	295.85	350.52	-	245,00
	54.50	9.65	78.55	1.82	30.24	-	10 007	15899	-	320.42	365.12	-	245,00
13 3/8	61.00	10.92	88.55	1.82	30.24	-	11 280	15899	-	317.88	365.12	-	245,00
	68.00	12.19	98.46	1.84	30.24	-	12 543	15899	-	315.34	365.12	-	245,00
	72.00	13.06	105.21	1.84	30.24	-	13 403	15899	-	313.60	365.12	-	245,00

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Strength characteristics of pipes with threaded connection TMK UP Simplex

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	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													
			379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035								
4 1/2	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	-	-	-
4 1/2	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	-	-	-
5	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	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	-	-	-
5	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	-	-	-
5	18.00	9.19	1289	1878	2112	2228	2578	2932	-	-	-	48.0	65.9	78.6	82.9	96.0	109.2	-	-	50.9	72.3	79.4	82.8	92.7	102.1	-	-	-
5	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	-	-	-
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	-	-	-
5	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	15.50	6.98	1103	1607	1807	2006	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	-	-	-	
5 1/2	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	-	-	-
5 1/2	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	-	-	-
5 1/2	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 1/2	16.14	7.00	1159	1688	1899	2003	2318	2636	-	-	-	31.8	46.3	52.1	54.9	65.6	72.3	-	-	25.5	30.9	32.3	32.8	34.8	36.8	-	-	-
5 3/4	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	-	-	-
5 3/4	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	-	-	-
5 3/4	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	-	-	-
5 3/4	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	-	-	-

Nominal pipe diameter in	Pipe wall specific weight lb/ft ³	Pipe wall thickness mm	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			Minimum yield strength MPa/ksi			Minimum yield strength MPa/ksi						
			379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
6 5/8	20,00	7,32	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	21,25	8,00	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	24,00	8,94	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	28,00	10,59	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	32,00	12,06	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	23,00	8,05	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
7	26,00	9,19	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	29,00	10,56	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	32,00	11,51	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	35,00	12,65	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	38,00	13,72	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
	26,40	8,33	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035	
7 5/8	29,70	9,52	2087	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	33,70	10,92	2376	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	39,00	12,70	2737	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	36,00	8,94	2507	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	40,00	10,03	2800	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	43,50	11,05	3071	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
9 5/8	47,00	11,99	3319	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035
	53,50	13,84	3801	379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035

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Strength characteristics of pipes with threaded connection TMK UP Simplex

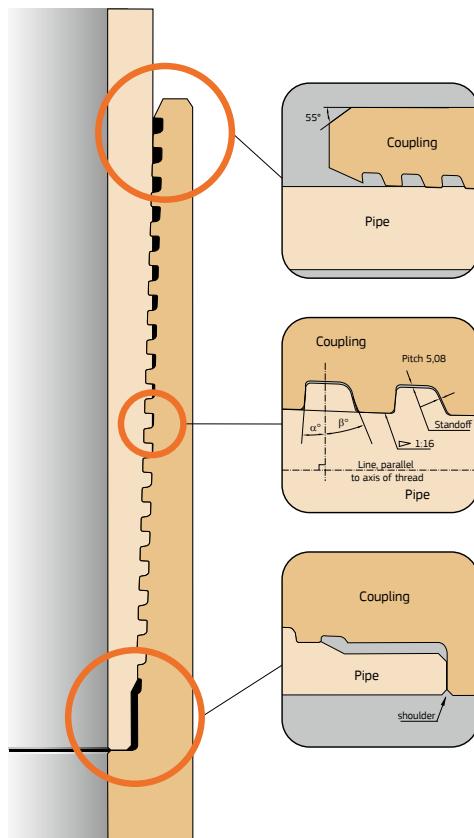
Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Yield Strength in Tension, kN						Minimum Internal Yield Pressure, MPa						Collapse Pressure, MPa					
			Minimum yield strength MPa/ksi						Minimum yield strength MPa/ksi						Minimum yield strength MPa/ksi					
			379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035
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	12.0
45.50	10.16	3180	4632	5211	5496	6360	7233	-	-	24.7	35.9	40.4	42.7	43.4	56.1	-	-	14.4	17.1	17.8
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	24.0
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
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	38.5
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	8.9
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
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
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
72.87	14.00	5165	7523	8463	8826	10350	11747	-	-	28.7	41.8	47.0	49.6	53.3	65.2	-	-	20.2	23.7	25.8
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
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
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
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	19.5

Lite Series

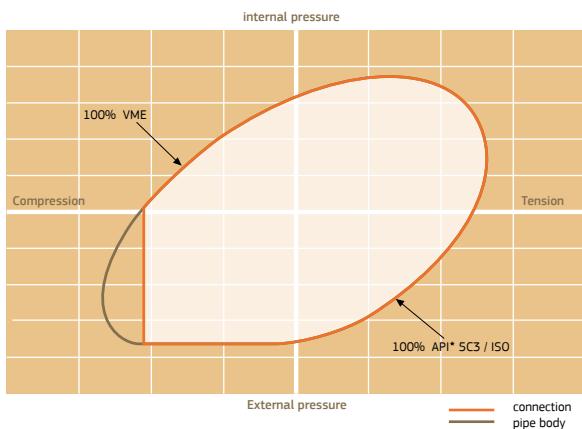
■ Threaded connection
TMK UP CWB



CWB
UP



TMK UP CWB
Performance Envelope



TMK UP CWB

TMK UP CWB – threaded and coupled connection with increased performance characteristics in reference to Buttress threads. 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 difficult 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
- Protection against overtorque
- Additional sealing barrier
- Compatibility with API® Buttress without crossovers
- Robust galling resistance
- Increased fatigue strength

Application:

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

Nominal pipe diameter	Pipe wall thickness	Weight of plain-end pipes	Removed metal weight (both ends)	Coupling weight	Pipe crosssection area	Critical C/S area of coupling	Critical C/S area of special coupling	Inside diameter of coupling	Outside diameter of special coupling	Coupling length	Drift diameter	Length makeup loss
in	mm	lb/ft	kg/m	kg	mm ²	mm ²	mm ²	mm	mm	mm	mm	mm
4	10,70	6,50	15,24	0,85	4,35	3,30	1,942	2,686	1,983	88,60	114,00	110,00
	13,20	8,38	19,27	0,87	4,4	3,35	2,454	2,686	1,983	86,40	114,00	110,00
4 1/2	13,50	7,37	19,44	0,61	5,83	4,60	2,476	2,758	2,132	101,50	127,00	123,82
	15,10	8,56	22,32	0,62	5,91	4,68	2,844	2,758	2,132	99,40	127,00	123,82
5	13,00	6,43	19,12	0,69	7,17	5,13	2,436	3,443	2,400	114,10	141,30	136,52
	15,00	7,52	22,16	0,73	7,17	5,13	2,823	3,443	2,400	114,10	141,30	136,52
5 1/2	18,00	9,19	26,70	0,74	7,3	5,26	3,401	3,443	2,400	111,00	141,30	136,52
	21,40	11,10	31,73	0,74	7,44	5,40	4,042	3,443	2,400	107,50	141,30	136,52
6	23,20	12,14	34,39	0,74	7,53	5,48	4,381	3,443	2,400	105,40	141,30	136,52
	24,10	12,70	35,80	0,74	7,56	5,52	4,560	3,443	2,400	104,40	141,30	136,52
6 1/2	15,50	6,98	22,85	0,8	7,57	5,49	2,910	3,714	2,655	126,60	153,67	149,22
	17,00	7,72	25,13	0,84	7,57	5,49	3,201	3,714	2,655	126,60	153,67	149,22
7	20,00	9,17	29,52	0,84	7,66	5,59	3,760	3,714	2,655	123,90	153,67	149,22
	23,00	10,54	33,57	0,84	7,75	5,67	4,277	3,714	2,655	121,30	153,67	149,22
7 1/2	16,14	7,00	24,00	1,13	11,13	6,17	3,058	5,429	2,900	132,80	166,00	156,00
	17,68	7,70	26,27	1,16	11,13	6,17	3,347	5,429	2,900	132,80	166,00	156,00
8	19,62	8,50	28,83	1,2	11,15	6,19	3,673	5,429	2,900	132,30	166,00	156,00
	21,51	9,50	31,99	1,2	11,2	6,24	4,075	5,429	2,900	130,50	166,00	156,00
8 1/2	24,01	10,70	35,71	1,2	11,27	6,31	4,550	5,429	2,900	128,30	166,00	156,00
	20,00	7,32	29,06	1,08	12,13	6,55	3,702	6,107	3,262	154,70	187,71	177,80
9	21,25	8,00	31,62	1,12	12,13	6,55	4,028	6,107	3,262	154,70	187,71	177,80
	24,00	8,94	35,13	1,13	12,18	6,6	4,475	6,107	3,262	153,20	187,71	177,80
9 1/2	28,00	10,59	41,18	1,14	12,27	6,69	5,246	6,107	3,262	150,10	187,71	177,80
	32,00	12,06	46,46	1,14	12,35	6,77	5,919	6,107	3,262	147,30	187,71	177,80

Geometrical parameters of pipes with threaded connection TMK UP CWB

Nominal pipe diameter	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 special coupling	Coupling length	Drift diameter	Length makeup loss
				Regular	Special								
7	in	mm	lb/ft	kg/mm	kg	kg	mm ²	mm ²	mm	mm	mm	mm	mm
	23.00	805	33.70	1.28	15.55	7.50	4.291	7393	3526	164.00	200.03	187.32	158.32
	26.00	9.19	38.21	1.3	15.62	7.58	4.866	7393	3526	162.20	200.03	187.32	156.24
	29.00	10.36	42.78	1.3	15.71	7.67	5.447	7393	3526	160.00	200.03	187.32	155.90
	32.00	11.51	47.20	1.3	15.8	7.76	6.010	7393	3526	157.80	200.03	187.32	151.60
	35.00	12.65	51.52	1.31	15.88	7.84	6.560	7393	3526	155.80	200.03	187.32	149.32
	38.00	13.72	55.52	1.32	15.97	7.92	7.069	7393	3526	153.80	200.03	187.32	147.18
	42.70	15.88	63.41	1.34	16.11	8.07	8.074	7393	3526	150.00	200.03	187.32	142.86
	46.40	17.45	69.01	1.33	16.24	8.19	8.786	7393	3526	146.80	200.03	187.32	139.72
	29.70	9.52	43.24	1.55	17.57	10.76	5.508	8103	4946	177.40	215.90	206.38	171.46
7 5/8	33.70	10.92	49.22	1.59	17.65	10.84	6.270	8103	4946	175.40	215.90	206.38	168.66
	39.00	12.70	56.68	1.57	17.81	10.99	7.221	8103	4946	171.40	215.90	206.38	165.10
	45.30	15.11	66.54	1.63	17.94	11.12	8.477	8103	4946	168.00	215.90	206.38	160.28
	32.30	7.92	46.20	2.02	27.55	15.17	5.886	11544	6287	230.10	269.88	257.18	224.67
	36.00	8.94	51.93	2.13	27.55	15.17	6.615	11544	6287	230.10	269.88	257.18	200.00
9 5/8	40.00	10.03	57.99	2.14	27.74	15.36	7.388	11544	6287	228.10	269.88	257.18	222.63
	43.50	11.05	63.61	2.15	27.92	15.54	8.103	11544	6287	226.20	269.88	257.18	200.00
	47.00	11.99	68.75	2.15	28.09	15.71	8.757	11544	6287	224.40	269.88	257.18	216.53
	53.50	13.84	78.72	2.17	28.4	16.02	10.028	11544	6287	221.00	269.88	257.18	212.83
	58.40	15.11	85.47	2.18	28.62	16.24	10.888	11544	6287	218.60	269.88	257.18	200.00
	59.40	15.47	87.37	2.18	28.69	16.31	11.130	11544	6287	217.90	269.88	257.18	209.57
	64.90	17.07	95.73	2.19	28.96	16.57	12.195	11544	6287	214.90	269.88	257.18	206.37

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

Strength characteristics of pipes with TMK UP CWB threaded connection

Nominal pipe diameter	Pipe wall specific weight	Yield Strength in Tension, kN				Minimum Internal Yield Pressure, MPa				Collapse Pressure, MPa			
		in	lb/ft	mm	mm	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi	Minimum yield strength MPa / ksi
4	101,60	6.50	55	80	90	95	110	125	140	150	155	80	90
4 1/2	13,20	8.38	930	1355	1524	1607	1860	2115	2285	2371	2540	54.7	79.7
5	18,00	9.19	1299	1878	2134	2305	2392	2562	2727	301	73.9	88.5	97.3
5 1/2	21,40	11,10	1305	1901	2138	2255	2610	2968	3205	3326	3564	63.4	92.3
6	23,00	12,14	1305	1901	2138	2255	2610	2968	3205	3326	3564	66.3	96.6
6 1/2	17,00	7.72	1213	1767	1988	2097	2426	2759	2980	3092	3313	36.7	53.4
7	20,00	9.17	1408	2050	2306	2433	2815	3201	3458	3588	3844	43.5	63.4
7 1/2	23,00	10,54	1408	2050	2306	2433	2815	3201	3458	3588	3844	50.0	72.9
8	16,14	7,00	1159	1688	1899	2003	2318	2636	2847	3165	31.8	46.3	57.3
8 1/2	17,68	7.70	1268	1847	2078	2192	2537	2885	3116	3233	3464	35.0	57.3
9	19,62	8.50	1392	2028	2281	2406	2784	3166	3420	3448	3802	38.6	56.2
9 1/2	21,51	9.50	1545	2250	2531	2669	3089	3513	3794	3937	4218	43.1	62.8
10	24,01	10,70	1724	2511	2825	2980	3449	3922	4236	4395	4709	48.6	70.8
11	20,00	7.32	1403	2043	2299	2424	2806	3191	3446	3576	3831	28.9	42.0
12	21,25	8.00	1527	2224	2502	2639	3053	3472	3750	3891	4169	31.5	45.9
13	24,00	8.94	1696	2470	2779	2931	3392	3858	4166	4323	4632	35.2	51.3
14	28,00	10.59	1988	2896	3258	3436	3977	4522	4884	5068	5430	41.7	60.8
15	32,00	12,06	2243	3367	3676	3877	4486	5102	5510	5718	6126	47.5	69.2

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Nominal pipe diameter in	Pipe wall specific weight lb/ft	mm	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										
				379	552	621	655	758	882	931	966	1035	379	552	621	655	758	882	931	966	1035					
7	23.00	8.05	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	27.8	30.6	32.0	32.6	33.0	
	26.00	9.19	1844	2686	3022	3187	3688	4196	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
	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
	32.00	11.51	2278	3318	3732	3837	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
	35.00	12.65	2486	3621	4074	4297	4972	5655	6107	6337	6790	47.2	68.7	77.3	81.6	94.6	107.3	115.9	120.3	128.9	50.1	70.3	77.1	80.4	89.8	98.7
	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
	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
	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
	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
7 5/8	33.70	10.92	2376	3461	3894	4107	4753	5405	5837	6097	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
	39.00	12.70	2377	3386	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
9 5/8	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
	32.30	7.92	2231	3249	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	
	36.00	8.94	2507	3652	4108	4333	5014	5702	6159	6384	6847	24.3	35.3	39.7	41.9	46.5	55.2	59.6	61.8	66.2	14.0	16.4	16.8	17.0	17.1	17.3
	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	22.4	22.9	23.9	24.3	24.4
	43.50	11.05	3071	4473	5032	5307	6142	6985	7544	7820	8387	30.0	43.7	49.1	51.8	60.0	68.2	73.6	78.3	81.9	22.4	26.3	27.7	28.5	30.5	31.9
	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	32.6	34.5	35.1	36.5	38.9
	53.50	13.84	3801	5536	6227	6668	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
	58.40	15.11	4127	6010	6761	7132	8253	9386	10137	10567	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
	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
	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

Strength characteristics of pipes with TMK UP CWB threaded connection

Nominal pipe diameter in	Pipe wall specific weight lb/ft	Pipe wall thickness mm	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			Minimum yield strength MPa / ksi			Minimum yield strength MPa / ksi			Minimum yield strength MPa / ksi				
10 3/4	40.50	8.89	379	552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035		
	45.50	10.16	55	80	90	95	110	125	135	140	150	155	80	90	95	110	125	135	140	150		
10 3/4	4072	4076	4582	4832	5592	6360	6869	7119	7636	21.6	31.5	35.4	37.3	44.2	49.1	53.0	55.0	59.0	10.9	11.9	12.0	
	55.50	12.57	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	17.8
10 3/4	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
	60.70	13.84	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
10 3/4	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
	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	8.9
12 3/4	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
12 3/4	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
	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
12 3/4	72.87	14.00	5165	7523	8463	8826	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
	54.50	9.65	3792	5524	6214	6554	7585	8626	9316	9666	10557	18.8	27.4	30.9	32.6	37.7	42.9	46.3	48.0	51.4	7.8	8.0
13 3/8	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
	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
	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

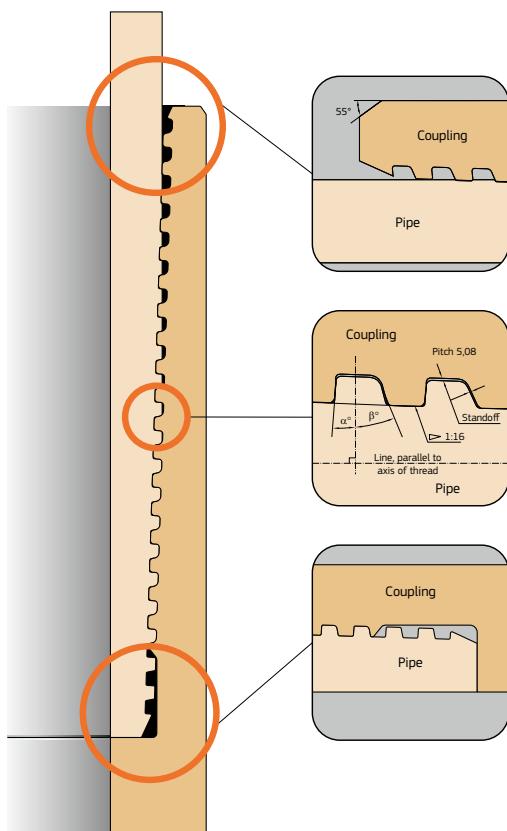
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Lite Series

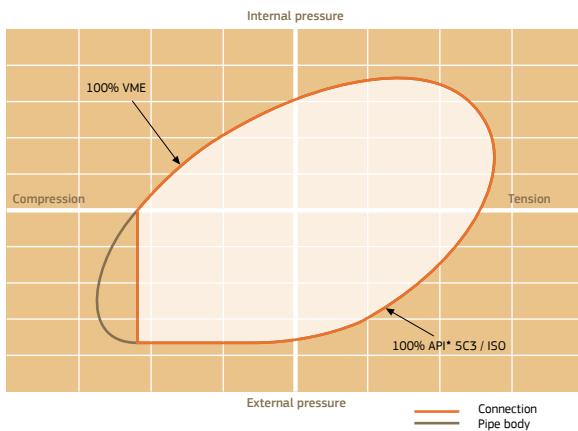
■ Threaded connection
TMK UP CWB II



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 threads. 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
- Protection against overtorque
- Additional sealing barrier
- Compatibility with API* Buttress without crossovers
- Robust galling resistance
- Increased fatigue strength

Application:

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

Nominal pipe diameter in / mm	Pipe wall specific weight lb/ft / kg/m	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
4 1/2 114,3	11,51	6,35	16,61	0,33	4,64	4,26	2154	2012	101,6	127	123,82
	12,39	6,88	18,23	0,35	4,66	4,28	2322	2012	100,5	127	123,82
	13,19	7,37	19,44	0,37	4,68	4,32	2476	2012	99,6	127	123,82
	15,11	8,56	22,32	0,38	4,74	4,36	2844	2639	2012	97,2	123,82
5 127	13,2	6,43	19,12	0,74	8,42	4,29	2436	2268	114,1	141,3	136,52
	15,22	7,52	22,16	0,8	8,46	4,33	2823	2268	112	141,3	136,52
	18,25	9,19	26,7	0,86	8,54	4,41	3401	3311	2268	108,6	141,3
	21,59	11,1	31,73	0,94	8,64	4,51	4042	3311	2268	104,8	141,3
5 1/2 139,7	23,36	12,14	34,39	0,98	8,7	4,57	4381	3311	2268	102,7	141,3
	24,3	12,7	35,8	1,02	8,72	4,59	4560	3311	2268	101,6	141,3
	15,73	6,98	22,85	0,86	9,38	4,8	2910	2910	2509	125,7	153,67
	17,25	7,72	25,13	0,88	9,44	4,86	3201	3201	2509	124,3	153,67
5 3/4 146,05	20,17	9,17	29,52	0,94	9,52	4,94	3760	3588	2509	121,4	153,67
	22,86	10,54	33,57	1	9,62	5,04	4277	3588	2509	118,6	153,67
	16,52	7	24	0,9	9,76	5,29	3058	3058	2760	132,1	166
	18,03	7,7	26,27	0,94	9,8	5,33	3347	3347	2760	130,7	166
21,83	19,73	8,5	28,83	0,98	9,86	5,39	3673	3673	2760	129,1	166
	24,31	9,5	31,99	1,02	9,92	5,45	4075	4075	2760	127,1	166
	10,7	35,72	1,08	10	5,53	4550	4550	2760	124,7	166	156

Geometrical parameters of pipes with threaded connection TMK UP CWB II

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight		Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
					Regular	Special								
6 5/8 28.02	19.96 7.32	29.06 24	1.08 1.16	11.18 11.32	6.02	11.18	3702	3082	153.6	187.71	177.8	233	150.46	106.4
					8.94	35.13	4475	3082	150.4	187.71	177.8	233	147.22	106.4
7 177.8	31.53 10.36	46.46 42.78	1.3 1.04	11.54 14.08	6.38	11.54	5246	5246	147.1	187.71	177.8	233	143.92	106.4
					8.05	33.7	5919	5919	144.2	187.71	177.8	233	140.98	106.4
7 32.16	32.16 11.51	51.52 47.2	1.06 1.06	13.88 14.16	7.25	4293	4293	3341	161.7	200.03	187.32	243	158.52	111.1
					12.65	51.52	1.12	14.26	7.6	6563	3341	159.4	200.03	187.32
7 5/8 192.68	33.6 10.92	56.68 49.22	0.98 0.98	16.28 16.14	9.98	16.28	5450	5450	157.1	200.03	187.32	243	153.9	111.1
					12.7	56.68	0.98	16.28	9.98	7221	3341	154.8	200.03	187.32
9 5/8 244.48	35.81 10.03	63.14 57.99	0.96 -	1.1 -	-	-	5508	5508	174.6	215.9	206.38	252	171.46	115.9
					8.94	51.93	6270	6270	171.8	215.9	206.38	252	168.66	115.9
9 5/8 244.48	39.83 11.05	68.75 68.51	0.98 -	1.1 -	-	-	7221	7221	168.3	215.9	206.38	252	165.1	115.9
					13.84	78.72	8043	7897	165.1	215.9	206.38	252	161.96	115.9
9 5/8 244.48	43.57 11.99	78.72 78.51	-	-	-	-	8103	6027	226.6	269.88	257.18	258	222.63	119.1
					-	-	8157	8157	6027	222.4	269.88	257.18	258	216.53
9 5/8 244.48	53.6 13.84	10028 10028	-	-	-	-	10028	6027	216.8	269.88	257.18	258	212.83	119.1

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Nominal pipe diameter in / mm	Pipe wall specific weight lb/ft / kg/m	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight Regular	Coupling weight Special	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of special coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm		
10 3/4 273,05	39,91 8,89	57,91 1,46	25,68 14,01	7378	6770	255,3	298,45	298,45	258	241,3	119,1				
11,43	45,2	65,87	1,46	25,84	14,17	8391	8391	252,7	298,45	298,45	258	248,76	119,1		
12 3/4 323,85	50,43	73,75	1,48	26	14,33	9394	6770	250,2	298,45	298,45	258	246,22	119,1		
13 3/8 339,72	45,72	85	66,1	1,74	32,07	-	8421	-	306,9	351	-	258	302,88	119,1	
	50,73	9,5	73,65	1,75	32,14	-	9382	-	304,9	351	-	258	300,88	119,1	
	58,18	11	84,87	1,75	32,36	-	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
	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

Strength characteristics of pipes with TMK UP CWB II threaded connection

Nominal pipe diameter	Pipe wall specific weight	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	lb/ft	mm	mm	379	552	621	655	758	802	931	966	1035	379	552	621	655	758	802	931	966	1035								
4 1/2	11.51	6.35	816	1189	1337	1411	1632	1856	2005	2080	2377	2658	379	552	621	655	758	802	931	966	1035								
	12.39	6.88	880	1282	1442	1521	1760	2001	2162	2243	2563	2991	60	55	80	90	95	110	125	135	140	150							
	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	144.3	156.7	157.3	158.1					
	15.11	8.56	1078	1570	1766	1863	2155	2451	2647	2747	3139	49.7	72.3	81	85.8	98.3	113	122	126.6	135.6	152.6	176.5	184.3	198.9	109.2	115.7	118.9	124.9	
	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	98.6	115.5	137.5	138.4	140.3	141.7	143.2	143.9	145
	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	138.4	50	54.1	56	61.1	65.4	67.8	68.9	70.7
5	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
5 1/2	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	112.3	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
	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	133.8	43.3	46.4	47.9	51.5	56.4	56.8	56.3	57.1
	20.17	9.17	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
	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

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Nominal pipe diameter in	Pipe wall specific weight lb/ft ³	Pipe wall thickness mm	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														
			379	552	621	655	758	802	931	966	1035	379	552	621	655	738	802	931	966	1035									
5 3/4	16.52	5.5	80	90	110	125	135	140	150	55	80	90	95	110	125	135	140	150	150										
	18.03	7	1159	1688	1899	2003	2318	2636	2847	2954	3165	3118	463.3	52.1	54.9	63.6	72.3	78.1	81	86.8	25.5	30.9	32.8	34.8	36.8	37.9	38.3	38.9	
	19.73	8.5	1268	1847	2078	2192	2537	2885	3116	3233	3464	35	50.9	57.3	60.4	69.9	79.5	89.1	95.5	31	39	41.5	42.7	45.4	47.3	48	48.2	49.7	
	21.83	9.5	1392	2028	2281	2406	2784	3166	3420	3548	3802	386.6	562.2	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
	24.31	10.7	1724	2511	2825	2880	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
	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	4233	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	82.5	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
	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
7	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	88.9	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	84.2	106.9	112
7 5/8	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	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	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	2137	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	84.9	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	

Strength characteristics of pipes with TMK UP CWB II threaded connection

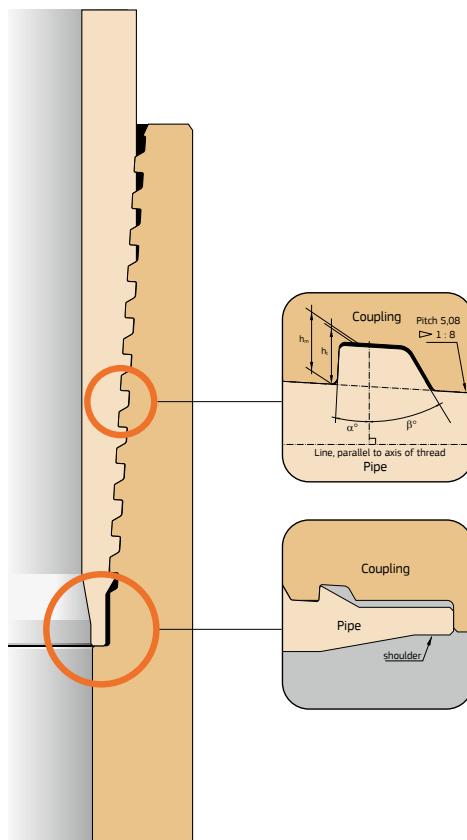
Nominal pipe diameter in	Pipe wall specific weight lb/ft	Pipe wall thickness mm	Yield Strength in Tension, kN			Minimum Internal Yield Pressure, MPa			Collapse Pressure, MPa																				
			Minimum yield strength MPa/ksi 552	621	655	758	862	931	966	1035	379	552	621	655	758	862	931	966	1035										
9 5/8	8.94	2507	3652	4108	4233	5014	5702	6159	6390	6847	24.3	35.3	39.7	41.9	46.5	55.2	59.6	61.8	14	16.4	16.8	17	17.1	17.2	17.3	17.3	17.4		
9 8/8	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	
10 3/4	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
10 7/8	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
11 1/4	53.6	13.64	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
11 5/8	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	12	12.1	12.2	12.3	12.4	12.5	
12 1/8	50.43	11.43	3560	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	17.5	17.6	17.7	17.7
12 3/4	50.73	9.5	3556	4097	5968	6714	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 7/8	58.18	11	3192	4648	5229	5816	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
13 1/8	65.07	12.4	4598	5997	7534	7947	10458	11296	11720	12557	25.4	37	41.6	43.9	50.8	57.8	62.4	66.7	69.4	15.2	18.2	19	19.3	19.6	19.8	19.9	20		
13 3/8	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
13 7/8	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	10.9	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

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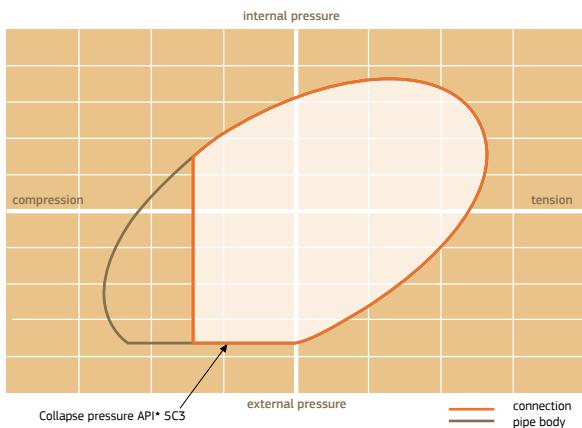
Lite Series

■ Threaded connection
TMK UP MAGNA





TMK UP MAGNA
Performance Envelope



TMK UP MAGNA

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 threads. 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
- Protection against overtorque
- Reduces cross threading and prevents thread jump out
- Robust galling resistance

Application:

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

Nominal pipe diameter in / mm	Pipe wall specific weight lb/ft / kg/m	Weight of plain-end pipes kg	Removed metal weight (both ends) kg	Coupling weight kg	Pipe cross-section area mm ²	Critical C/S area of coupling mm ²	Critical C/S area of special coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
8 5/8 219,08	36,00 40,00	10,16 11,43	5,235 5,53	2,55 2,64	24,65 24,78	14,21 14,34	6 668 7 456	10976 10976	6225 6225	202,40 201,20	244,48 244,48	231,78 231,78
9 5/8 244,48	44,00	12,70	64,64	2,75	24,89	14,45	8 234	10976	6225	200,20	244,48	231,78
9 7/8 250,83	53,50	11,05	57,99	2,82	27,41	15,86	5 886	12184	6926	227,60	269,88	257,18
10 3/4 273,05	66,40	16,79	96,91	3,45	28,71	15,86	7 388	12184	6926	227,60	269,88	257,18
12 3/4 323,85	65,13	14,00	11,99	68,75	27,61	16,05	8 757	12184	6926	226,00	269,88	257,18
	58,40	15,11	85,47	3,42	27,86	16,30	10 888	12184	6926	225,00	269,88	257,18
	62,80	15,88	92,01	3,36	28,71	-	11 721	12395	-	227,50	276,00	-
	72,10	18,29	104,89	3,71	28,95	-	13 362	12395	-	225,50	276,00	-
	45,50	10,16	65,87	3,2	30,48	17,67	8 391	13560	7733	256,40	298,45	285,75
	51,00	11,43	73,75	3,32	30,62	17,81	9 394	13560	7733	255,40	298,45	285,75
	60,70	13,84	88,47	3,65	30,87	18,06	11 270	13560	7733	253,60	298,45	285,75
	65,70	15,11	96,12	3,85	31,01	18,20	12 244	13560	7733	252,60	298,45	285,75
	45,91	8,50	66,10	3,87	38,08	-	8 421	16955	-	306,20	351,00	-
	58,78	11,00	84,87	3,87	38,08	-	10 811	16955	-	306,20	351,00	-
	72,87	14,00	106,98	4,33	38,43	-	13 628	16955	-	304,00	351,00	-

Geometrical parameters of pipes with threaded connection TMK UP MAGNA

Nominal pipe diameter in	Pipe specific weight lb/ft	Pipe wall thickness mm	Weight of plain-end pipes kg/m	Removed metal weight (both ends) kg	Coupling weight kg	Critical C/S area of coupling mm ²	Critical C/S area of coupling mm ²	Inside diameter of coupling mm	Outside diameter of coupling mm	Coupling length mm	Drift diameter mm	Length makeup loss mm
13 3/8 33972	61,00	10,92	88,55	4,06	37,71	-	11 280	16761	-	322,00	365,12	-
	68,00	12,19	98,46	4,23	37,88	-	12 543	16761	-	321,00	365,12	-
	72,00	13,06	105,21	4,38	37,98	-	13 403	16761	-	320,40	365,12	-
14 355,6	82,50	14,27	120,12	6,42	47,7	-	15 302	19345	-	332,00	381,00	-
	94,80	16,66	139,26	7,87	48,1	-	17 740	19345	-	330,40	381,00	-
	75,00	11,13	108,49	5,57	59,88	-	13 821	21168	-	386,30	431,80	-
16 406,4	84,00	12,57	122,09	6,93	52,78	-	15 552	22045	-	383,80	431,80	-
	109,00	16,66	160,13	7,69	53,52	-	20 389	22045	-	381,20	431,80	-
	72,94	10,00	102,59	5,68	54,77	-	13 069	21890	-	405,90	451,00	-
16 7/9 426	79,63	11,00	112,58	5,81	54,77	-	14 341	21890	-	405,90	451,00	-
	86,29	12,00	122,52	5,9	55,23	-	15 607	21890	-	404,80	451,00	-
18 5/8 473,08	87,50	11,05	125,91	6,49	78,83	-	16 039	32091	-	453,00	508,00	-
	96,50	12,32	140,63	6,66	79,27	-	17 833	32091	-	452,00	508,00	-
	94,00	11,13	136,38	6,97	65,66	-	17 374	26343	-	487,70	533,40	-
20 508	106,50	12,70	155,13	8,72	65,5	-	19 762	27418	-	485,00	533,40	-
	133,00	16,13	195,66	9,48	66,25	-	24 925	27418	-	482,80	533,40	-

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Nominal pipe diameter in	Pipe wall specific weight lb/ft	mm	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									
			379	552	621	655	758	802	931	966	1035	379	552	621	655	758	802	931	966	1035	379	552	621	655	758	802	931	966	1035			
8 5/8	36.00	10.16	2527	3681	4141	4368	5055	5748	6208	6435	6902	30.8	44.8	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	5632	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			
	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	12.0	12.1	12.2	12.3	12.4	12.5				
9 5/8	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	24.5				
	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	10319	37.5	54.7	61.5	64.9	75.1	83.4	92.2	95.6	102.5	35.4	45.6	49.1	50.6	54.8	58.1	59.9	60.6	61.8			
9 7/8	58.40	15.11	4127	6010	6761	7132	8253	9386	10137	10507	11269	41.0	59.7	67.2	70.8	85.0	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			
	62.80	15.88	4442	6470	7279	7677	8885	10104	10913	11311	12132	42.0	61.6	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	4898	6842	7697	8119	9395	10684	11540	11961	12829	48.4	70.4	79.2	83.6	96.7	110.0	118.2	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	45.50	10.16	3180	4632	5211	6360	7233	7812	8097	8685	9477	24.7	35.9	40.4	42.7	48.4	56.1	60.6	62.8	67.4	14.4	17.1	17.7	17.9	18.0	17.5	17.6	17.7				
	51.00	11.43	3560	5186	5834	6153	7121	8098	8746	9026	9723	27.8	40.4	45.5	48.0	58.5	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			
12 3/4	65.70	15.11	4661	6759	7604	8020	9281	10555	11399	11816	12673	36.7	53.5	60.1	63.4	75.4	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			
	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	13.7	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			

Strength characteristics of pipes with TMK UP MAGNA threaded connection

Nominal pipe diameter in	Pipe wall specific weight lb/ft	Pipe wall thickness mm	Yield Strength in Tension, kN				Minimum Internal Yield Pressure, MPa				Collapse Pressure, MPa																		
			Minimum yield strength MPa / ksi	552	621	695	758	802	931	966	1035	379	552	621	655	758	802	931	966	1035									
13 3/8	61.00	10.92	55	80	90	95	110	125	135	140	150	55	80	90	95	110	125	135	140	150									
	62.26	7.005	7388	8550	9723	10502	10885	11675	1213	131.1	140	150	55	80	90	95	110	125	135	140	150								
13 3/8	68.00	12.19	4275	6226	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	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	82.50	14.27	5799	8447	9503	10223	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	7972	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	106.4	12.57	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	7.1	7.2	7.3	7.4	7.5	7.6	7.7	
	109.00	16.66	7731	11260	12668	131361	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	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	4.8	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	6.2	6.3	6.4	6.4	6.5	
	86.29	12.00	5915	8615	9602	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	7.9	8.0	8.1	8.1	8.2	
18 5/8	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	4.7	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	6.3	6.4	6.5	6.5	6.6	
	94.00	11.13	6585	9590	10789	111880	13169	14976	16175	17082	14.5	21.2	23.8	25.1	29.1	33.1	35.7	37.0	39.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.4		
20	106.50	12.70	7490	10908	12272	12844	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	5.6	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	10.6	10.7	10.8	10.8	10.9	

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

Reference data

Color coding of steel grades

Steel grade	Pipe type	Color identification				Image	
		Coupling		Pipe	Ring stripes		
		Paint of external surface	Ring stripes (special coupling plus one black stripe)	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 0 type	Tubing	Red	One green	One red, one light 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	1 lb/ft = 1.488 kg/m 1 kg/m = 0.672 lb/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	1 lb(f) = 4,448 N 1 N = 0.225 lb(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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